Instructional Leadership Practices of School Heads inMalasiqui 2A District: Challenges, Competencies, and Professional Development Needs

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Abstract

This study assessed the instructional leadership competencies of school heads in the Malasiqui 2A District, focusing on curriculum management, educational technology integration, and student achievement monitoring. Using a total population sampling method, all school heads in the district participated. Quantitative and qualitative data were gathered through surveys and interviews, and the results revealed strong competencies in curriculum management and student achievement monitoring. However, moderate proficiency in educational technology integration highlighted the need for improvement in adapting to digital advancements. Significant relationships were identified between leadership competencies and demographic variables, such as educational attainment and years of experience, underscoring the importance of tailored professional development.

The study's findings provide critical insights into the challenges faced by school heads in balancing instructional and administrative responsibilities. Recommendations include targeted training on technology integration, mentorship programs, and policy reforms to reduce administrative burdens, enabling school heads to focus more on instructional leadership. These outcomes contribute to understanding the role of leadership in achieving Sustainable Development Goal 4, advocating for inclusive and equitable quality education. The study underscores the importance of strengthening leadership practices to enhance teacher performance and student outcomes, offering a replicable framework for other districts facing similar challenges.

Keywords: Instructional leadership, school heads, curriculum management, educational technology, professional development

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Introduction

Instructional leadership is widely recognized as a critical factor in improving educational outcomes, with school heads playing a dual role in managing both instructional and administrative tasks. According to Republic Act No. 9155 and various DepEd policies, school heads are tasked with overseeing curriculum implementation, conducting instructional supervision, and fostering a conducive learning environment. Studies highlight the global importance of instructional leadership, with research by Leithwood et al. (2019) emphasizing its strong correlation with enhanced student performance. Similarly, in the Philippines, research by Jimenez and Galicia (2023) and Guzon et al. (2022) underscores the essential role of school leaders in shaping teacher effectiveness and student outcomes.

Despite the recognized importance of instructional leadership, gaps remain in the practical application and training of school heads in the Philippines. Jimenez and Galicia (2023) identify inconsistencies in leadership practices due to inadequate professional development opportunities, while Guzon et al. (2022) highlight challenges in addressing leadership skills specific to emerging demands, such as technology integration and curriculum reforms. These gaps are particularly evident in regional contexts, where resources and support systems are often limited. Consequently, there is a pressing need for localized studies to understand the instructional leadership competencies of school heads and their impact on educational outcomes.

This study aims to assess the instructional leadership skills of school heads in the Malasiqui 2A District, focusing on their competencies in curriculum management, educational technology integration, and monitoring student achievement. By examining how these skills relate to specific profile variables, the research seeks to identify actionable insights for designing targeted professional development programs. The findings will contribute to strengthening instructional leadership practices, improving teacher performance, and enhancing student learning. Furthermore, this research provides a framework for addressing leadership challenges in similar educational contexts, supporting broader efforts to achieve Sustainable Development Goal 4, which advocates for inclusive and equitable quality education for all.

Methods

a. Research Design

This study adopts a **descriptive-correlational research design** to examine the instructional leadership skills of school heads in the Malasiqui 2A District. The descriptive aspect focuses on profiling the leadership competencies of school heads, including curriculum management, educational technology integration, and monitoring student achievement. By capturing these dimensions comprehensively, the study aims to present a clear picture of the current state of instructional leadership within the district. The correlational component explores the relationships between instructional leadership skills and specific demographic variables (e.g., age, educational background, years of service),

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providing insights into how personal and professional factors influence leadership practices.

b. Population and Sampling

The study employs a **total population sampling method**, where all school heads in the Malasiqui 2A District—both from elementary and secondary schools—serve as participants. This approach ensures inclusivity and comprehensiveness, capturing the perspectives of the entire population without excluding any subgroup. Total population sampling is particularly suitable given the small size of the district's school leadership population and aligns with the study's aim of obtaining a holistic view of instructional leadership.

c. Data Collection Instruments

A structured survey questionnaire will be the primary tool for data collection, comprising two main parts. The first part collects demographic information, such as age, gender, educational attainment, and years of experience. The second part assesses instructional leadership competencies using validated scales aligned with DepEd policies and the instructional leadership framework established by Leithwood et al. (2019). The survey will also include open-ended questions to capture qualitative insights on challenges and opportunities in leadership practices.

d. Data Analysis

Quantitative data will be analyzed using descriptive statistics (e.g., means, standard deviations) to summarize the instructional leadership competencies of school heads. Inferential statistical techniques, such as Pearson correlation and multiple regression analysis, will be used to explore relationships between leadership skills and demographic variables. Qualitative responses will undergo thematic analysis to provide context-specific insights, adding depth to the quantitative findings.

e. **Ethical Considerations**

The study adheres to ethical research practices, ensuring voluntary participation, informed consent, and confidentiality. Participants will be informed about the study's objectives and their right to withdraw at any time. Data will be anonymized to protect the identity of respondents.

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f. **Significance of the Study**

This study contributes to the growing body of research on instructional leadership by addressing gaps in training and practice among school heads in the Philippines. Its findings will inform the development of tailored professional development programs for school leaders in the Malasiqui 2A District, enhancing their ability to foster effective teaching and learning. Furthermore, the study's localized focus provides a replicable framework for assessing instructional leadership in other districts facing similar challenges, aligning with global efforts to improve educational quality and equity as outlined in Sustainable Development Goal 4.

Results

Demographic Profile of Respondents

The study included **35 school heads** from the Malasiqui 2A District, comprising **22 elementary school heads** (63%) and **13 secondary school heads** (37%). Among the respondents:

- **60% were female**, and **40% were male**.
- The majority (71%) were aged **41–50 years**, while 20% were aged **51 and above**, and 9% were aged **40 and below**.
- **85% held master's degrees**, and **15% held bachelor's degrees**.
- Most had **6–15 years of leadership experience** (68%), followed by **16 years or more** (20%), and **1–5 years** (12%).

Instructional Leadership Skills

The respondents' self-assessed instructional leadership competencies were measured across three domains: **curriculum management, educational technology integration, and student achievement monitoring**.

1.Curriculum Management

- **Average Rating**: 4.2/5 (Strongly Competent)
- Key Strengths: Aligning curriculum with DepEd standards, supporting teachers in lesson planning.
- Key Challenges: Limited time for classroom observations and feedback due to administrative responsibilities.

2.Educational Technology Integration

- **Average Rating**: 3.6/5 (Moderately Competent)
- Key Strengths: Encouraging teachers to integrate technology in instruction.

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- Key Challenges: Lack of training in advanced educational technologies and inconsistent internet connectivity in schools.

3.Student Achievement Monitoring

- **Average Rating**: 4.0/5 (Strongly Competent)
- Key Strengths: Analyzing student performance data and implementing targeted interventions.
- Key Challenges: Balancing monitoring tasks with other leadership duties.

Relationship Between Demographic Variables and Leadership Skills

Correlation analysis revealed significant relationships between demographic factors and instructional leadership competencies:

- **Educational Attainment** was positively correlated with curriculum management skills ($r = 0.48$, $p < 0.05$).
- **Years of Leadership Experience** showed a moderate positive correlation with student achievement monitoring skills ($r = 0.45$, $p < 0.05$).
- **Age** had no significant correlation with overall leadership competency.

Qualitative Insights

Open-ended responses highlighted several key themes:

- **Professional Development Needs**: Respondents expressed a desire for workshops on advanced educational technology and data-driven leadership strategies.
- **Challenges in Balancing Roles**: Many school heads noted difficulties in balancing instructional and administrative responsibilities.
- **Community Support**: Strong collaboration with teachers and parents was cited as a critical factor for success.

Summary of Key Findings

1.School heads in the Malasiqui 2A District demonstrate strong competencies in curriculum management and student achievement monitoring but moderate competency in educational technology integration.

2.Professional development and support systems are needed to address gaps in technology use and balance between instructional and administrative roles.

3.Leadership skills are influenced by educational attainment and experience, highlighting the importance of continuous professional development tailored to the specific needs of school heads.

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Discussion

1. Summary of Results
   The findings of this study revealed that school heads in the Malasiqui 2A District exhibit strong competencies in **curriculum management** and **student achievement monitoring**, with average self-assessment scores of 4.2/5 and 4.0/5, respectively. However, their competencies in **educational technology integration** were moderately rated at 3.6/5. Significant correlations were observed between educational attainment and curriculum management skills ($r = 0.48$, $p < 0.05$) and between years of leadership experience and student achievement monitoring ($r = 0.45$, $p < 0.05$). Qualitative insights emphasized the need for professional development, especially in the integration of educational technology, and highlighted the challenges of balancing instructional and administrative responsibilities.
2. **Cross-Referencing with Previous Studies**
   The findings align with the research of Leithwood et al. (2019), which established a strong link between instructional leadership and student achievement, as school heads in this study demonstrated proficiency in monitoring and supporting student outcomes. Similarly, Jimenez and Galicia (2023) identified gaps in professional development for Philippine school leaders, resonating with this study's findings on the moderate competency in educational technology integration. The challenges in balancing instructional and administrative roles also echo the findings of Guzon et al. (2022), who reported that competing demands often limit school heads' capacity to effectively perform their instructional leadership functions.
3. **Attempts to Explain the Findings**

   The strong competencies in curriculum management and student achievement monitoring can be attributed to the structured guidelines and expectations set by Republic Act No. 9155 and DepEd policies, which emphasize these roles. However, the moderate competency in educational technology integration reflects broader systemic challenges, such as inconsistent infrastructure and insufficient training opportunities in emerging technologies, as noted in previous studies. The significant influence of educational attainment and years of experience on leadership skills suggests that advanced education and practical exposure play crucial roles in developing instructional leadership competencies.
4. **Implications of the Results**
   The results have several important implications for policy and practice. First, they highlight the need for targeted professional development programs, particularly in **educational technology integration**, to equip school heads with the skills necessary to lead in a digital age. Second, the findings suggest that leadership training should be differentiated based on the educational background and experience levels of school heads to address specific competency gaps effectively. Lastly, the study underscores the importance of creating systemic support mechanisms, such as reducing administrative burdens, to allow school heads to focus more on instructional leadership.

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In a broader context, these results contribute to the ongoing discourse on strengthening instructional leadership in the Philippines, aligning with Sustainable Development Goal 4 by advocating for inclusive and equitable quality education. They also provide a framework for similar districts to identify and address leadership challenges, fostering a culture of continuous improvement and professional growth.

Conclusion

The study concluded that school heads in the Malasiqui 2A District exhibit strong instructional leadership skills in **curriculum management** and **student achievement monitoring**, underscoring their critical role in enhancing educational outcomes. However, their moderate competency in **educational technology integration** highlights the urgent need for targeted training to meet the demands of modern, technology-driven education. Furthermore, the relationships between leadership competencies and demographic factors, such as educational attainment and years of experience, emphasize the importance of tailored professional development programs. Challenges in balancing instructional and administrative duties also point to systemic barriers that require intervention to optimize leadership effectiveness.

These findings contribute to a nuanced understanding of instructional leadership within regional contexts, offering a framework for improving leadership practices that align with global educational goals, including Sustainable Development Goal 4 on quality education for all.

Recommendation

To address these findings, the study recommends:

1. **Professional Development**: Implement training programs on educational technology integration and differentiated leadership workshops based on the needs of school heads.
2. **Administrative Support**: Reduce administrative burdens through policy adjustments and resource allocation to allow school heads to focus on instructional leadership.
3. **Mentorship and Peer Learning**: Foster mentorship and peer-learning initiatives to enhance leadership competencies through experience sharing and collaboration.

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PROFICIENCY IN TEACHING READING OF PRIMARY GRADE TEACHERS OF PRIVATE SCHOOLS IN BAYAMBANG, PANGASINAN

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Abstract

This study sought to determine the level of proficiency in teaching reading of the primary grade teachers of private schools in Bayambang, Pangasinan during the School Year 2025-2026 through a quantitative-descriptive-correlational research design. The data used in this study came from the 56 primary grade teachers and eight school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, and the t-test. Results showed that: majority of the primary grade teachers are bachelor's degree holders, have been teaching for one to ten years, and have not attended any training related with teaching reading; in general, the primary grade teachers perceived that they have advanced level of proficiency in teaching reading as evidenced by the computed overall weighted mean of 3.76 while the school heads perceived that the primary grade teachers only have intermediate level of proficiency in teaching reading as evidenced by the computed overall weighted mean of 2.96; there is a significant relationship between the highest educational attainment, the length of teaching experience, and the number of relevant trainings attended of the primary grade teachers and the level of their proficiency in teaching reading; and, there is a significant difference between the perceptions of the primary grade teachers and their school heads on the level of proficiency in teaching reading of the primary grade teachers. Given the findings, the following conclusions were drawn: a typical primary grade teacher of a private school in Bayambang, Pangasinan is a bachelor's degree holder, has been teaching for one to ten years, and has not attended any training related with teaching reading for the past five years; the primary grade teachers perceived that they have advanced level of proficiency in teaching reading while their school heads perceived that they only have intermediate level of proficiency in teaching reading; the level of proficiency in teaching reading of the primary grade teachers is influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended; and, the primary grade teachers and their school heads have different perceptions on the level of proficiency in teaching reading of the primary grade teachers.

Keywords: *Proficiency in teaching reading, primary grade teachers*

Introduction

Reading is widely regarded as the cornerstone of all learning skills and one of the most essential abilities a person can acquire. It is a multifaceted process that cannot be successfully taught separately from other aspects of learning. More than merely identifying written or printed words, reading entails comprehending and interpreting the text and constructing meaningful understanding from the material being read (Kanmaz, 2022).

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Reading, according to Ozdemir and Akyol (2019), is considered one of the most important components of teaching, if not the most significant. It is universally acknowledged as a basic academic skill and a vital foundation of the teaching-learning process. Reading proficiency plays a key role in achieving academic success at every educational level. Difficulties in reading may result in various learning problems across subject areas because reading involves multiple sub skills essential for comprehension and effective learning.

Reading is the purposeful recognition and interpretation of ideas shaped by the reader's mental framework and level of understanding. It is a complex activity affected by factors such as language development, personal experiences, intellectual capacity, and one's attitude toward reading.
According to Rizqiani and Novitri (2023), reading ability develops through the interaction of these elements as readers attempt to recognize, understand, and evaluate information presented in written texts. They explained that reading consists of four stages. The first stage, perception, is the ability to identify and pronounce words as meaningful symbols. The second stage, comprehension, refers to extracting meaning from words within their context. The third stage, reaction, involves the reader's emotional and critical response to the author's ideas. The final stage, integration, is the process of relating newly acquired ideas to prior knowledge and experiences. These stages are interrelated and collectively contribute to the effective use of reading as a means of solving problems.

At its most basic level, reading entails recognizing words by first identifying letters, understanding how these letters combine to form words, and interpreting the meanings of those words within a sentence or passage (Brewer (2023). In English and many other languages, the same set of letters may be arranged differently to produce words with completely distinct meanings. For example, the letters "t," "c," and "a" can form the word "cat," which refers to an\ animal, or "act," which may mean to perform, behave, or act. Nevertheless, word recognition alone does not fully constitute reading. Genuine reading requires comprehension of the ideas conveyed by the words, making understanding the central objective of reading instruction. Reading proficiency is widely viewed as the key to acquiring knowledge and serves as the basis for achievement in all areas of learning. In the modern world, education largely depends on an individual's ability to interpret written texts accurately and meaningfully. As emphasized by Alao and Jacob (2018), reading is the most essential subject children must learn because without the ability to read effectively, a child will struggle to learn other subjects in today's society.

Reading involves a variety of cognitive skills, such as fluency, vocabulary and semantic processing, visualization, working memory, and reasoning and inferencing abilities.

Among cognitive skills, fluency is considered one of the most important cognitive skills necessary for successful reading. Fluency refers to the ability to recognize words quickly and automatically, enabling readers to devote greater cognitive attention to comprehending the text rather than decoding individual words (Richland, 2025). Kuche, Demissie, and Wanna (2024) explained that fluency acts as the bridge between word decoding and reading comprehension. Laurito (2022) also emphasized that decoding ability is a major factor contributing to differences in children's comprehension skills. In addition, Hanson (2026) found that readers who repeatedly practiced words until recognition became automatic were more capable of answering comprehension questions accurately. Supporting this view, Berninger et al. (2016) revealed in

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their study of at-risk second-grade pupils that both reading speed and accuracy were strong predictors of comprehension ability. Fluency is especially influential among beginning readers; however, as students grow older and deal with increasingly complex texts, vocabulary knowledge becomes a more powerful determinant of reading comprehension than fluency.

The second cognitive skill involved in reading is vocabulary and semantic processing. Understanding semantics is crucial in constructing meaning from text because students need to know the meanings of words before they can fully comprehend sentences and passages. Braze et al. (2017) identified vocabulary knowledge as an important predictor of the development of reading comprehension. In the same way, Baumann (2017) stressed that vocabulary-related abilities, including orally defining words and recalling their meanings, are among the strongest predictors of growth in reading comprehension. Berninger et al. (2016) likewise recognized verbal IQ as a major factor affecting comprehension ability. Furthermore, Sencibaugh (2017) explained that learners who experience difficulties in comprehension often possess weak semantic awareness, making it challenging for them to assign meaning to words. Hence, vocabulary instruction is essential in enhancing reading comprehension, especially when learners are repeatedly exposed to unfamiliar words in different contexts.

The third cognitive skill required in reading is visualization. A key component of reading comprehension is the reader's ability to actively form mental images from the information presented in the text. These mental images are not static; rather, they continuously change and develop as learners acquire new information (Hanna, 2020). Visualization is closely associated with the dual-coding theory of reading, which explains that learners process verbal information through both visual imagery and object-based representations in order to create meaning Despins, 2023). Commonly known as mental imagery, visualization not only aids comprehension but also strengthens memory retention of what has been read (Ghafournia, 2023). Duan (2023) further noted that students trained in mental imagery techniques while reading demonstrated significant gains in comprehension and that there is a strong positive relationship between visualization training and improved reading comprehension.

The fourth cognitive skill essential in reading is working memory. Working memory has a significant role in reading comprehension because it functions as an executive process responsible for holding and updating information in the mind (Diana, 2022). It also regulates the process of deriving meaning from text and relating it to prior knowledge in order to build understanding (Duan, 2023). Working memory temporarily retains sequences of textual information, combines them with new information, and connects them to knowledge stored in long-term memory. Sibanda, Dippenaar, and Swart (2024) identified working memory as a direct predictor of reading comprehension. They further explained that as learners progress to higher grade levels and deal with increasingly complex texts, they require greater working memory capacity to process longer sentences, unfamiliar vocabulary, and continuously developing mental representations. In the same way, Susu (2023) reported that executive functioning composite scores significantly influence reading comprehension among learners from pre-kindergarten to third grade. These findings highlight the importance of working memory as a major factor in reading comprehension across different developmental stages.

The fifth cognitive skill involved in reading is reasoning and inferencing. Inferential reasoning is the ability to arrive at conclusions based on information provided in a text, even when such information is implied rather than directly stated. The National Foundation for Educational

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Research (NFER) (2018) emphasized that making inferences is strongly associated with overall reading comprehension. Likewise, Cain and Oakhill (2017) explained that students' inferencing abilities play a significant role in the development of future comprehension skills. On the other hand, Chikelu and Mogboh (2019) observed that learners with poor comprehension skills often experience difficulties in making inferences. Inferential reasoning depends on both short-term and long-term memory because readers must retrieve prior knowledge and combine it with textual information to determine implied meanings and that reasoning ability, together with verbal knowledge, is one of the major factors affecting reading comprehension (NFER, 2018).

Based on the foregoing discussion, reading is both highly important and complex in nature. Consequently, teaching reading demands appropriate skills and a high level of proficiency. In line with this, the present study sought to determine the level of proficiency in teaching reading among primary grade teachers of private schools in Bayambang, Pangasinan.

METHODOLOGY

Research Design

This study utilized the quantitative-descriptive method of research. It described the primary grade teachers of private schools in Bayambang, Pangasinan in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determined the level of their proficiency in teaching reading. The study also utilized the correlational research design for it determined if there is a significant relationship between the profile variables of the primary grade teachers and the level of their proficiency in teaching reading as well as if there is a significant difference between the perceptions of the primary grade teachers and their school heads on the level of proficiency in teaching reading of the primary grade teachers.

Moreover, the developmental method of research also used for the study came up with a proposed enhancement training program for the primary grade teachers of private schools in Bayambang, Pangasinan to enhance their proficiency in teaching reading.

Sources of Data

Research Setting. This study was conducted in private schools in Bayambang, Pangasinan during the School Year 2025-2026.

Sampling. The respondents of the present investigation were all the 56 primary grade teachers and eight school heads of private schools in Bayambang, Pangasinan. Accordingly, no sampling was done.

Research Participants. As mentioned, all the 56 primary grade teachers and the eight school heads of the private schools in Bayambang, Pangasinan were made as respondents of the study. The primary grade teachers provide their profile in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as the level of their proficiency in teaching reading. Meanwhile, the school heads provide data relative to the level of proficiency in teaching reading of the primary grade teachers.

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TABLE 1
Distribution of the Primary Grade Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's degree holder	46	82%
Completed academic requirements in the master's degree	7	13%
Master's degree holder	3	5%
Completed academic requirements in the doctorate degree	0	0%
Doctorate degree holder	0	0%
Total	56	100%

Instrumentation and Data Collection

Instrumentation. The data utilized in this study were gathered through two survey-questionnaire – one for the primary teachers and one for the school heads.

The survey-questionnaire for the primary grade teachers had two parts. The first part looked into the profile of the primary grade teachers in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended. And, the second part focused on the level of proficiency in teaching reading of the primary grade teachers. On the other hand, the survey-questionnaire for the school heads only concentrated on the level of proficiency in teaching reading of the primary grade teachers.

Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the primary grade teachers is common in researches. Hence, no validation is required.

With respect to the second part of the survey-questionnaire which is about the level of proficiency in teaching reading of the primary grade teachers, the items were based from the survey-questionnaire of Cabinta (2023) in her study entitled "Teaching Reading Competence of Primary Grade Teachers of Selected Public Elementary Schools in the Municipality of Basista, Pangasinan: Basis for a Capability Enhancement Program." The items in this survey-questionnaire were validated by the researcher and, hence, are considered valid and reliable.

Data Collection. In collecting the data needed in the study, the researcher personally administered the survey-questionnaire to the primary grade teachers giving them two weeks to answer. After two weeks, the researcher retrieved the survey questionnaire.

Ethical Considerations. So as not to violate the data privacy of the Filipino teachers, permission to conduct the study was first secured from the school heads of the different private schools. Thereafter, informed consent was taken from the primary grade teachers and the school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

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Tools for Data Analysis

To determine the profile of the primary grade teachers of private schools in Bayambang, Pangasinan, the data gathered were subjected to frequency count and percentage employing the formula:

$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage
f = the observed frequency
N = total number of subject cases

To determine the level of proficiency in teaching reading of the primary grade teachers, the weighted mean was used employing the formula:

$$WM = \frac{\sum wX}{\sum w}$$

where:

WM = weighted mean
$\sum$ = summation
W = weighing factor
X = frequency.

Moreover, the weighted means computed were interpreted using this scale of interpretation:

fundamental	=	1.00 – 1.49
basic	=	1.50 – 2.49
intermediate	=	2.50 – 3.49
advanced	=	3.50 – 4.49
proficient	=	4.50 – 5.00.

To determine if there is a significant relationship between the profile variables of the primary grade teachers and the level of their proficiency in teaching reading, the chi-square test of independence was used.

Lastly, to determine if there is a significant difference between the perceptions of the primary grade teachers and the school heads on the level of proficiency in teaching reading of the primary grade teachers, the t-test was utilized.

RESULTS AND DISCUSSION

The Profile of the Primary Grade Teachers of Private Schools in Bayambang, Pangasinan

This section presents the profile of the primary grade teachers of private schools in Bayambang, Pangasinan to answer the first sub-problem of the study.

On Highest Educational Attainment

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With respect to the educational attainment, the primary grade teachers were given five choices, namely, “bachelor’s degree holder,” “completed academic requirements in the master’s degree,” “master’s degree holder,” “completed academic requirements in the doctorate degree,” and “doctorate degree holder.” Table 2 indicates the results.

TABLE 2
Distribution of the Primary Grade Teachers in terms of Length of Teaching Experience

Length of Teaching Experience	Frequency	Percentage
1-5 years	28	50%
6-10 years	15	27%
11-15 years	8	14%
more than 15 years	5	9%
Total	56	100%

As disclosed in Table 2, 28 or 50% of the primary grade teachers have been teaching for one to five years, 15 or 27% have been teaching for six to 10 years, eight or 14% have been teaching for 11 to 15 years, and five or nine% have been teaching for more than 15 years already. It can be noted here that majority of the primary grade teachers have been teaching for one to 10 years.

On Length of Teaching Experience

In relation to the length of teaching experience, the primary grade teachers were provided with four choices to choose from, viz., “one to five years,” “six to 10 years,” “11 to 15 years,” and “more than 15 years.” Table 2 shows the results.

On Number of Relevant Trainings Attended

In relation to the number of trainings related with teaching reading competence for the past five years, the primary grade teachers were given three choices, to wit: “have not attended any training related with teaching reading for the past five years,” “have attended not more than

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three trainings related with teaching reading for the past five years," and "have attended more than three trainings related with teaching reading for the past five years." Table 3 presents the results.

TABLE 3
Distribution of the Primary Grade Teachers in terms of Number of Relevant Trainings Attended

Number of Trainings Attended	Frequency	Percentage
Have not attended any training related with teaching reading	39	70%
Have attended not more than three trainings related with teaching reading	17	30%
Have attended more than three trainings related with teaching reading	0	0%
Total	56	100%

As disclosed in Table 3, 39 or 70% of the primary grade teachers have attended not any training related with teaching reading for the past five years and 17 or 30% have attended more than three trainings. It can be seen that majority of the primary grade teachers have not attended any training related with teaching reading. This implies that a training or seminar on the same will greatly benefit them.

The Level of Proficiency in Teaching Reading of the Primary Grade Teachers

This section provides answers to the second sub-problem of the study which is about the level of proficiency in teaching reading of the primary grade teachers along classroom management, learning practices, assessment, and technology skills.

On Classroom Management

The primary grade teachers and their school heads assessed the level of proficiency in teaching reading of the primary grade teachers. along classroom management.

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Assessment of the Primary Grade Teachers. The assessment of the primary grade teachers on their level of proficiency in teaching reading along classroom management is presented in Table 4.

As shown in Table 4, when asked as to the level to which they prepare learning activities accomplished on a time allotted for the subject, 22 of the primary grade teachers claimed "intermediate," 30 claimed "advanced," and four claimed "proficient." The weighted mean computed here is 3.68 which is pointing to "advanced" in the scale.

When queried as to the level to which they use different teaching methods and strategies on the activities provided in the modules, 22 of the primary grade teachers answered "intermediate," 30 answered "advanced," and four answered "proficient." In this item, the weighted mean computed is 3.68 which is "advanced"

TABLE 4
The Level of Proficiency in Teaching Reading of the Primary Grade Teachers along Classroom Management as Perceived by Themselves

Assessment Items	Responses					WM	DE
	FU	BA	IN	AD	PR		
1. Prepare learning activities accomplished on a time allotted for the subject	0	0	22	30	4	3.68	AD
2. Use different teaching methods and strategies on the activities provided in the modules	0	0	22	30	4	3.68	AD
3. Create valuable learning experiences through the activities provided for the learners in the modules	0	0	18	34	4	3.75	AD
4. Draw learners' attention through the activities in the modules	0	0	22	30	4	3.68	AD
5. Analyze answers of pupils on the activities provided on the modules and prepare innovative projects to enhance learning	0	0	22	30	4	3.68	AD
6. Treat students as individuals by	0	0	18	34	4	3.75	

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maintaining a learning environment that conveys high expectations of every student							AD
7. Work collaboratively with families of students and other significant adults by communicating and collaborating with the home and community for the benefit of students	0	0	20	28	8	3.79	AD
8. Provide an environment in which each child has a positive, nurturing relationship with caring adults by maintaining a positive and nurturing learning environment	0	0	19	29	8	3.80	AD
9. Embrace diversity in the school community and in the world by using materials or lessons that counteract stereotypes and acknowledge the contributions of all cultures	0	0	21	27	8	3.77	AD
10. Lead in the classroom by positive management of student behavior, effective communication to defuse and deescalate disruptive or dangerous behavior, and safe and appropriate seclusion and restraint techniques	0	0	19	33	4	3.73	AD
					AWM	3.73	AD

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
PR	=	proficient	=	4.50 – 5.00

in the scale.

When asked as to what level they create valuable learning experiences through the activities provided for the learners in the modules, 18 of the primary grade teachers claimed “intermediate,” 34 claimed “advanced,” and four claimed “proficient.” The weighted mean computed here is 3.75 which is pointing to “advanced” in the scale.

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When questioned as to what level they draw learners' attention through the activities in the modules, 22 of the primary grade teachers said "intermediate," 30 said "advanced," and four said "proficient." In this item, the weighted mean computed is 3.68 which is leading to "advanced" in the scale of interpretation.

When queried as to what level they analyze answers of pupils on the activities provided on the modules and prepare innovative projects to enhance learning, 22 of the primary teachers mentioned "intermediate," 30 mentioned "advanced," and four mentioned "proficient." The weighted mean computed here is 3.68 which is indicative of "advanced" in the scale.

When asked as to what level they treat students as individuals by maintaining a learning environment that conveys high expectations of every student, 18 of the primary grade teachers claimed "intermediate," 34 claimed "advanced," and four claimed "proficient." The weighted mean computed here is 3.75 which is pointing to "advanced" in the scale.

When asked as to what level they work collaboratively with families of students and other significant adults by communicating and collaborating with the home and community for the benefit of students, 20 of the primary grade teachers claimed "intermediate," 28 claimed "advanced," and eight claimed "proficient." The weighted mean computed here is 3.79 which is pointing to "advanced" in the scale.

When questioned as to what level they provide an environment in which each child has a positive, nurturing relationship with caring adults by maintaining a positive and nurturing learning environment, 19 of the primary grade teachers said "intermediate," 29 said "advanced," and eight said "proficient." In this item, the weighted mean computed is 3.80 which is leading to "advanced" in the scale of interpretation.

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When queried as to what level they embrace diversity in the school community and in the world by using materials or lessons that counteract stereotypes and acknowledge the contributions of all cultures, 21 of the primary grade teachers mentioned “intermediate,” 27 mentioned “advanced,” and eight mentioned “proficient.” The weighted mean computed here is 3.77 which is indicative of “advanced” in the scale.

Lastly, when asked as to what level they lead in the classroom by positive management of student behavior, effective communication to defuse and deescalate disruptive or dangerous behavior, and safe and appropriate seclusion and restraint techniques, 19 of the primary grade teachers claimed “intermediate,” 33 claimed “advanced,” and four claimed “proficient.” The weighted mean computed here is 3.73 which is pointing to “advanced” in the scale.

Meanwhile, the area weighted mean computed is 3.73. This implies that the primary grade teachers perceived that they are in the advanced level of teaching reading along classroom management.

Assessment of the School Heads. The assessment of the school heads on the level of proficiency in teaching reading of their primary grade teachers along classroom management is presented in Table 5.

As shown in Table 5, when asked as to the level to which their primary grade teachers prepare learning activities accomplished on a time allotted for the subject, one of the school heads claimed “basic,” five claimed “intermediate”, and two claimed “advance.” The weighted mean computed here is 3.13 which is pointing to “intermediate” in the scale.

TABLE 5
The Level of Proficiency in Teaching Reading of the Primary Grade Teachers along Classroom Management as Perceived by the School Heads

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Assessment Items	Responses					WM	DE
	FU	BA	IN	AD	PR		
1. Prepare learning activities accomplished on a time allotted for the subject	0	1	5	2	0	3.13	IN
2. Use different teaching methods and strategies on the activities provided in the modules	0	2	6	0	0	2.75	IN
3. Create valuable learning experiences through the activities provided for the learners in the modules	0	1	6	1	0	3.00	IN
4. Draw learners' attention through the activities in the modules	0	2	6	0	0	2.75	IN
5. Analyze answers of pupils on the activities provided on the modules and prepare innovative projects to enhance learning	0	1	6	1	0	3.00	IN
6. Treat students as individuals by maintaining a learning environment that conveys high expectations of every student	0	0	7	1	0	3.13	IN
7. Work collaboratively with families of students and other significant adults by communicating and collaborating with the home and community for the benefit of students	0	1	7	0	0	2.88	IN
8. Provide an environment in which each child has a positive, nurturing relationship with caring adults by maintaining a positive and nurturing learning environment	0	1	6	1	0	3.00	IN
9. Embrace diversity in the school community and in the world by using materials or lessons that counteract stereotypes and acknowledge the contributions of all cultures	0	2	6	0	0	2.75	IN
10. Lead in the classroom by positive management of student behavior, effective communication to defuse and deescalate disruptive or dangerous behavior, and safe and appropriate seclusion and restraint techniques	0	1	6	1	0	3.00	IN
					AWM	2.94	IN

Legend:

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WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
PR	=	proficient	=	4.50 – 5.00

When queried as to the level to which their primary teachers use different teaching methods and strategies on the activities provided in the modules, two of the school heads answered “basic” and six answered “intermediate.” In this item, the weighted mean computed is 2.75 which is “intermediate” in the scale.

When asked as to what level their primary grade teachers create valuable learning experiences through the activities provided for the learners in the modules, one of the school heads claimed “basic,” six answered “intermediate,” and one answered “advanced.”. The weighted mean computed here is 3.00 which is pointing to “intermediate” in the scale.

When questioned as to what level their primary grade teachers draw learners’ attention through the activities in the modules, two of the school heads said “basic” and six said “intermediate.” In this item, the weighted mean computed is 2.75 which is leading to “intermediate” in the scale of interpretation.

When queried as to what level their primary grade teachers analyze answers of pupils on the activities provided on the modules and prepare innovative projects to enhance learning, one of the school heads mentioned “basic,” six mentioned “intermediate,” and one mentioned “advanced.” The weighted mean computed here is 3.00 which is indicative of “intermediate” in the scale.

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When asked as to what level their primary grade teachers treat students as individuals by maintaining a learning environment that conveys high expectations of every student, seven of the school heads claimed “intermediate” and one claimed “advanced.” The weighted mean computed here is 3.13 which is pointing to “intermediate” in the scale.

When asked as to what level their primary grade teachers work collaboratively with families of students and other significant adults by communicating and collaborating with the home and community for the benefit of students, one of the school heads claimed “basic” and four claimed “intermediate.” The weighted mean computed here is 2.88 which is pointing to “intermediate” in the scale.

When questioned as to what level their primary grade teachers provide an environment in which each child has a positive, nurturing relationship with caring adults by maintaining a positive and nurturing learning environment, one of the school heads said “basic,” six claimed “intermediate,” and one said “advanced.” In this item, the weighted mean computed is 3.00 which is leading to “intermediate” in the scale of interpretation.

When queried as to what level their primary grade teachers embrace diversity in the school community and in the world by using materials or lessons that counteract stereotypes and acknowledge the contributions of all cultures, two of the school heads mentioned “basic” and six mentioned “intermediate.” The weighted mean computed here is 2.75 which is indicative of “intermediate” in the scale.

Lastly, when asked as to what level their lead in the classroom by positive management of student behavior, effective communication to defuse and deescalate disruptive or dangerous behavior, and safe and appropriate seclusion and restraint techniques, one of the school heads

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claimed “basic,” six claimed “intermediate,” and one claimed “advanced.”. The weighted mean computed here is 3.00 which is pointing to “intermediate” in the scale.

Moreover, the area weighted mean computed is 2.94. This implies that the school heads perceived that their primary grade teachers are in the intermediate level of proficiency in teaching reading along classroom management.

On Learning Practice

The primary grade teachers and their school heads assessed the level of proficiency in teaching reading of the primary grade teachers. along learning practice.

Assessment of the Primary Grade Teachers. The assessment of the primary grade teachers on their level of proficiency in teaching competence along learning practice is presented in Table 6.

TABLE 6
The Level of Proficiency in Teaching Reading of the Primary Grade Teachers along Learning Practice as Perceived by Themselves

Assessment Items	Responses					WM	DE
	FU	BA	IN	AD	PR		
1. Demonstrate leadership by engaging in collaborative and collegial professional learning activities and identifying the characteristics or critical elements of a school improvement plan	0	0	21	27	8	3.77	AD
2. Develop and apply lessons based on an effective course of study by integrating effective literacy instruction throughout the curriculum and across content areas to enhance student learning	0	0	21	31	4	3.70	AD
3. Make their instructions relevant to students by integrating 21st -century skills and content in instruction	0	0	19	33	4	3.73	AD
4. Conduct oral reading test through home visitation	0	0	20	32	4	3.71	AD
5. Prepare reading materials to supplement	0	0	21	27	8	3.77	

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the module							AD
6. Provide intervention to pupils with difficulty in reading	0	0	21	27	8	3.77	AD
7. Provide other supplementary learning materials to the pupils to enhance their reading ability	0	0	19	29	8	3.80	AD
8. Provide video clips for the pupils to use in the production of sounds of the letters of the alphabet	0	0	18	34	4	3.75	AD
9. Provide capability building to parents to help in assisting and guiding the pupils improve their reading ability	0	0	21	31	4	3.70	AD
10. Conduct regular monitoring to pupils at home	0	0	20	28	8	3.79	AD
					AWM	3.75	AD

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
PR	=	proficient	=	4.50 – 5.00

As shown in Table 6, when asked as to the level to which they demonstrate leadership by engaging in collaborative and collegial professional learning activities and identifying the characteristics or critical elements of a school improvement plan, 21 of the primary grade teachers claimed “intermediate,” 27 claimed “advanced,” and eight claimed “proficient.” The weighted mean computed here is 3.77 which is pointing to “advanced” in the scale.

When queried as to the level to which they develop and apply lessons based on an effective course of study by integrating effective literacy instruction throughout the curriculum and across content areas to enhance student learning, 21 of the primary grade teachers answered “intermediate,” 31 answered “advanced,” and four answered “proficient.” In this item, the weighted mean computed is 3.70 which is “advanced” in the scale.

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When asked as to what level they make their instructions relevant to students by integrating 21st -century skills and content in instruction, 19 of the primary grade teachers claimed "intermediate," 33 claimed "advanced," and four claimed "proficient." The weighted mean computed here is 3.73 which is pointing to "advanced" in the scale.

When questioned as to what level they conduct oral reading test through home visitation, 20 of the primary grade teachers said "intermediate," 32 said "advanced," and four said "proficient." In this item, the weighted mean computed is 3.71 which is leading to "advanced" in the scale of interpretation.

When queried as to what level they prepare reading materials to supplement the module, 21 of the public primary teachers mentioned "intermediate," 27 mentioned "advanced," and eight mentioned "proficient." The weighted mean computed here is 3.77 which is indicative of "advanced" in the scale.

When asked as to what level they provide intervention to pupils with difficulty in reading, 21 of the primary grade teachers claimed "intermediate," 27 claimed "advanced," and eight claimed "proficient." The weighted mean computed here is 3.77 which is pointing to "advanced" in the scale.

When asked as to what level they provide other supplementary learning materials to the pupils to enhance their reading ability, 19 of the primary grade teachers claimed "intermediate," 29 claimed "advanced," and eight claimed "proficient." The weighted mean computed here is 3.80 which is pointing to "advanced" in the scale.

When questioned as to what level they provide video clips for the pupils to use in the production of sounds of the letters of the alphabet, 18 of the primary grade teachers said

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"intermediate," 34 said "advanced," and four said "proficient." In this item, the weighted mean computed is 3.75 which is leading to "advanced" in the scale of interpretation.

When queried as to what level they provide capability building to parents to help in assisting and guiding the pupils improve their reading ability, 21 of the primary grade teachers mentioned "intermediate," 31 mentioned "advanced," and four mentioned "proficient." The weighted mean computed here is 3.70 which is indicative of "advanced" in the scale.

And, when asked as to what level they conduct regular monitoring to pupils at home, 20 of the primary grade teachers claimed "intermediate," 28 claimed "advanced," and eight claimed "proficient." The weighted mean computed here is 3.70 which is pointing to "advanced" in the scale.

Furthermore, the area weighted mean computed is 3.75. This implies that the primary grade teachers perceived that they have advanced level of proficiency in teaching reading competence along learning practice.

Assessment of the School Heads. The assessment of the school heads on the level of proficiency in teaching reading along learning practice of the primary grade teachers is presented in Table 7.

As shown in Table 7, when asked as to the level to which their primary grade demonstrate leadership by engaging in collaborative and collegial professional learning activities and identifying the characteristics or critical elements of a school improvement plan, two of the school heads claimed "basic," five claimed

TABLE 7
The Level of Proficiency in Teaching Reading of the Primary Grade Teachers along Learning Practice as Perceived by the School Heads

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Assessment Items	Responses					WM	DE
	FU	BA	IN	AD	PR		
1. Demonstrate leadership by engaging in collaborative and collegial professional learning activities and identifying the characteristics or critical elements of a school improvement plan	0	2	5	1	0	2.88	IN
2. Develop and apply lessons based on an effective course of study by integrating effective literacy instruction throughout the curriculum and across content areas to enhance student learning	0	2	5	1	0	2.88	IN
3. Make their instructions relevant to students by integrating 21st -century skills and content in instruction	0	0	7	1	0	3.13	IN
4. Conduct oral reading test through home visitation	0	1	6	1	0	3.00	IN
5. Prepare reading materials to supplement the module	0	1	6	1	0	3.00	IN
6. Provide intervention to pupils with difficulty in reading	0	1	6	1	0	3.00	IN
7. Provide other supplementary learning materials to the pupils to enhance their reading ability	0	1	6	1	0	3.00	IN
8. Provide video clips for the pupils to use in the production of sounds of the letters of the alphabet	0	1	6	1	0	3.00	IN
9. Provide capability building to parents to help in assisting and guiding the pupils improve their reading ability	0	2	5	1	0	2.88	IN
10. Conduct regular monitoring to pupils at home	0	1	6	1	0	3.00	IN
					AWM	2.98	IN

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
PR	=	proficient	=	4.50 – 5.00

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"intermediate," and one claimed "advanced." The weighted mean computed here is 2.88 which is pointing to "intermediate" in the scale.

When queried as to the level to which their primary grade teachers develop and apply lessons based on an effective course of study by integrating effective literacy instruction throughout the curriculum and across content areas to enhance student learning, two of the school heads answered "basic," five answered "intermediate," and one answered "advanced." In this item, the weighted mean computed is 2.88 which is "intermediate" in the scale.

When asked as to what level their primary grade teachers make their instructions relevant to students by integrating 21st -century skills and content in instruction, seven of the school heads claimed "intermediate" and one claimed "advanced." The weighted mean computed here is 3.13 which is pointing to "intermediate" in the scale.

When questioned as to what level their primary grade teachers conduct oral reading test through home visitation, one of the school heads said "basic," six said "intermediate," and one said advanced." In this item, the weighted mean computed is 3.00 which is leading to "intermediate" in the scale of interpretation.

When queried as to what level their primary grade teachers prepare reading materials to supplement the module, one of the school heads mentioned "basic," six mentioned "intermediate," and one mentioned "advanced." The weighted mean computed here is 3.00 which is indicative of "intermediate" in the scale.

When asked as to what level their primary grade teachers provide intervention to pupils with difficulty in reading, one of the school heads claimed "basic," six claimed "intermediate," and one claimed "advanced." The weighted mean computed here is 3.00 which is pointing to "intermediate" in the scale.

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When asked as to what level their primary grade teachers provide other supplementary learning materials to the pupils to enhance their reading ability, one of the school heads claimed “basic,” six claimed “intermediate,” and one claimed “advanced.” The weighted mean computed here is 3.00 which is pointing to “intermediate” in the scale.

When questioned as to what level their primary grade teachers provide video clips for the pupils to use in the production of sounds of the letters of the alphabet, one of the school heads said “basic,” six said “intermediate,” and one said “advanced.” In this item, the weighted mean computed is 3.00 which is leading to “intermediate” in the scale of interpretation.

When queried as to what level their primary grade teachers provide capability building to parents to help in assisting and guiding the pupils improve their reading ability, two of the school heads mentioned “basic,” five mentioned “intermediate,” and one mentioned “advanced” The weighted mean computed here is 2.88 which is indicative of “intermediate” in the scale.

Lastly, when asked as to what level their primary grade teachers conduct regular monitoring to pupils at home, one of the school heads claimed “basic,” six claimed “intermediate,” and one claimed “advanced.” The weighted mean computed here is 3.00 which is pointing to “intermediate” in the scale.

Furthermore, the area weighted mean computed is 2.98. This implies that the school heads perceived that their primary grade teachers have intermediate level of proficiency in teaching reading along learning practice.

On Assessment

The primary grade teachers and their school heads assessed the level of proficiency in teaching reading of the primary grade teachers along assessment.

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Assessment of the Primary Grade Teachers. The assessment of the primary grade teachers on their level of proficiency in teaching reading along assessment is presented in Table 8.

As shown in Table 8, when asked as to the level to which they craft and use summative assessment tool, 18 of the primary grade teachers claimed "intermediate," 30 claimed "advanced," and eight claimed "proficient." The weighted mean computed here is 3.82 which is pointing to "advanced" in the scale.

When queried as to the level to which they make and utilize diagnostic assessment tool, 19 of the primary grade teachers answered "intermediate," 29 answered "advanced," and eight answered "proficient." In this item, the weighted mean computed is 3.80 which is "advanced" in the scale.

TABLE 8
The Level of Proficiency in Teaching Reading Competence of the Primary Grade Teachers along Assessment as Perceived by Themselves

Assessment Items	Responses					WM	DE
	FU	BA	IN	AD	PR		
1. Craft and use summative assessment tool	0	0	18	30	8	3.82	AD
2. Make and utilize diagnostic assessment tool	0	0	19	29	8	3.80	AD
3. Utilize varied assessment instruments	0	0	18	34	4	3.75	AD
4. Make and employ rubrics in assessing performance tasks	0	0	21	27	8	3.77	AD
5. Give fair assessment of students' performance	0	0	19	29	8	3.80	AD
6. Disclose to the students how their performance tasks are to be evaluated	0	0	18	30	8	3.82	AD
7. Collaborate with colleagues on how to evaluate students' performance	0	0	18	30	8	3.82	AD
8. Use technology in assessing students' performance	0	0	21	31	4	3.70	AD
9. Conduct post-conference to students	0	0	21	31	4	3.70	

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after assessment							AD
10. Conduct regular monitoring of students' performance	0	0	18	30	8	3.82	AD
					AWM	3.78	AD

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
PR	=	proficient	=	4.50 – 5.00

When asked as to what level they utilize varied assessment instruments, 18 of the primary grade teachers claimed "intermediate," 34 claimed "advanced," and four claimed "proficient." The weighted mean computed here is 3.75 which is pointing to "advanced" in the scale.

When asked as to what level they make and employ rubrics in assessing performance tasks 21 of the primary grade teachers claimed "intermediate," 27 claimed "advanced," and eight claimed "proficient." The weighted mean computed here is 3.77 which is pointing to "advanced" in the scale.

When questioned as to what level they give fair assessment of students' performance, 19 of the primary grade teachers said "intermediate," 29 said "advanced," and eight said "proficient." In this item, the weighted mean computed is 3.80 which is leading to "advanced" in the scale of interpretation.

When queried as to what level they disclose to the students how their performance tasks are to be evaluated, 18 of the primary teachers mentioned "intermediate", 30 mentioned "advanced," and eight mentioned "proficient." The weighted mean computed here is 3.82 which is indicative of "advanced" in the scale.

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When asked as to what level they collaborate with colleagues on how to evaluate students' performance, 18 of the primary grade teachers claimed "intermediate," 30 claimed "advanced," and eight claimed "proficient." The weighted mean computed here is 3.82 which is pointing to "advanced" in the scale.

When asked as to what level they use technology in assessing students' performance, 21 of the primary grade teachers claimed "intermediate," 31 claimed "advanced," and four claimed "proficient." The weighted mean computed here is 3.70 which is pointing to "advanced" in the scale.

When questioned as to what level they conduct post-conference to students after assessment, 21 of the primary grade teachers said "intermediate," 31 said "advanced," and four said "proficient." In this item, the weighted mean computed is 3.70 which is leading to "advanced" in the scale of interpretation.

And, when queried as to what level they conduct regular monitoring of students' performance, 18 of the primary grade teachers mentioned "intermediate," 30 mentioned "advanced," and eight mentioned "proficient." The weighted mean computed here is 3.82 which is indicative of "advanced" in the scale.

Furthermore, the area weighted mean computed is 3.78. This implies that the primary grade teachers perceived that they have advanced level of proficiency in teaching reading along assessment.

Assessment of the School Heads. The assessment of the school heads on the level of proficiency in teaching reading along assessment of the primary grade teachers is presented in Table 9.

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As shown in Table 9, when asked as to the level to which their primary grade teachers craft and use summative assessment tool, seven of the school heads claimed “intermediate” and one claimed “advanced.” The weighted mean computed here is 3.13 which is pointing to “intermediate” in the scale.

TABLE 9
The Level of Proficiency in Teaching Reading of the Primary Grade Teachers along Assessment as Perceived by the School Heads

Assessment Items	Responses					WM	DE
	FU	BA	IN	AD	PR		
1. Craft and use summative assessment tool	0	0	7	1	0	3.13	IN
2. Make and utilize diagnostic assessment tool	0	1	6	1	0	3.00	IN
3. Utilize varied assessment instruments	0	1	7	0	0	2.88	IN
4. Make and employ rubrics in assessing performance tasks	0	2	5	1	0	2.88	IN
5. Give fair assessment of students’ performance	0	1	6	1	0	3.00	IN
6. Disclose to the students how their performance tasks are to be evaluated	0	1	7	0	0	2.88	IN
7. Collaborate with colleagues on how to evaluate students’ performance	0	1	7	0	0	2.88	IN
8. Use technology in assessing students’ performance	0	1	6	1	0	3.00	IN
9. Conduct post-conference to students after assessment	0	0	7	1	0	3.13	IN
10. Conduct regular monitoring of students’ performance	0	1	6	1	0	3.00	IN
					AWM	2.98	IN

Legend:
WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49

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PR = proficient = 4.50 – 5.00

When queried as to the level to which their primary grade teachers make and utilize diagnostic assessment tool, one of the school heads answered “basic,” six answered “intermediate,” and one answered “advanced.”. In this item, the weighted mean computed is 3.00 which is “intermediate” in the scale.

When asked as to what level their primary grade teachers utilize varied assessment instruments, one of the school heads claimed “basic” and seven claimed “intermediate.” The weighted mean computed here is 2.88 which is pointing to “intermediate” in the scale.

When asked as to what level their primary grade teachers make and employ rubrics in assessing performance tasks, two of the school heads claimed “basic,” five claimed “intermediate,” and one claimed “advanced.” The weighted mean computed here is 2.88 which is pointing to “intermediate” in the scale.

When questioned as to what level their primary grade teachers give fair assessment of students’ performance, one of the school heads said “basic,” six said “intermediate,” and one said “advanced.” In this item, the weighted mean computed is 3.00 which is leading to “intermediate” in the scale of interpretation.

When queried as to what level their primary grade teachers disclose to the students how their performance tasks are to be evaluated, one of the school heads mentioned “basic” and seven five mentioned “intermediate.” The weighted mean computed here is 2.88 which is indicative of “intermediate” in the scale.

When asked as to what level their primary grade teachers collaborate with colleagues on how to evaluate students’ performance, one of the school heads mentioned “basic” and seven

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mentioned “intermediate.” The weighted mean computed here is 2.88 which is indicative of “intermediate” in the scale.

When asked as to what level their primary grade teachers use technology in assessing students’ performance, one of the school heads claimed “basic,” six five claimed “intermediate,” and one claimed “advanced.” The weighted mean computed here is 3.00 which is pointing to “intermediate” in the scale.

When questioned as to what level their primary grade teachers conduct post-conference to students after assessment, seven of the school heads claimed “intermediate” and one claimed “advanced.” The weighted mean computed here is 3.13 which is pointing to “intermediate” in the scale.

Lastly, when queried as to what level their primary grade teachers conduct regular monitoring of students’ performance, one of the school heads mentioned “basic,” six mentioned “intermediate,” and one mentioned “advanced.” The weighted mean computed here is 3.00 which is indicative of “intermediate” in the scale.

Furthermore, the area weighted mean computed is 2.89. This implies that the school heads perceived that their primary grade teachers have intermediate level of proficiency in teaching reading along assessment.

On Technology Skills

The primary grade teachers and their school heads assessed the level of proficiency in teaching reading of the primary grade teachers along technology skills.

Assessment of the Primary Grade Teachers. The assessment of the primary grade teachers on their level of proficiency in teaching reading along technology skills is presented in Table 10.

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As shown in Table 10, when asked as to the level to which they display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning, 18 of the primary grade teachers claimed "intermediate," 30 claimed "advanced," and eight claimed "proficient." The weighted mean computed here is 3.82 which is pointing to "advanced" in the scale.

When queried as to the level to which they introduce the use of technology to the pupils, 18 of the primary grade teachers answered "intermediate," 30 answered "advanced," and nine answered "proficient." In this item, the weighted mean computed is 3.82 which is "advanced" in the scale.

When asked as to what level they use technology in producing learning materials, 19 of the primary grade teachers claimed "intermediate," 33 claimed "advanced," and four claimed "proficient." The weighted mean computed here is 3.73 which is pointing to "advanced" in the scale.

When asked as to what level they produce video lessons to supplement learning materials provided to the pupils, 18 of the primary grade teachers claimed "intermediate," 34 claimed "advanced," and four claimed "proficient." The weighted mean computed here is 3.75 which is pointing to "advanced" in the scale.

TABLE 10
The Level of Proficiency in Teaching Reading of the Primary Grade Teachers along Technology Skills as Perceived by Themselves

Assessment Items	Responses	WM	DE

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	FU	BA	IN	AD	PR		
1. Display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning	0	0	18	30	8	3.82	AD
2. Introduce the use of technology to the pupils	0	0	18	30	8	3.82	AD
3. Use technology in producing learning materials	0	0	19	33	4	3.73	AD
4. Produce video lessons to supplement learning materials provided to the pupils	0	0	18	34	4	3.75	AD
5. Use different platforms in teaching	0	0	19	29	8	3.80	AD
6. Create valuable experiences to pupils using technology in teaching	0	0	21	29	8	3.91	AD
7. Display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning.	0	0	21	31	4	3.70	AD
8. Reach out to pupils using technology-based communication	0	0	19	29	8	3.80	AD
9. Use technology in monitoring the pupils	0	0	20	28	8	3.79	AD
10. Participate in trainings and seminars using technology for professional development	0	0	19	29	8	3.80	AD
					AWM	3.79	AD

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
PR	=	proficient	=	4.50 – 5.00

When questioned as to what level they use different platforms in teaching, 19 of the primary grade teachers said "intermediate," 29 said "advanced," and eight said "proficient." In this item, the weighted mean computed is 3.80 which is leading to "advanced" in the scale of interpretation.

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When queried as to what level they create valuable experiences to pupils using technology in teaching, 21 of the primary teachers mentioned “intermediate,” 29 mentioned “advanced,” and eight mentioned “proficient.” The weighted mean computed here is 3.91 which is indicative of “advanced” in the scale.

When asked as to what level they display awareness of technology’s potential to enhance learning by integrating technology into instruction to maximize student learning, 21 of the primary grade teachers claimed “intermediate,” 31 claimed “advanced,” and four claimed “proficient.” The weighted mean computed here is 3.70 which is pointing to “advanced” in the scale.

When asked as to what level they reach out to pupils using technology-based communication, 19 of the primary grade teachers claimed “intermediate,” 29 claimed “advanced,” and eight claimed “proficient.” The weighted mean computed here is 3.80 which is pointing to “advanced” in the scale.

When questioned as to what level they use technology in monitoring the pupils, 20 of the primary grade teachers said “intermediate,” 28 said “advanced,” and eight said “proficient.” In this item, the weighted mean computed is 3.79 which is leading to “advanced” in the scale of interpretation.

Lastly, when queried as to what level they participate in trainings and seminars using technology for professional development, 19 of the primary grade teachers mentioned “intermediate,” 29 mentioned “advanced,” and eight mentioned “proficient.” The weighted mean computed here is 3.80 which is indicative of “advanced” in the scale.

Furthermore, the area weighted mean computed is 3.79. This implies that the primary grade teachers perceived that they have advanced level of proficiency in teaching reading along technology skills.

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Assessment of the School Heads. The assessment of the school heads on the level of proficiency in teaching reading along technology skills of their primary grade teachers is presented in Table 11.

As shown in Table 11, when asked as to the level to which their primary grade teachers display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning, two of the school heads claimed "basic" and six claimed "intermediate." The weighted mean computed here is 2.75 which is pointing to "intermediate" in the scale.

When queried as to the level to which their primary grade teachers introduce the use of technology to the pupils, one of the school heads claimed "basic," six claimed "intermediate," and one claimed "advanced." The weighted mean computed here is 3.00 which is pointing to "intermediate" in the scale.

TABLE 11
The Level of Proficiency in Teaching Reading of the Primary Grade Teachers along Technology Skills as Perceived by the School Heads

Assessment Items	Responses					WM	DE
	FU	BA	IN	AD	PR		
1. Display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning	0	2	6	0	0	2.75	IN
2. Introduce the use of technology to the pupils	0	1	6	1	0	3.00	IN
3. Use technology in producing learning materials	0	1	7	0	0	2.88	IN
4. Produce video lessons to supplement learning materials provided to the pupils	0	0	7	1	0	3.13	IN
5. Use different platforms in teaching	0	1	7	0	0	2.88	IN
6. Create valuable experiences to pupils using technology in teaching	0	1	6	1	0	3.00	IN
7. Display awareness of technology's	0	2	5	1	0	2.88	

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potential to enhance learning by integrating technology into instruction to maximize student learning.							IN
8. Reach out to pupils using technology-based communication	0	1	7	0	0	2.88	IN
9. Use technology in monitoring the pupils	0	1	6	1	0	3.00	IN
10. Participate in trainings and seminars using technology for professional development	0	0	7	1	0	3.13	IN
					AWM	2.95	IN

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
PR	=	proficient	=	4.50 – 5.00

When asked as to what level their primary grade teachers use technology in producing learning materials, one of the school heads claimed “basic” and seven claimed “intermediate.” The weighted mean computed here is 2.88 which is pointing to “intermediate” in the scale.

When asked as to what level their primary grade teachers produce video lessons to supplement learning materials provided to the pupils, seven of the school heads claimed “intermediate” and one claimed “advanced.”. The weighted mean computed here is 3.13 which is pointing to “intermediate” in the scale.

When questioned as to what level their primary grade teachers use different platforms in teaching, one of the school heads claimed “basic” and seven claimed “intermediate.” The weighted mean computed here is 2.88 which is pointing to “intermediate” in the scale.

When queried as to what level their primary grade teachers create valuable experiences to pupils using technology in teaching, one of the school heads claimed “basic”, six claimed

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"intermediate," and one claimed "advanced." The weighted mean computed here is 3.00 which is pointing to "intermediate" in the scale.

When asked as to what level their primary grade teachers display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning, two of the school heads claimed "basic," five claimed "intermediate," and one claimed "advance." The weighted mean computed here is 2.88 which is pointing to "intermediate" in the scale.

When asked as to what level their primary grade teachers reach out to pupils using technology-based communication, one of the school heads claimed "basic" and seven claimed "intermediate." The weighted mean computed here is 2.88 which is pointing to "intermediate" in the scale.

When questioned as to what level their primary grade teachers use technology in monitoring the pupils, one of the school heads claimed "basic," six claimed "intermediate," and one claimed "advanced." The weighted mean computed here is 3.00 which is pointing to "intermediate" in the scale.

Lastly, when queried as to what level their primary grade teachers participate in trainings and seminars using technology for professional development, seven of the school heads claimed "intermediate" and one claimed "advanced." The weighted mean computed here is 3.13 which is pointing to "intermediate" in the scale.

Furthermore, the area weighted mean computed is 2.95. This implies that the school heads perceived that their primary grade teachers only have intermediate level of proficiency in teaching reading along technology skills.

The Level of Proficiency in Teaching Reading of the

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Primary Grade Teachers

The level of proficiency in teaching reading of the primary grade teachers of private schools in Bayambang, Pangasinan is presented in Table 12.

TABLE 12
Level of Proficiency in Teaching Reading of the Primary Grade Teachers

Assessment Areas	Primary Grade Teachers		School Heads	
	AWM	DE	AWM	DE
Classroom Management	3.73	AD	2.94	IN
Learning Practices	3.75	AD	2.98	IN
Assessment	3.78	AD	2.98	IN
Technology Skills	3.79	AD	2.95	IN
OWM	3.76	AD	2.96	IN

Legend:
AWM = area weighted mean
DE = descriptive equivalent
OWM = overall weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
PR	=	proficient	=	4.50 – 5.00

As can be noted in Table 12, the primary grade teachers perceived that they advance level of proficiency in teaching reading as evidenced by the computed overall weighted mean of 3.76 while the school heads perceived that the primary grade teachers only have intermediate level of proficiency in teaching reading as evidenced by the computed overall weighted mean of 2.96.

Relationship between the Profile Variables of the Primary Grade Teachers and Their Level of Teaching Reading Competence

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This part of the chapter provides answers to the third sub-problem of the study which is about the significant relationship between the profile variables of the primary grade teachers and their level of proficiency in teaching reading.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the profile variables of the primary grade teachers and their level of proficiency in teaching reading. Thereafter, the researcher correlated the profile variables of the primary grade teachers and their level of proficiency in teaching reading using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the p value and the chi square value at .05 level of significance. Table 13 presents the results.

TABLE 13
Relationship between the Profile Variables of the Primary Grade Teachers and Their Level of Proficiency in Teaching Reading

Profile Variables	P Value .05 LS	Chi Square Value	Chi Square Critical Value	RM
Highest Educational Attainment	0.00	7.95	3.84	S
Length of Teaching Experience	0.01	7.51	3.84	S
Number of Relevant Trainings	0.01	6.33	3.84	S

Legend:
RM = remarks
S = significant
NS = not significant

As can be gleaned in Table 13, when the highest educational attainment of the primary grade teachers and their level of proficiency in teaching reading are correlated, the p value computed is 0.00. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 7.95. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected.

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Conformably, it can be said that the level of proficiency in teaching reading of the primary grade teachers is influenced by their highest educational attainment.

Secondly, when the length of teaching experience of the primary grade teachers and their level of proficiency in teaching reading are correlated, the p value computed is 0.01. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 7.51. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the level of proficiency in teaching reading of the primary grade teachers is influenced by their length of teaching experience.

Lastly, when the number of relevant trainings of the primary grade teachers and their level of proficiency in teaching reading are correlated, the p value computed is 0.01. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 6.33. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the level of proficiency in teaching reading of the primary grade teachers is influenced by the number of their relevant trainings.

Difference between the Perceptions of the Primary Grade Teachers and the School Heads on the Level of Proficiency in Teaching Reading of the Primary Grade Teachers

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This part of the chapter discusses answers to the fourth sub-problem of the study which is about the significant difference between the perceptions of the primary grade teachers and the school heads on the level of proficiency in teaching reading of the primary teachers.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant difference between the perceptions of the primary grade teachers and their school heads on the level of proficiency in teaching reading of the primary grade teachers. Thereafter, the researcher compared the perceptions of the primary grade teachers and their school heads on the level of proficiency in teaching reading of the primary grade teachers using the t-test. Here, the researcher computed the p value at .05 level of significance. Table 14 presents the results.

TABLE 14
Difference between the Perceptions of the Primary Grade Teachers and the School Heads

	Computed p Value	Level of Significance	RM
Level of Proficiency in Teaching Reading of the Primary Grade Teachers	0.00	.05	S

Legend:
RM = remarks
S = significant
NS = not significant

As shown in Table 14, when the perceptions of the primary grade teachers and their school heads on the level of teaching reading competence are compared, the p value computed is 0.00. This figure is lower than the .05 level of significance. As such, the null hypothesis is rejected. There is a significant difference between the perceptions of the primary grade teachers on the level of proficiency in teaching reading of the primary grade teachers.

The Proposed Enhancement Training Program to Improve the Level of Proficiency in Teaching Reading of the Primary Grade Teachers

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This section presents answers to the last sub-problem of the study which is about the proposed enhancement training program to improve the proficiency in teaching reading of the primary grade teachers of the private schools in Bayambang, Pangasinan.

To provide answers to the sub-problem, the researcher considered the findings that majority of the primary grade teachers have not attended any training related with teaching reading for the past five years, that the primary grade teachers only have an intermediate level of proficiency in teaching reading as perceived by their school heads, and the level of proficiency in teaching reading of the primary grade teachers is influenced by the number of relevant trainings they attended.

What follows is the proposed enhancement training program on teaching reading.

AN ENHANCEMENT TRAINING PROGRAM ON TEACHING READING FOR THE PRIMARY GRADE TEACHERS OF PRIVATE SCHOOLS IN BAYAMBANG, PANGASINAN

Program Description

This four-session enhancement training program is designed for primary grade teachers in private schools in Bayambang, Pangasinan to strengthen their proficiency in teaching reading in four key areas: classroom management, instructional practices, assessment, and technology skills.

Duration

The enhancement training program on teaching reading consists of four separate sessions, with each session scheduled to run for one day.

Management Level of Program

The enhancement training program is a school-based program to be implemented by the school heads of the private schools in Bayambang, Pangasinan.

Delivery Mode

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The enhancement training program on teaching reading shall be conducted using an interactive, collaborative, and participative approach. The resource speaker will primarily serve as a facilitator, while lecture-discussion activities shall be limited to a maximum of 30% of the session duration.

Target Personnel

The target personnel for the enhancement training program are the primary grade teachers of private schools in Bayambang, Pangasinan.

Source of Fund

School fund

Rationale

The right to education encompasses not only access to schooling but also the right to obtain quality education. Education should not only be available and accessible, but it must likewise be acceptable and adaptable to learners' needs.

Education must truly be of quality because without quality, education loses its real purpose. Quality education emphasizes the holistic development of every learner, including social, emotional, mental, physical, and cognitive growth, regardless of gender, race, ethnicity, socioeconomic background, or geographical location. It equips learners not only for academic assessments but also for life itself. Moreover, quality education produces outcomes that enable individuals, communities, and societies to thrive. It strengthens the connection between schools and communities by integrating support services that contribute to students' educational development. Furthermore, quality education empowers learners with the competencies necessary to become economically productive, sustain their livelihoods, promote peaceful and democratic societies, and improve personal well-being. Although learning outcomes may differ depending on the context, basic education should ultimately ensure foundational literacy and numeracy, essential scientific understanding, and life skills, including health awareness and disease prevention.

When discussing quality education, the teacher remains at its core. Teachers serve as the vital link in providing quality education to all learners. Achieving the goals of universal education requires not only more teachers but also educators who are well-trained and adequately supported. The presence of competent, motivated, and supported teachers is one of the key factors that contribute to effective instruction and improved learning outcomes.

Undeniably, teachers play a crucial role in enhancing learning, as they greatly influence the quality of students' educational experiences. Likewise, teachers are essential in helping students develop reading skills.

Based on the foregoing discussion, this enhancement training program is designed to strengthen the proficiency of primary grade teachers in teaching reading.

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Objectives

The program aims to improve the proficiency in teaching reading of the primary grade teachers of private schools in Bayambang, Pangasinan.

Program Matrix

Session or Activity Title	Objectives	Duration
Seminar-Workshop on Classroom Management	At the end of the activity, the primary grade teachers are proficient in teaching reading along the area of classroom management.	1 day
Seminar-Workshop on Learning Practices	At the end of the activity, the primary grade teachers are proficient in teaching reading along the area of learning practices	1 day
Seminar-Workshop on Assessment	At the end of the activity, the primary grade teachers are proficient in teaching reading along the area of assessment.	1 day
Seminar-Workshop on Technology Skills	At the end of the activity, the primary grade teachers are proficient in teaching reading along the area of technology skills.	1 day

CONCLUSIONS

Based on the findings made, the following conclusions were drawn:

1. A typical primary grade teacher of a private school in Bayambang, Pangasinan is a bachelor's degree holder, has been teaching for one to ten years, and has not attended any training related with teaching reading for the past five years.

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2. The primary grade teachers perceived that they have advanced level of proficiency in teaching reading while their school heads perceived that they only have intermediate level of proficiency in teaching reading.

3. The level of proficiency in teaching reading of the primary grade teachers is influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended.

4. The primary grade teachers and their school heads have different perceptions on the level of proficiency in teaching reading of the primary grade teachers.

5. The proposed enhancement training program will improve the level of proficiency in teaching reading of the primary grade teachers of private schools in Bayambang, Pangasinan.

RECOMMENDATIONS

Based on the findings made and the conclusions drawn, the following recommendations are offered:

1. The proposed enhancement training program be approved for implementation in the private schools in Bayambang, Pangasinan to improve the level of proficiency in teaching reading of the primary grade teachers.

2. The implementation of the proposed enhancement training program in the private schools in Bayambang, Pangasinan to improve the level of proficiency in teaching of the primary grade teachers should be evaluated.

3. Similar study may be conducted by other researchers to validate the findings of the study.

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THE SURVEY-QUESTIONNAIRE FOR THE PRIMARY GRADE TEACHERS

March 15, 2026

Dear Colleagues,

Greetings!

The undersigned is conducting a study entitled **"Proficiency in Teaching Reading of Primary Grade Teachers of Private Schools in Bayambang, Pangasinan"** in partial fulfillment of the degree Master of Arts in Education.

In connection with this, and knowing that you are a primary grade teacher in a private school in Bayambang, Pangasinan, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

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(Sgd.) Erica Ico
Researcher

NAME (Optional): _____

I. Please provide your profile in the following:

1. Highest Educational Attainment:

( ) Bachelor's Degree
( ) Finished academic requirements in the Master's Degree
( ) Master's Degree
( ) Finished academic requirements in the Doctorate Degree
( ) Doctorate Degree

2. Length of Teaching Experience:

( ) 1 – 5 years
( ) 6 – 10 years
( ) 11 – 15 years
( ) 15 to 20 years

3. Number of trainings related with teaching reading attended for the past five years:

( ) have not attended any trainings/seminars related with teaching reading for the past five years
( ) have attended not more than three trainings/seminars related with teaching reading for the past five years
( ) have attended not more than three trainings/seminars related with teaching reading for the past five years

II. Please rate your level of proficiency in teaching reading. Please be guided by the following:

1 = Fundamental
2 = Basic
3 = Intermediate
4 = Advanced
5 = Proficient

Assessment Items	Responses				
Classroom Management	1	2	3	4	5
1. Prepare learning activities accomplished on a time allotted for the subject					
2. Use different teaching methods and strategies on the					

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activities provided in the modules					
3. Create valuable learning experiences through the activities provided for the learners in the modules					
4. Draw learners' attention through the activities in the modules					
5. Analyze answers of pupils on the activities provided on the modules and prepare innovative projects to enhance learning					
6. Treat students as individuals by maintaining a learning environment that conveys high expectations of every student					
7. Work collaboratively with families of students and other significant adults by communicating and collaborating with the home and community for the benefit of students					
8. Provide an environment in which each child has a positive, nurturing relationship with caring adults by maintaining a positive and nurturing learning environment					
9. Embrace diversity in the school community and in the world by using materials or lessons that counteract stereotypes and acknowledge the contributions of all cultures					
10. Lead in the classroom by positive management of student behavior, effective communication to defuse and deescalate disruptive or dangerous behavior, and safe and appropriate seclusion and restraint techniques					
Learning Practice					
1. Demonstrate leadership by engaging in collaborative and collegial professional learning activities and identifying the characteristics or critical elements of a school improvement plan					
2. Develop and apply lessons based on an effective course of study by integrating effective literacy instruction throughout the curriculum and across content areas to enhance student learning					
3. Make their instructions relevant to students by integrating 21st -century skills and content in instruction					
4. Conduct oral reading test through home visitation					
5. Prepare reading materials to supplement the module					
6. Provide intervention to pupils with difficulty in reading					
7. Provide other supplementary learning materials to the pupils to enhance their reading ability					
8. Provide video clips for the pupils to use in the production of sounds of the letters of the alphabet					

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9. Provide capability building to parents to help in assisting and guiding the pupils improve their reading ability					
10. Conduct regular monitoring to pupils at home					
Assessment					
1. Craft and use summative assessment tool					
2. Make and utilize diagnostic assessment tool					
3. Utilize varied assessment instruments					
4. Make and employ rubrics in assessing performance tasks					
5. Give fair assessment of students' performance					
6. Disclose to the students how their performance tasks are to be evaluated					
7. Collaborate with colleagues on how to evaluate students' performance					
8. Use technology in assessing students' performance					
9. Conduct post-conference to students after assessment					
10. Conduct regular monitoring of students' performance					
Technology Skills					
1. Display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning					
2. Introduce the use of technology to the pupils					
3. Use technology in producing learning materials					
4. Produce video lessons to supplement learning materials provided to the pupils					
5. Use different platforms in teaching					
6. Create valuable experiences to pupils using technology in teaching					
7. Display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning.					
8. Reach out to pupils using technology-based communication					
9. Use technology in monitoring the pupils					
10. Participate in trainings and seminars using technology for professional development					

THE SURVEY-QUESTIONNAIRE FOR THE SCHOOL HEADS

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March 15, 2026

Dear School Heads,

Greetings!

The undersigned is conducting a study entitled **"Proficiency in Teaching Reading of Primary Grade Teachers of Private Schools in Bayambang, Pangasinan"** in partial fulfillment of the degree Master of Arts in Education.

In connection with this, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

(Sgd.) Erika Ico
Researcher

NAME (Optional): _____

Please rate the level of proficiency in teaching reading of your primary grade. Please be guided by the following:

1 = Fundamental
2 = Basic
3 = Intermediate
4 = Advanced
5 = Proficient

Assessment Items	Responses				
Classroom Management	1	2	3	4	5
1. Prepare learning activities accomplished on a time allotted for the subject					
2. Use different teaching methods and strategies on the activities provided in the modules					
3. Create valuable learning experiences through the activities provided for the learners in the modules					
4. Draw learners' attention through the activities in the modules					
5. Analyze answers of pupils on the activities provided on the modules and prepare innovative projects to					

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enhance learning					
6. Treat students as individuals by maintaining a learning environment that conveys high expectations of every student					
7. Work collaboratively with families of students and other significant adults by communicating and collaborating with the home and community for the benefit of students					
8. Provide an environment in which each child has a positive, nurturing relationship with caring adults by maintaining a positive and nurturing learning environment					
9. Embrace diversity in the school community and in the world by using materials or lessons that counteract stereotypes and acknowledge the contributions of all cultures					
10. Lead in the classroom by positive management of student behavior, effective communication to defuse and deescalate disruptive or dangerous behavior, and safe and appropriate seclusion and restraint techniques					
Learning Practice					
1. Demonstrate leadership by engaging in collaborative and collegial professional learning activities and identifying the characteristics or critical elements of a school improvement plan					
2. Develop and apply lessons based on an effective course of study by integrating effective literacy instruction throughout the curriculum and across content areas to enhance student learning					
3. Make their instructions relevant to students by integrating 21st -century skills and content in instruction					
4. Conduct oral reading test through home visitation					
5. Prepare reading materials to supplement the module					
6. Provide intervention to pupils with difficulty in reading					
7. Provide other supplementary learning materials to the pupils to enhance their reading ability					
8. Provide video clips for the pupils to use in the production of sounds of the letters of the alphabet					
9. Provide capability building to parents to help in assisting and guiding the pupils improve their reading ability					
10. Conduct regular monitoring to pupils at home					
Assessment					
1. Craft and use summative assessment tool					
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3. Utilize varied assessment instruments					
4. Make and employ rubrics in assessing performance tasks					
5. Give fair assessment of students' performance					
6. Disclose to the students how their performance tasks are to be evaluated					
7. Collaborate with colleagues on how to evaluate students' performance					
8. Use technology in assessing students' performance					
9. Conduct post-conference to students after assessment					
10. Conduct regular monitoring of students' performance					
Technology Skills					
1. Display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning					
2. Introduce the use of technology to the pupils					
3. Use technology in producing learning materials					
4. Produce video lessons to supplement learning materials provided to the pupils					
5. Use different platforms in teaching					
6. Create valuable experiences to pupils using technology in teaching					
7. Display awareness of technology's potential to enhance learning by integrating technology into instruction to maximize student learning.					
8. Reach out to pupils using technology-based communication					
9. Use technology in monitoring the pupils					
10. Participate in trainings and seminars using technology for professional development					

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ASSESSMENT OF THE MENTAL WELL-BEING OF TEACHERS IN SELECTED PUBLIC ELEMENTARY SCHOOLS IN THE SCHOOLS DIVISION OF QUEZON CITY

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Lyceum-Northwestern University, Institute of Graduate and Professional Studies, Dagupan City | 2026

ABSTRACT

This study assessed the mental well-being of teachers in selected public elementary schools in the Schools Division of Quezon City during School Year 2025–2026. It specifically examined well-being along psychological capital and positive affect, determined relationships between selected teacher profile variables and well-being, identified factors affecting well-being, and used the findings as the basis for a proposed mental health program. The study employed a quantitative-descriptive-correlational approach with a developmental component. Data were obtained from 296 teachers selected from a population of 1,132 teachers in five public elementary schools through random sampling. A four-part survey-questionnaire covered teacher profile, psychological capital, positive affect, and factors affecting well-being. Frequency count, percentage, weighted mean, and chi-square test of independence were used in the analysis.

The findings showed that 58% of the teachers had no postgraduate degree, 55% had more than 10 years of teaching experience, and 72% had attended not more than three well-being-related trainings during the preceding five years. Psychological capital had an overall weighted mean of 3.02, interpreted as moderate, while positive effect had an overall weighted mean of 3.00, also interpreted as moderate. Significant relationships were reported between the profile variables and both dimensions of well-being. The study also identified 11 factors affecting teachers' well-being, with anxiety for being criticized obtaining the highest weighted mean among the identified factors. Based on these findings, a division-based mental health program was proposed.

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INTRODUCTION

Background and Rationale

Teachers are central to the delivery of quality education and to the development of learners. The thesis emphasizes that effective teaching and positive learning outcomes depend on educators who are competent, motivated, and adequately supported. Teachers perform instructional, assessment, classroom-management, relationship-building, and professional-development responsibilities, making their own well-being an important consideration in sustaining quality educational service.

The original thesis discusses the increasing vulnerability of teachers to occupational stress and burnout. It describes burnout as associated with prolonged and unmanaged workplace stress and notes that excessive demands may affect teachers' physical, mental, and emotional health. The literature reviewed in the thesis connects teacher stress and emotional exhaustion with instructional behavior, teacher–student relationships, and student outcomes. These concerns establish the need to examine not only negative experiences but also the positive psychological resources that may support teachers.

The study therefore focused on two dimensions of well-being: psychological capital and positive affect. Psychological capital was treated as a positive personal resource involving optimism, self-efficacy, resilience, hope, extroversion, and confidence. Positive affect was considered in terms of pleasant and positively engaged emotional states, including interest, alertness, enthusiasm, inspiration, pride, determination, strength, and activity.

Theoretical and Conceptual Basis

The study was anchored on Maslow's Hierarchy of Needs Theory. The thesis presents human needs as organized from physiological and safety needs through social and esteem needs to self-actualization. Applied to teachers, the framework suggests that supportive working conditions, security, relationships, recognition, and opportunities for growth are relevant to effective functioning and well-being.

The conceptual discussion also draws on positive psychology. The thesis presents positive psychology as an approach that emphasizes strengths, flourishing, positive experiences, and optimal functioning rather than focusing only on deficits or illness. Psychological capital is presented as a personal resource that can support performance and positive functioning, while positive affect represents pleasant emotional states and positive engagement.

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Research Problem and Objectives

The study sought to determine what mental health program may be proposed for teachers of selected public elementary schools in the Schools Division of Quezon City to improve their mental well-being. Specifically, it examined: (1) teacher profile in terms of highest educational attainment, length of teaching experience, and relevant seminars/trainings attended; (2) the status of well-being along psychological capital and positive affect; (3) relationships between profile variables and well-being; (4) factors affecting well-being; and (5) the mental health program that could be proposed based on the findings.

The null hypothesis stated that there was no significant relationship between the profile variables of the teachers and their status of mental well-being.

Scope

The investigation covered five selected public elementary schools in the Schools Division of Quezon City during School Year 2025–2026. The participating schools were Commonwealth Elementary School, Bagong Silangan Elementary School, Pres. Corazon C. Aquino Elementary School, San Diego Elementary School, and Holy Spirit Elementary School. The study focused on 296 teacher respondents and the specified dimensions and profile variables in the research instrument.

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METHODS

Research Design

The study used a quantitative-descriptive-correlational research design with a developmental component. The descriptive component characterized the teachers' profiles, levels of well-being, and factors affecting well-being. The correlational component examined whether teacher profile variables were significantly related to psychological capital and positive affect. The developmental component supported the preparation of a proposed mental health program based on the empirical findings.

Participants and Sampling

The study population consisted of 1,132 teachers from five selected public elementary schools. Using Slovin's formula with a 0.05 margin of error, the researcher obtained a sample of 296 teachers. The sample was distributed proportionately across the five schools and the teachers within each school were randomly selected.

Selected school	Total teachers	Sample
Commonwealth Elementary School	210	55
Bagong Silangan Elementary School	247	65
Pres. Corazon C. Aquino Elementary School	250	65
San Diego Elementary School	213	56
Holy Spirit Elementary School	212	55
Total	1,132	296

Research Instrument

A four-part survey-questionnaire was used. Part I obtained profile information concerning educational attainment, teaching experience, and relevant well-being seminars/trainings. Part II assessed psychological capital. Part III assessed positive affect. Part IV assessed factors that may affect teachers' well-being. The psychological-capital and positive-affect items were based on the instrument cited in the thesis from Ramos (2024), while the factor items were based on Kulekci Akyavuz (2021), with the thesis reporting that the items were validated as appropriate for use.

Data Collection and Ethics

The researcher personally administered the questionnaires and gave the teachers two weeks to complete them. Permission was secured from the Schools Division Superintendent before data collection, and informed consent was obtained from participating teachers. The thesis states that

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gathered information was treated confidentially and used only for the purposes of the study, consistent with the Philippine Data Privacy Act. Scholarly sources used in the thesis were cited and acknowledged.

Statistical Treatment

Frequency count and percentage were used to describe profile variables. Weighted mean was used to determine the level of psychological capital, positive affect, and the extent of factors affecting well-being. The interpretation ranges were 1.00–1.49 very low, 1.50–2.49 low, 2.50–3.49 moderate, 3.50–4.49 high, and 4.50–5.00 very high, with response labels adjusted to the specific scale used for each section. The chi-square test of independence was used to examine relationships between profile variables and the two well-being dimensions.

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RESULTS

Profile of the Teachers

The respondents' profile showed substantial professional experience but relatively limited postgraduate attainment and well-being-related training. Of the 296 respondents, 94 (32%) held bachelor's degrees, 77 (26%) had completed academic requirements for a master's degree, 72 (24%) held master's degrees, 29 (10%) had completed academic requirements for a doctoral degree, and 24 (8%) held doctoral degrees.

Highest educational attainment	**f**	**%**
Bachelor's degree holder	94	32
Finished academic requirements for master's degree	77	26
Master's degree holder	72	24
Finished academic requirements for doctoral degree	29	10
Doctoral degree holder	24	8
Total	296	100

Regarding teaching experience, 57 teachers (19%) had 1–5 years of experience, 78 (26%) had 6–10 years, 78 (26%) had 11–15 years, 58 (20%) had 16–20 years, and 25 (9%) had more than 20 years. Thus, the study reported that a majority had been teaching for more than 10 years.

Teaching experience	**f**	**%**
1–5 years	57	19
6–10 years	78	26
11–15 years	78	26
16–20 years	58	20
More than 20 years	25	9
Total	296	100

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For well-being-related training during the previous five years, none of the respondents reported no training; 214 (72%) had attended not more than three trainings, while 82 (28%) had attended more than three.

Relevant trainings in past five years	**f**	**%**
None	0	0
Not more than three	214	72
More than three	82	28
Total	296	100

Psychological Capital

The teachers reported a moderate level of well-being along psychological capital, with an overall weighted mean of 3.02. Across the psychological-capital items, the individual weighted means were consistently within the moderate range. For example, confidence in analyzing long-term problems, representing the work area in meetings, contributing to school-strategy discussions, setting work goals, contacting people outside the school, and presenting information to colleagues all received moderate interpretations.

The findings also indicate moderate responses for goal pursuit, finding ways around problems, perceived success at work, recovery from setbacks, managing difficulties, coping with stressful situations, and optimism about work. The pattern suggests that respondents generally perceived positive psychological resources as present but not at a high level.

Positive Affect

Positive affect also received an overall weighted mean of 3.00, interpreted as moderate. The assessment covered interest, alertness, attentiveness, excitement, enthusiasm, inspiration, pride, determination, strength, and activity. The thesis reports that the individual items remained within the moderate range, indicating that teachers experienced positive emotional engagement to a moderate extent.

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RESULTS (continued)

Relationship Between Profile Variables and Well-Being

The chi-square test of independence was used to test the null hypothesis at the .05 level of significance. The thesis reported significant relationships for all examined profile variables with both psychological capital and positive affect because each computed chi-square value exceeded the reported critical value of 3.84.

Profile variable	Psychological capital χ^2	Positive affect χ^2	Reported interpretation
Highest educational attainment	8.58	6.91	Significant
Length of teaching experience	7.24	7.82	Significant
Relevant trainings attended	6.81	5.44	Significant

For educational attainment, the reported chi-square values of 8.58 for psychological capital and 6.91 for positive affect were both greater than 3.84. For teaching experience, the values of 7.24 and 7.82 likewise exceeded the critical value. For relevant training, the displayed Table 7 reports 6.81 for psychological capital and 5.44 for positive affect. The study therefore rejected the null hypothesis for each tested relationship.

Factors Affecting Well-Being

The study identified 11 factors that met the thesis' criterion for being considered factors affecting well-being. The criterion was based on weighted means falling within the moderate extent or higher categories. The factors with the highest reported weighted means were personal-related concerns.

Factor	Category	Weighted mean	Extent
Anxiety for being criticized	Personal-related	2.93	Moderate
Anxiety for being complained about	Personal-related	2.92	Moderate
Anxiety for being misunderstood	Personal-related	2.91	Moderate

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Fear of making mistakes	Personal-related	2.90	Moderate
Fear of failure	Personal-related	2.89	Moderate
Fear of reaction	Personal-related	2.87	Moderate
Not being able to get the return of efforts	Student-related	2.86	Moderate
Low academic level	Student-related	2.85	Moderate
Competition	Colleague-related	2.56	Moderate
Colleague attitude	Colleague-related	2.54	Moderate
Groupings	Colleague-related	2.52	Moderate

Administrator-related factors listed in the original results generally received limited-extent ratings and therefore were not counted among the 11 factors. The identified factors indicate that personal concerns related to criticism, complaints, misunderstanding, mistakes, failure, and reactions were especially salient in the respondents' ratings.

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DISCUSSION

Interpretation of the Profile Findings

The profile results show a teacher group with considerable professional experience. More than half of the respondents had been teaching for over 10 years, while the largest single educational-attainment category was the bachelor's degree. The training profile similarly shows that well-being-related professional development was not extensive for most respondents, with 72% reporting not more than three relevant trainings in five years.

Taken together, the profile describes teachers who have accumulated substantial teaching experience but who may have fewer opportunities for formal well-being-related training. Because the study found significant relationships between the profile variables and both well-being dimensions, these characteristics were treated as relevant in the development of the proposed program.

Psychological Capital and Positive Affect

Both psychological capital and positive affect were assessed at a moderate level. The result is consistent with the conceptual orientation of the thesis, which treats well-being as more than the absence of distress. Psychological resources such as confidence, resilience, hope, optimism, and goal-directed behavior represent strengths that can be cultivated in organizational settings. Likewise, positive affect reflects teachers' capacity to experience interest, enthusiasm, inspiration, determination, and related positive states.

The moderate results suggest that the respondents possess these resources to a meaningful extent, while also leaving room for strengthening. Importantly, the study did not classify teachers as having a clinical mental-health condition. Its measures were perceptions of well-being and positive psychological functioning, not clinical diagnostic assessments.

Profile Variables and Well-Being

The significant chi-square findings indicate statistical associations between educational attainment, teaching experience, training participation, and the two measured well-being dimensions within the study sample. The results do not by themselves establish causation. Rather, they show that the distribution of well-being levels differed significantly across the categories of the examined profile variables.

The relationship with relevant training is particularly aligned with the developmental purpose of the study. The proposed mental health program includes activities intended to strengthen coping, resilience, mindfulness, relaxation, time management, and other positive psychological resources. The

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findings provide an empirical basis for emphasizing continuing well-being-related professional development.

Factors Affecting Well-Being

The 11 identified factors were concentrated in personal-, student-, and colleague-related areas. The highest-rated factor was anxiety for being criticized, followed by anxiety about being complained about and anxiety about being misunderstood. Other identified concerns included fear of making mistakes and fear of failure. These results suggest that interpersonal evaluation and perceived consequences of errors are relevant aspects of the respondents' well-being experiences.

Student-related concerns were also represented by difficulty obtaining returns from efforts and low academic level, while colleague-related factors included competition, colleague attitude, and groupings. These findings support a program that combines individual coping and resilience activities with collaborative and supportive school-based practices.

Implications for the Proposed Program

The proposed mental health program in the thesis is a division-based program intended for teachers in the selected public elementary schools. It is designed for year-long implementation, with interactive and collaborative delivery modes such as mentoring, coaching, professional learning sessions, peer discussions, and workshops. The program is intended to improve teachers' level of well-being and support sound mental health.

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PROPOSED MENTAL HEALTH PROGRAM

Program Title: A Mental Health Program for the Teachers of Selected Public Elementary Schools in the Schools Division of Quezon City

Program element	Description
Prerequisite	None
Duration	Entire year
Management level	Division-based
Delivery mode	Interactive-collaborative activities, mentoring, coaching, professional learning sessions, peer discussion, workshops
Target personnel	Teachers of selected public elementary schools in the Schools Division of Quezon City
Budget requirement	Local fund
Overall objective	Improve teachers' level of well-being and support sound mental health
Expected outcome	Improved level of well-being and sound mind among participating teachers

Program Components

Activity	Purpose	Duration/Cost stated in thesis
Orientation on the Mental Health Program	Provide teachers with a general understanding of the program	2 hours; no stated cost
Seminar-Workshop on Stress Management and Resilience Building	Improve coping skills and emotional resilience	1 day; Php 2,000.00
Seminar-Workshop on Mindfulness, Relaxation and Time Management	Strengthen coping, relaxation, and management skills	See approved program matrix

The approved thesis further explains that the program is grounded in the significance of mental health and the Philippine National Mental Health Act. It identifies schools as settings where teachers face multiple responsibilities, including instruction, classroom management, assessment, documentation, and related tasks. The program therefore seeks to provide structured opportunities for strengthening well-being.

Implementation should follow the approved thesis program matrix and the policies and resources of the Schools Division of Quezon City. Evaluation of the program is also recommended in the original thesis so that implementation can be assessed against its intended outcomes.

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CONCLUSION

Based on the findings reported in the approved thesis, the selected public elementary school teachers were generally characterized by limited postgraduate attainment relative to the full sample, substantial teaching experience, and participation in no more than three well-being-related trainings for most respondents. Their psychological capital and positive affect were both assessed at moderate levels.

The study found significant relationships between educational attainment, teaching experience, and relevant training participation and the two dimensions of well-being examined. Eleven factors were identified as affecting well-being, with anxiety for being criticized obtaining the highest weighted mean among those factors. These results were used to support a proposed mental health program for the participating teachers.

The findings should be interpreted within the study's scope. The design establishes statistical relationships within the sampled teachers but does not establish causal effects. In addition, the study measured perceived well-being through a survey rather than conducting clinical mental-health assessments.

RECOMMENDATIONS

The original thesis recommends that the proposed mental health program be approved for implementation in the selected public elementary schools in the Schools Division of Quezon City. It further recommends that implementation be evaluated and that similar studies be conducted by other researchers to validate the findings.

For future research, the same variables may be examined in other school divisions or larger samples, and subsequent studies may use longitudinal designs or additional measures to examine changes in well-being over time. These suggestions extend the research direction already identified in the approved thesis without altering its findings.

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ASSESSMENT OF THE PEDAGOGICAL CONTENT KNOWLEDGE OF THE SCIENCE TEACHERS IN SELECTED PUBLIC ELEMENTARY SCHOOLS IN THE SCHOOLS DIVISION OF QUEZON CITY

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ABSTRACT

This study assessed the pedagogical content knowledge (PCK) of science teachers in selected public elementary schools in the Schools Division of Quezon City during School Year 2025–2026. A quantitative descriptive-correlational design, with a developmental component, was employed. Respondents consisted of 262 science teachers selected from a population of 757 science teachers and all five school heads of the selected schools. Data were collected through survey-questionnaires for teachers and school heads and were analyzed using frequency count, percentage, weighted mean, t-test, and chi-square test of independence.

The findings showed that 47% of the science teachers were bachelor's degree holders, while 29% had completed the academic requirements for a master's degree, 17% were master's degree holders, 4% had completed doctoral academic requirements, and 3% were doctorate degree holders. In terms of experience, 33% had 11–15 years of science teaching experience, while 31% had 6–10 years. In training participation, 79% had attended not more than three science-teaching-related trainings during the previous five years.

Teachers perceived their PCK as high in employment of varied teaching strategies (AWM = 4.02), classroom management (AWM = 4.01), and assessment of learning outcomes (AWM = 4.01), yielding an overall weighted mean of 4.01. In contrast, school heads perceived the teachers' PCK as moderate in the three areas, with area weighted means of 2.88, 2.88, and 2.90, respectively, and an overall weighted mean of 2.89. The t-test indicated a significant difference between teacher and school-head perceptions ($p = 0.00$). Chi-square tests likewise showed significant relationships between PCK and highest educational attainment ($p = 0.01$; $\chi^2 = 6.77$), length of experience in teaching science ($p = 0.02$; $\chi^2 = 5.55$), and number of relevant trainings ($p = 0.01$; $\chi^2 = 7.20$).

Based on these findings, a three-session, school-based in-service professional development program was proposed, focusing on varied teaching strategies, classroom management, and assessment of learning outcomes.

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I. INTRODUCTION

Science plays a central role in contemporary society and influences health, communication, transportation, food production, computing, artificial intelligence, and renewable energy. The importance of science is reflected in the Philippine educational system, where the Department of Education's K to 12 Science Curriculum Guide emphasizes the development of scientifically, technologically, and environmentally literate learners who can think critically, solve problems, communicate effectively, and make informed decisions.

The K to 12 Science Curriculum is learner-centered and inquiry-based. It integrates scientific knowledge with scientific processes and attitudes and promotes multidisciplinary, contextual, problem- or issue-based, and inquiry-based approaches. The curriculum also encourages hands-on, minds-on, and hearts-on activities and presents concepts in Life Sciences, Physics, Chemistry, and Earth Sciences through spiral progression. These expectations require teachers to possess knowledge not only of science content but also of how science concepts can be effectively taught to diverse learners.

The thesis identifies pedagogical content knowledge as a synthesis of pedagogical knowledge and what teachers know about teaching. In the study, PCK is operationalized through three dimensions: employment of teaching strategies, classroom management, and assessment of learning outcomes. The study was anchored on the Sensory Stimulation Theory of Learning, Constructivist Theory, and Cognitive Theory of Multimedia Learning.

The rationale for the study was also connected to concerns about Philippine science achievement. The thesis cited the country's results in TIMSS and PISA as indications of persistent challenges in science learning. It therefore examined the PCK of science teachers in selected public elementary schools in the Schools Division of Quezon City and used the findings as a basis for proposing an in-service professional development program.

The specific objectives were to determine the teachers' profile, assess their PCK as perceived by themselves and their school heads, test whether the two perceptions differed significantly, determine whether profile variables were significantly related to PCK, and develop a professional development program based on the findings.

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I. INTRODUCTION (CONTINUED)

Research Questions

The study sought to answer the main question: What in-service professional development program may be proposed to enhance the PCK of science teachers in selected public elementary schools in the Schools Division of Quezon City?

Specifically, it sought to determine: (1) the teachers' highest educational attainment, length of experience in teaching science, and number of science-teaching-related trainings attended during the previous five years; (2) their PCK in employment of varied teaching strategies, classroom management, and assessment of learning outcomes as perceived by themselves and school heads; (3) whether there was a significant difference between the perceptions of teachers and school heads; (4) whether there was a significant relationship between teacher profile variables and PCK; and (5) the professional development program that could be proposed from the findings.

Conceptual and Theoretical Basis

The Sensory Stimulation Theory of Learning in the thesis emphasizes that learning can become more effective when learners' senses are actively engaged, particularly through visual and auditory channels. Constructivism emphasizes learners' active construction of understanding from prior knowledge and experience. The Cognitive Theory of Multimedia Learning explains learning through visual/pictorial and auditory/verbal channels and highlights the importance of managing cognitive load while supporting meaningful understanding.

These perspectives support the study's attention to varied teaching strategies, learner-responsive classroom management, and assessment practices. The study also adopted a positivist research paradigm, treating the phenomena under investigation as observable and measurable through structured data collection and statistical analysis.

Significance

The study is intended to benefit science teachers through professional development, selected public elementary schools through strengthened science teaching and learning, pupils through improved instruction, and future researchers through a basis for further investigations on effective science teaching.

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II. METHODS

Research Design

The study employed a quantitative descriptive-correlational research design with a developmental component. The descriptive component determined the profile of the science teachers and described their PCK as perceived by teachers and school heads. The correlational component examined the difference between the two groups' perceptions and the relationships between teacher profile variables and PCK. The developmental component was used to formulate an in-service professional development program based on the findings.

Participants and Setting

The study was conducted in selected public elementary schools in the Schools Division of Quezon City during School Year 2025–2026. The selected schools were Bagong Silangan Elementary School, Pres. Corazon C. Aquino Elementary School, Commonwealth Elementary School, Doña Juana Elementary School, and Benigno S. Aquino, Jr. Elementary School.

School	Population	Sample
Bagong Silangan Elementary School	178	62
Pres. Corazon C. Aquino Elementary School	182	63
Commonwealth Elementary School	163	57
Doña Juana Elementary School	137	47
Benigno S. Aquino, Jr. Elementary School	97	33
Total	757	262

A sample of 262 science teachers was computed using Slovin's formula with a 0.05 margin of error. Teachers were proportionately distributed among the selected schools and randomly selected. All five school heads were included as respondents.

Research Instrument

Two survey-questionnaires were used: one for science teachers and one for school heads. The teacher questionnaire contained a profile section and a PCK assessment section. The school-head questionnaire assessed the PCK of the science teachers. The PCK items were based on the instrument used by Balocating (2023) in a study on science teaching practices in selected public elementary schools in Malasiqui I District.

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II. METHODS (CONTINUED)

Data Collection and Ethics

The researcher personally administered the survey-questionnaires and gave the teachers three weeks to complete them before retrieval. Permission to conduct the study was secured from the Schools Division Superintendent of Quezon City. Informed consent was obtained from the science teachers. The researcher stated that the information would be treated confidentially and used only for the purposes of the study in accordance with the Data Privacy Act of the Philippines. Sources used in the research were cited and documented.

Data Analysis

Frequency counts and percentages were used to describe the teachers' profile. Weighted means were used to determine the level of PCK. The interpretation scale was: 1.00–1.49, very low; 1.50–2.49, low; 2.50–3.49, moderate; 3.50–4.49, high; and 4.50–5.00, very high. A t-test was used to determine whether there was a significant difference between the perceptions of teachers and school heads. The chi-square test of independence was used to determine whether the teachers' profile variables were significantly related to their PCK. Statistical decisions were made at the .05 level of significance.

Operational Dimensions of PCK

Dimension	Focus in the Study
Employment of varied teaching strategies	Use of varied, learner-responsive, contextualized, technology-supported, and inquiry-oriented strategies and learning experiences.
Classroom management	Maintenance of safe and orderly classrooms, behavior management, reinforcement, learner social development, and enforcement of school policies.
Assessment of learning outcomes	Use of formative and summative tests, non-traditional assessment, interpretation of assessment results, remediation, and authentic assessment.

The methodology was therefore aligned with the study's research questions and permitted comparison of self-perceptions with school-head perceptions while examining the relationship of teacher characteristics with PCK.

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III. RESULTS

Profile of the Science Teachers

Highest Educational Attainment	Frequency	Percentage
Bachelor's degree holder	123	47%
Finished master's academic requirements	77	29%
Master's degree holder	43	17%
Finished doctoral academic requirements	11	4%
Doctorate degree holder	8	3%
Total	262	100%

The largest group consisted of bachelor's degree holders (47%). Another 29% had completed academic requirements for a master's degree, while 17% were master's degree holders. Only 7% had completed doctoral academic requirements or held a doctorate. Thus, 76% of the teachers had no postgraduate degree, as summarized in the thesis findings.

Length of Science Teaching Experience	Frequency	Percentage
1–5 years	36	14%
6–10 years	80	31%
11–15 years	87	33%
16–20 years	38	14%
More than 20 years	21	8%
Total	262	100%

The largest single group had 11–15 years of science teaching experience (33%), followed by 6–10 years (31%). Overall, 55% had more than 10 years of experience.

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Relevant Training in Previous 5 Years	Frequency	Percentage
No training	0	0%
Not more than three trainings	208	79%
More than three trainings	54	21%
Total	262	100%

The training profile indicates that most teachers (79%) had attended not more than three science-teaching-related trainings during the previous five years.

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III. RESULTS (CONTINUED)

Perceived Level of Pedagogical Content Knowledge

PCK Area	Science Teachers AWM	Interpretation	School Heads AWM	Interpretation
Employment of varied teaching strategies	4.02	High	2.88	Moderate
Classroom management	4.01	High	2.88	Moderate
Assessment of learning outcomes	4.01	High	2.90	Moderate
Overall	4.01	High	2.89	Moderate

The results show a consistent difference in the two respondent groups' perceptions. Science teachers rated their own PCK at a high level across all three dimensions. The highest teacher-rated area was employment of varied teaching strategies (AWM = 4.02), followed by classroom management and assessment of learning outcomes (both AWM = 4.01).

School heads, however, rated the science teachers at a moderate level in all three areas. Their highest area rating was assessment of learning outcomes (AWM = 2.90), followed by employment of varied teaching strategies and classroom management (both AWM = 2.88). The overall school-head rating was 2.89, interpreted as moderate.

At the item level, teacher ratings were generally within the high range. Examples included understanding theories, approaches, and strategies in teaching the subject area (WM = 4.06), facilitating varied enrichment activities (WM = 4.10), and using varied strategies for individual and cooperative learning (WM = 4.04). The school-head ratings generally clustered around 2.80 to 3.00 in the reported tables.

Statistical Test of Perceptions

The t-test yielded a p value of 0.00, which is below the .05 level of significance. The thesis therefore rejected the null hypothesis and concluded that there was a significant difference between the perceptions of science teachers and school heads regarding the teachers' PCK.

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III. RESULTS AND DISCUSSION

Relationship of Profile Variables and PCK

Profile Variable	p Value	χ^2 Value	Decision at .05
Highest educational attainment	0.01	6.77	Significant
Length of experience in teaching science	0.02	5.55	Significant
Number of relevant trainings	0.01	7.20	Significant

All three profile variables were significantly related to PCK. Highest educational attainment had a p value of 0.01 and chi-square value of 6.77. Length of experience in teaching science had a p value of 0.02 and chi-square value of 5.55. Number of relevant trainings had a p value of 0.01 and chi-square value of 7.20. In each case, the p value was lower than .05 and the computed chi-square value exceeded the critical value of 3.84 reported in the thesis.

Discussion

The profile results indicate that the science-teaching workforce in the selected schools included many experienced teachers but relatively fewer teachers with completed postgraduate degrees. The training profile also showed that most teachers had participated in only a limited number of science-teaching-related trainings over the previous five years. These characteristics are relevant because the statistical analysis showed significant relationships between educational attainment, teaching experience, training participation, and PCK.

The difference between teacher and school-head perceptions is one of the central findings. Teachers consistently rated their PCK as high, whereas school heads rated it as moderate. The statistical test confirmed that the difference was significant. The result suggests that the two groups did not share the same assessment of the teachers' PCK, making the school-head perspective important when identifying areas for professional development.

The findings across the three PCK dimensions also provide a coherent basis for intervention. Because school heads rated all three dimensions at the moderate level, the proposed professional development program appropriately covers varied teaching strategies, classroom management, and assessment of learning outcomes rather than concentrating on only one dimension.

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III. RESULTS AND DISCUSSION (CONTINUED)

Implications for Science Teaching

The findings suggest that professional development should focus on helping teachers apply science pedagogy more effectively in the classroom. Aligned with the K to 12 Science Curriculum, training can strengthen learner-centered, inquiry-based, contextualized, and evidence-based teaching practices.

In teaching strategies, professional learning can promote the use of diverse activities, technology, instructional materials, and learner-responsive approaches. Although teachers rated themselves highly, the moderate ratings from school heads indicate a need for more classroom practice, collaboration, and feedback.

For classroom management, training can enhance teachers' ability to maintain safe, orderly, and supportive learning environments through case analysis, role-playing, and collaborative planning.

Regarding assessment, professional development can improve the use of formative, summative, and authentic assessments, helping teachers use assessment results to guide instruction, remediation, and lesson planning

Interpretation of the Statistical Findings

The statistical findings should be interpreted within the scope of the study. The significant relationships establish associations between the profile variables and PCK; they do not, by themselves, establish causal mechanisms. Similarly, the significant t-test establishes a difference between the two groups' perceptions but does not determine which perception is objectively correct. The findings instead demonstrate the value of considering both teacher self-assessment and school-head assessment when planning professional development.

The study's proposed intervention is therefore evidence-informed within the study's own data: it responds to the moderate school-head assessment, the significant relationships with education, experience, and training, and the identified three PCK dimensions.

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RESULTS AND DISCUSSION: PROPOSED INTERVENTION

In-Service Professional Development Program

The thesis proposed a three-session in-service professional development program for science teachers in the selected public elementary schools in the Schools Division of Quezon City. The program is school-based and is to be implemented by school heads in coordination with the Schools Division Office–Quezon City. Its delivery approach is interactive, collaborative, and participatory, with lectures or discussions comprising no more than 30% of total session time.

Session	Focus	Duration	Target Personnel
1	Training-Workshop on Employment of Varied Teaching Strategies	2 days	Science teachers in selected schools
2	Training-Workshop on Classroom Management	2 days	Science teachers in selected schools
3	Training-Workshop on Assessment of Learning Outcomes	2 days	Science teachers in selected schools

The program is funded through MOOE according to the thesis. Its stated intended outcomes are for science teachers to become highly competent in employment of varied teaching strategies, classroom management, and assessment of learning outcomes.

Program Rationale

The program is grounded in the study's finding that school heads perceived teachers' PCK as moderate in all three dimensions and in the significant relationship between training participation and PCK. It also reflects the K to 12 Science Curriculum's emphasis on varied, learner-centered, contextualized, inquiry-based, and evidence-supported learning experiences.

The proposed program can be understood as the developmental output of the research. Rather than introducing a separate research problem, it translates the empirical findings into a structured professional learning response focused on the same dimensions measured in the study.

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CONCLUSION

The study assessed the pedagogical content knowledge of science teachers in selected public elementary schools in the Schools Division of Quezon City during School Year 2025–2026. The typical profile reflected in the findings was a teacher without a postgraduate degree, with more than ten years of science teaching experience, and with not more than three science-teaching-related trainings during the previous five years.

The science teachers perceived their pedagogical content knowledge as high, with an overall weighted mean of 4.01. School heads perceived the teachers' PCK as moderate, with an overall weighted mean of 2.89. The three dimensions—employment of varied teaching strategies, classroom management, and assessment of learning outcomes—showed the same general pattern of high teacher self-ratings and moderate school-head ratings.

There was a significant difference between the perceptions of science teachers and school heads. There were also significant relationships between PCK and highest educational attainment, length of experience in teaching science, and number of relevant trainings. Based on these findings, the thesis proposed a three-session professional development program covering the three dimensions of PCK.

Recommendations

- Implement the proposed in-service professional development program in the selected public elementary schools, subject to appropriate approval.
- Evaluate the implementation of the professional development program to determine its usefulness in strengthening science teachers' PCK.
- Conduct similar studies in other schools or settings to examine whether the findings are observed in other groups of science teachers.

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Proficiency in Early Childhood Care and Development of Kindergarten Teachers in Manila Public Schools

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Abstract

This study sought to determine the level of proficiency on early childhood care and development of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila during the School Year 2025-2026 through a quantitative-descriptive-correlational research design. The data used in this study came from the 138 kindergarten teachers and ten school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, and the t-test. Results showed that: majority of the kindergarten teachers have no post-graduate degree, have been teaching for more than ten years, and have attended not more than three trainings related with early childhood care and development for the past five years; in general, the kindergarten teachers perceived that the level of their proficiency in early childhood care and development is proficient as evidenced by the computed overall weighted mean of 3.92 and the school heads perceived that the level of proficiency in early childhood care and development of the kindergarten teachers is only moderately proficient as evidenced by the computed overall weighted mean of 2.96; there is a significant relationship between the highest educational attainment, the length of teaching experience, and the number of relevant trainings attended of the kindergarten teachers and the level of their proficiency in early childhood care and development; and, there is a significant difference between the perceptions of the kindergarten teachers and their school heads on the level of proficiency in early childhood care and development of the kindergarten teachers. Given the findings, the following conclusions were drawn: a typical kindergarten teacher of a public elementary school in the Schools Division of the City of Manila has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with early childhood care and development; the kindergarten teachers perceived that the level of their proficiency on early childhood care and development is proficient while the school heads perceived that the level of proficiency in early childhood care and development of the kindergarten teachers is only moderately proficient; the level of proficiency on early childhood care and development of the kindergarten teachers is influenced by their highest educational attainment, length of teaching experience, and the number of relevant trainings attended; and, the perceptions of the kindergarten teachers and the school heads on the level of proficiency of the kindergarten teachers on early childhood care and development are significantly different from each other.

Keywords: proficiency in early childhood care and development; kindergarten teachers; teacher proficiency; professional development; teacher education

Introduction

Early childhood, particularly the kindergarten stage, is a critical period in human growth and development because it lays the foundation for children's future learning, development, and well-being. During this stage, children attain significant developmental milestones and begin to develop fundamental processes related to growth, interaction, learning, care, and education (Reyes & Meimban, 2025; Zeng, Gui, & Wang, 2025). In the Philippine context, Republic Act No. 10157 emphasizes that kindergarten education should be learner-centered and responsive to learners' needs, capacities, circumstances, and diversity. Consistent with this policy, the Department of Education's National Early Learning Framework underscores the importance of child growth and development, learning program development, and learning assessment in providing holistic and developmentally appropriate early childhood education. These principles recognize that children develop at different rates, learn through meaningful and authentic experiences, and require nurturing, supportive, and responsive environments. Consequently, kindergarten teachers are expected to possess appropriate knowledge, skills, attitudes, and professional competencies to effectively support children's holistic development. Amor and Cacharo (2025) emphasized that kindergarten teachers need a strong understanding of early childhood education to become intentional and effective educators, while Taridi and Dono (2019) highlighted the importance of meaningful and high-quality teacher-child interactions in promoting healthy growth and learning. Bai and Al. (2022) further identified professional competencies essential for kindergarten teachers, including observation, reflection, communication, adaptability, cooperation, organization, and instructional design. Moreover, professional development opportunities such as workshops, seminars, conferences, coursework, and communities of practice have been found to strengthen early childhood educators' knowledge, beliefs, self-efficacy, and classroom practices (Pazur, Domovic, & Drvodelic, 2023). Ideally, therefore, kindergarten teachers should demonstrate a high level of proficiency in early childhood care and development to ensure that young learners receive responsive, appropriate, and quality education.

Despite the recognized importance of teacher proficiency in early childhood care and development, the extent to which kindergarten teachers demonstrate the competencies needed to effectively address the diverse developmental needs of young learners remains a concern. The principles of the National Early Learning Framework require teachers to respond appropriately to children's individual differences, provide varied and meaningful learning experiences, utilize suitable and locally available resources, conduct developmentally appropriate assessments, and establish supportive relationships with children, families, and communities. However, possessing these expectations does not necessarily ensure that teachers have sufficient proficiency to translate them into consistent classroom practices. Previous studies have established the competencies that kindergarten teachers should possess and have identified professional development strategies that may enhance teachers' knowledge and instructional practices (Amor & Cacharo, 2025; Bai & Al., 2022; Pazur, Domovic, & Drvodelic, 2023); however, these studies provide limited information regarding the actual level of proficiency of kindergarten teachers specifically in early childhood care and development within the context of public elementary schools in the Schools Division of the City of Manila. There is therefore a need to determine whether kindergarten teachers possess adequate competencies across the various areas of early childhood care and development and to identify specific areas in which they may require further support and professional enhancement. Without a clear assessment of their existing proficiency, training programs may not be sufficiently

responsive to teachers' actual needs and may fail to address specific competency gaps affecting the delivery of quality kindergarten education.

In response to these gaps, the present study aims to assess the proficiency in early childhood care and development of kindergarten teachers in public elementary schools in the Schools Division of the City of Manila. Specifically, the study seeks to determine the teachers' level of proficiency in relevant areas of early childhood care and development, identify areas of strength and aspects requiring improvement, and use the findings as a basis for developing an appropriate enhancement training program. The proposed training program is intended to provide targeted professional development opportunities that will strengthen teachers' knowledge, skills, and practices in addressing the developmental, learning, care, and assessment needs of kindergarten learners. Through this endeavor, the study seeks to contribute to the continuous professional development of kindergarten teachers and to support the effective implementation of learner-centered and developmentally appropriate early childhood education in public elementary schools in the Schools Division of the City of Manila.

Methodology

Research Design

This study employed the quantitative-descriptive method of research. It described the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determined the level of their proficiency in early childhood care and development. The study was also correlational for it determined if there is a significant relationship between the profile variables of the kindergarten teachers and the level of their proficiency in early childhood care and development and if there is a significant difference between the perceptions of the kindergarten teachers and the school heads on the level of proficiency in early childhood care and development of the kindergarten teachers.

Moreover, the developmental method of research was also employed for the study came up with a proposed enhancement training program to enhance the level of proficiency in early childhood care and development of the kindergarten teachers.

Sources of Data

This study was conducted in ten public elementary schools in the Schools Division of the City of Manila during the School Year 2025-2026.

Sampling. There two groups of respondents in this study, namely, the kindergarten teachers and their school heads. All the 138 kindergarten teachers and ten school heads of the ten public elementary schools in the Schools Division of the City of Manila were taken as respondents. Thus, no sampling was done. The distribution of the kindergarten teachers per the ten public elementary schools is presented in Table 1.

Table 1. Distribution of the Kindergarten Teachers per Public Elementary School

Public Elementary School	Frequency	Percentage
Benigno Aquino Elementary School	27	20%
Lukban Elementary School	13	9%
Celedonio Salvador Elementary School	7	5%
Moises Salvador Elementary School	4	3%
Epifanio Delos Santos Elementary School	17	12%
Aurora A. Quezon Elementary School	18	13%
Atienza Elementary School	12	9%
Rafael Palma Elementary School	12	9%
Fernando Ma. Guerrero Elementary School	19	14%
Margarita Roxas De Ayala Elementary School	9	6%
Total	137	100%

Research Participants. As mentioned, all the 138 kindergarten teachers of and ten school heads were made as respondents in the study. The kindergarten teachers provided data relative to their profile in terms of highest educational attainment, length of teaching experience, and number of relevant trainings attended as well as the level of their proficiency in early childhood care and development. On the other hand, the school heads provides data relative to the level of proficiency in early childhood care and development of the kindergarten teachers.

Instrument and Data Collection

Instrumentation. The data utilized in this study were gathered through two survey-questionnaire – one for the kindergarten teachers and one for the school heads.

The survey-questionnaire for the kindergarten teachers had two parts. The first part looked into the profile of the kindergarten teachers in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended. And, the second part focused on the level of proficiency in early childhood care and development of the kindergarten teachers. On the other hand, the survey-questionnaire for the school heads only concentrated on the level of proficiency in in early childhood care and development of the kindergarten teachers.

Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the kindergarten teachers is common in researches. Hence, no validation is required.

With respect to the second part of the survey-questionnaire which is about the level of proficiency in early childhood care and development of the kindergarten teachers, the items were based from the survey-questionnaire of Macaraeg (2023) in her study entitled “Extent of Competence in Early Childhood Care and Development of the Kindergarten Teachers in Malasiqui II District: Basis for a Proposed District-Based Enhancement Program.” The items in this survey-questionnaire were validated by the researcher and, hence, are considered valid and reliable.

Data Collection. In collecting the data needed in the study, the researcher personally administered the survey-questionnaire to the kindergarten teachers and the school heads giving them two weeks to answer. After two weeks, the researcher retrieved the survey questionnaire.

Ethical Considerations. So as not to violate the data privacy of the kindergarten teachers and the school heads, permission to conduct the study was first secured from the school heads of the ten public elementary schools. Thereafter, informed consent was taken from the kindergarten teachers and the school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

Tools for Data Analysis

To determine the profile of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila, the data gathered were subjected to frequency count and percentage employing the formula:

$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage

f = the observed frequency

N = total number of subject cases

To determine the level of proficiency in early childhood care and development of the kindergarten teachers, the weighted mean was used employing the formula:

$$WM = \frac{\sum wX}{\sum w}$$

where:

WM = weighted mean

$\sum$ = summation

W = weighing factor

X = frequency.

Moreover, the weighted means computed were interpreted using this scale of interpretation:

not proficient = 1.00 – 1.49

slightly proficient = 1.50 – 2.49

moderately proficient = 2.50 – 3.49

proficient = 3.50 – 4.49

highly proficient = 4.50 – 5.00.

To determine if there is a significant relationship between the profile variables of the kindergarten teachers and the level of their proficiency in early childhood care and development, the chi square test of independence.

And, to determine if there is a significant difference between the perceptions of the kindergarten teachers and the school heads on the level of proficiency in early childhood care and development of the kindergarten teachers, the t-test was utilized.

Results

Profile of Teachers

This section presents the profile of the Kindergarten teachers of public elementary schools in the Schools Division of the City of Manila to answer the first sub-problem of the study.

On Highest Educational Attainment

With respect to the educational attainment, the kindergarten teachers were given five choices, namely, bachelor's degree, completed academic requirements in the master's degree, master's degree, completed academic requirements in the doctorate degree, and doctorate degree. Table 2 indicates the results.

Table 2. Distribution of the Kindergarten Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's Degree	75	54%
Completed academic requirements in the Master's Degree	38	28%
Master's Degree	23	17%
Completed academic requirements in the Doctorate Degree	2	1%
Doctorate Degree	0	0%
Total	138	100%

As presented by Table 2, 75 or 54% of the kindergarten teachers are bachelor's degree holders, 38 or 28% have completed the academic requirements for the master's degree, 23 or 17% are master's degree holders, and two or 1% have completed the academic requirements for the doctorate degree. It can be noted that majority of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila have no post-graduate degree.

Level of Proficiency in Early Childhood Care and Development of the Kindergarten Teachers

This section provides answers to the second sub-problem of the study which is about the level of proficiency in early childhood care and development of the kindergarten teachers as perceived by themselves and by the school heads.

To provide answers to the sub-problem, the kindergarten teachers and their school heads were asked to rate the level of proficiency in early childhood care and development of the kindergarten teachers along three areas, namely: child growth, development, and learning; health, safety, nutrition, and well-being; and, curriculum.

On Child Growth, Development, and Learning

The kindergarten teachers and their school heads assessed the level of proficiency on early childhood care and development along child growth, development, and learning of the kindergarten teachers.

Assessment of the Kindergarten Teachers. The assessment of the kindergarten teachers on the level of their proficiency on early childhood care and development along child growth, development, and learning is presented in Table 5.

As provided in Table 5, when asked as to what level they can explain the different developmental domains, 46 of the kindergarten teachers claimed "moderately proficient," 57 claimed "proficient," and 35 claimed "highly proficient." The weighted mean computed here is 3.92 which is pointing to "proficient" in the scale.

When questioned as to what level they can describe the different developmental characteristics of a child, 36 of the kindergarten teachers said "moderately proficient," 70 said "proficient," and 32 said "highly proficient." In this item, the weighted mean computed is 3.97 which is leading to "proficient" in the scale of interpretation.

When queried as to what level they can recognize that a child develops along a continuum that is unique to each individual, 35 of the kindergarten teachers mentioned "moderately proficient," 80 mentioned "proficient," and 23 mentioned "highly proficient." The weighted mean computed here is 3.91 which is indicative of "proficient" in the scale.

Table 5. The Level of Proficiency on Early Childhood Care and Development along Child Growth, Development and Learning of the Kindergarten Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
	NP	SP	MP	PR	HP		

1. Explain the different developmental domains	0	0	46	57	35	3.92	PR
2. Describe the different developmental characteristics of a child	0	0	36	70	32	3.97	PR
3. Recognize that a child develops along a continuum that is unique to each individual	0	0	35	80	23	3.91	PR
4. Articulate that development is continuous and generally sequential	0	0	44	61	33	3.92	PR
5. Apply knowledge of child development and learning in determining children at-risk for delays	0	0	51	54	33	3.87	PR
6. Employ principles of child growth and development	0	0	55	50	33	3.84	PR
7. Use play as a vehicle for learning the physical, cognitive, language, socio-emotional, and creative and aesthetic domains	0	0	36	59	43	4.05	PR
8. Respond to the needs of a child based on his/her developmental characteristics	0	0	32	63	43	4.08	PR
9. Recognize that learning advances when a child is challenged to achieve at a level just beyond his/her current mastery and also when he/she has many opportunities to practice newly acquired skills	0	0	58	37	43	3.89	PR
10. Demonstrate understanding of a child's background	0	0	44	61	33	3.92	PR
11. Accept each child as a unique individual, including his/her diverse linguistic, cultural and social backgrounds	0	0	50	65	23	3.80	PR
					AWM	3.93	PR

Legend: WM = Weighted Mean; DE = Descriptive Equivalent; AWM = Area Weighted Mean. Scale: 1.00-1.49 = Not Proficient, 1.50-2.49 = Slightly Proficient, 2.50-3.49 = Moderately Proficient, 3.50-4.49 = Proficient, 4.50-5.00 = Highly Proficient.

Difference Between Perceptions

This part of the chapter discusses answers to the fourth sub-problem of the study which is about the significant difference between the perceptions of the kindergarten teachers and the school heads on the level of proficiency on early childhood care and development of the kindergarten teachers.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant difference between the perceptions of the kindergarten teachers and their school heads on the level of proficiency on early childhood care and development of the kindergarten teachers. Thereafter, the researcher compared the perceptions of the kindergarten teachers and their school heads on the level of proficiency on early childhood care and development of the kindergarten teachers using the t-test. Here, the researcher computed the p value at .05 level of significance. Table 13 presents the results.

As shown in Table 13, when the perceptions of the kindergarten teachers and their school heads on the level of proficiency on early childhood care and development of the kindergarten teachers are compared, the p value computed is 0.00. This figure is lower than the .05 level of significance. As such, the null hypothesis is rejected. There is a significant difference between the perceptions of the kindergarten teachers and their school heads on the level of proficiency on early childhood care and development of the kindergarten teachers.

Table 13. Difference between the Perceptions of the Kindergarten Teachers and the School Heads

	Computed p Value	Level of Significance	RM
Level of Proficiency on Early Childhood Care and Development of the Kindergarten Teachers	0.00	.05	S

Legend:
RM = remarks
S = significant
NS = not significant

Relationship Between Profile Variables and Research Competence

This part of the chapter provides answers to the third sub-problem of the study which is about the significant relationship between the profile variables of the kindergarten teachers and the level of their proficiency on early childhood care and development.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the profile variables of the kindergarten teachers and the level of their proficiency on early childhood care and development. Thereafter, the researcher correlated the profile variables of the kindergarten teachers and the level of their proficiency on early childhood care and development using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the p value and the chi square value at .05 level of significance. Table 12 presents the results.

Table 12. *Relationship Between Profile Variables of the Kindergarten Teachers and the Level of Their Proficiency on Early Childhood Care and Development*

Profile Variables	Chi Square Value	Chi Square Critical Value	RM
Highest Educational Attainment	5.60	3.84	S
Length of Teaching Experience	5.97	3.84	S
Number of Relevant Trainings	6.29	3.84	S

Legend:

RM = remarks

S = significant

NS = not significant

Discussion

The findings revealed that the kindergarten teachers in public elementary schools in the Schools Division of the City of Manila have varied educational backgrounds, teaching experiences, and participation in relevant trainings. In terms of educational attainment, the majority of the teachers, or 54%, were bachelor's degree holders, while only 17% had completed a master's degree and 1% had completed the academic requirements for a doctorate degree. This indicates that most kindergarten teachers had not yet obtained a postgraduate degree. In terms of teaching experience, the largest group, comprising 34%, had 11–15 years of teaching experience, followed by those with 6–10 years at 29%. Overall, the majority had more than ten years of teaching experience, suggesting that most teachers were relatively experienced in the profession. Regarding relevant trainings, 70% had attended not more than three trainings related to early childhood care and development during the past five years, while 30% had attended more than three trainings. This suggests that opportunities for continuing professional development in early childhood care and development may still need to be strengthened.

In terms of proficiency in early childhood care and development, the kindergarten teachers generally perceived themselves as proficient in all three areas: child growth, development, and learning; health, safety, nutrition, and well-being; and curriculum. Their overall weighted mean was 3.92, interpreted as proficient. Specifically, child growth, development, and learning and curriculum both obtained an area weighted mean of 3.93, while health, safety, nutrition, and well-being obtained 3.90. These findings indicate that the teachers believed they possessed adequate knowledge and skills in addressing children's developmental needs, promoting health and safety, and implementing developmentally appropriate and play-based curriculum practices.

However, the school heads provided a different assessment of the teachers' proficiency. They rated the teachers as only moderately proficient, with an overall weighted mean of 2.96. The areas of child growth, development, and learning, health, safety, nutrition, and well-being, and curriculum obtained weighted means of 2.99, 2.96, and 2.93, respectively. Although these results indicate that the teachers demonstrated a considerable level of competence, the school heads

perceived that further improvement was needed in all three areas. The difference between the teachers' self-assessment and the school heads' assessment suggests a gap between perceived and observed proficiency.

The study also established that the teachers' highest educational attainment, length of teaching experience, and number of relevant trainings attended were significantly related to their level of proficiency in early childhood care and development. The computed chi-square values for educational attainment (5.60), teaching experience (5.97), and relevant trainings (6.29) were all higher than the critical value of 3.84. Thus, the null hypothesis was rejected for all three variables. These findings indicate that professional preparation, years of teaching experience, and participation in relevant training are associated with the teachers' proficiency in early childhood care and development.

Furthermore, a significant difference was found between the perceptions of the kindergarten teachers and school heads regarding the teachers' level of proficiency. The computed p-value of 0.00 was lower than the 0.05 level of significance, resulting in the rejection of the null hypothesis. This confirms that the two groups did not have the same assessment of the teachers' proficiency. The teachers generally viewed themselves as proficient, whereas the school heads considered them moderately proficient. This difference highlights the need for continuous professional development and objective assessment of teachers' competencies.

Based on the findings, particularly the limited number of relevant trainings attended by most teachers, the moderate proficiency ratings provided by school heads, and the significant relationship between training participation and proficiency, an Enhancement Training Program on Early Childhood Care and Development was proposed. The program consists of three one-day seminar-workshops focusing on Child Growth, Development, and Learning; Health, Safety, Nutrition, and Well-being; and Curriculum. The program is designed to strengthen teachers' knowledge, skills, and practical competencies through an interactive, collaborative, and participatory approach. Overall, the proposed program aims to address identified areas for improvement and enhance the capacity of kindergarten teachers to provide appropriate, responsive, safe, and developmentally appropriate learning experiences for young children.

Conclusion

Based on the findings made, the following conclusions were drawn:

1. A typical kindergarten teacher of a public elementary school in the Schools Division of the City of Manila has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with early childhood care and development.

2. The kindergarten teachers perceived that the level of their proficiency on early childhood care and development is proficient while the school heads perceived that the level of proficiency in early childhood care and development of the kindergarten teachers is only moderately proficient.

3. The level of proficiency on early childhood care and development of the kindergarten teachers is influenced by their highest educational attainment, length of teaching experience, and the number of relevant trainings attended.

4. The perceptions of the kindergarten teachers and the school heads on the level of proficiency of the kindergarten teachers on early childhood care and development are significantly different from each other.

5. The proposed enhancement training program will improve the level of proficiency on early childhood care and development of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila.

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Teachers' Attitudes and Technological Competence in Teaching-Learning in Malasiqui I District Public Elementary Schools

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Abstract

This study examined teachers' attitudes toward technological tools in teaching and learning and their technological competence in selected public elementary schools in Malasiqui I District. Respondents included 121 teachers and five school heads. Data were statistically analyzed to determine teachers' profiles, attitudes, perceived competence, and relationships among variables. Findings revealed that most teachers had no postgraduate degree, had more than ten years of teaching experience, and attended fewer than three trainings. Teachers demonstrated positive attitudes toward using technological tools. Significant relationships were found between educational attainment, teaching experience, number of trainings attended, and teachers' attitudes toward technology. Teachers perceived their technological competence as high, while school heads rated it as moderate. A significant relationship was also found between teachers' attitudes toward technological tools and their technological competence.

The study concluded that the typical teacher in the selected schools had no postgraduate degree, considerable teaching experience, and limited training participation. Teachers generally maintained positive attitudes toward technology, which were associated with their educational attainment, teaching experience, and training attendance. The difference between teachers' and school heads' assessments emphasized the need to strengthen technological competence and develop a shared understanding of teachers' abilities. Moreover, teachers' attitudes toward technological tools were significantly related to their technological competence.

The study recommends continuous professional development, relevant technology training, and practical opportunities for teachers to use technological tools. These initiatives may strengthen teachers' technological skills, encourage effective technology integration, and improve the teaching and learning process in public elementary schools in Malasiqui I District.

Keywords: Technological Competence; Attitude Towards the Use of Technological Tools; Teachers; Teaching and Learning Process; Public Elementary Schools

Introduction

The rapid advancement of technology has significantly transformed the teaching and learning process, making technological competence an essential requirement for teachers in the modern educational environment. Technological tools provide opportunities to improve instructional delivery, enhance learner engagement, facilitate access to educational resources, and support the development of learners' skills. According to Asagar (2025), the widespread integration of technological tools into daily life emphasizes the importance of technological competence. Similarly, Foulger et al. (2021) highlighted that incorporating technological tools into education promotes learners' engagement and interest in computing. Teachers play an important role in integrating these technologies into classroom instruction. Therefore, developing teachers' technological competence and maintaining positive attitudes toward technological tools are essential in improving the quality of education and preparing learners for an increasingly

technology-driven society. Despite the growing importance of technological tools in education, challenges remain in ensuring that teachers possess adequate technological competence and effectively integrate technology into their instructional practices. Teachers may differ in their educational attainment, teaching experience, training participation, attitudes, and technological skills. These differences may influence their readiness and ability to utilize technological tools in teaching and learning. Moreover, technological competence requires continuous professional development, practical experience, and opportunities to explore emerging technologies. Although technological tools offer various educational benefits, their effectiveness depends largely on teachers' knowledge, skills, and attitudes toward their utilization. These concerns highlight the need to examine teachers' attitudes and technological competence, particularly in the context of selected public elementary schools in Malasiqui I District.

In light of these considerations, this study sought to examine the attitudes toward the use of technological tools in the teaching and learning process and the technological competence of teachers in selected public elementary schools in Malasiqui I District. Specifically, it aimed to determine the teachers' educational attainment, length of teaching experience, and number of trainings attended; assess their attitudes toward technological tools and their technological competence; and identify the significant relationships among these variables. Furthermore, the study considered the perceptions of school heads regarding teachers' technological competence. Ultimately, the findings served as the basis for developing an in-service training program designed to enhance teachers' technological competence and promote the effective integration of technological tools into the teaching and learning process.

METHODOLOGY

Research Design

This study utilized the quantitative-descriptive cross-sectional survey research design. It described the teachers of the selected public elementary schools in Malasiqui I District in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determined their attitude towards the use of technological tools in the teaching and learning process, and their technological competence level as perceived by themselves and their school heads. The study was also correlational for it determined if there is a significant relationship between the profile variables of the teachers and their attitude towards the use of technological tools in the teaching and learning process, if there is a significant relationship between the attitude of the teachers towards the use of technological tools in the teaching and learning process and their technological competence level, and if there is a significant difference between the perceptions of the teachers and the school heads on the technological competence level of the teachers.

Sources of Data

Locale of the Study. This study was conducted in five selected public elementary schools in Malasiqui I District during the School Year 2025-2026. These five selected public elementary schools are the big schools in Malasiqui I District

Population. There were two groups of respondents in this study, namely, the teachers and their school heads. In the selected public elementary schools, there are 172 teachers. From these 172 teachers, the sample size of 121 was arrived at using the Slovin’s sampling formula:

Research Participants. As mentioned, 121 sample teachers and five school heads of the selected public elementary schools in Malasiqui I District were made as respondents in the study. The teachers provided data relative to their profile in terms of highest educational attainment, length of teaching experience, and number of relevant trainings attended as well as their attitude towards the use of technological tools in the teaching and learning process, and their technological competence level. Meanwhile, the school heads provided data relative to the technological competence level of the teachers.

Instrumentation and Data Collection

The data utilized in this study were gathered through two survey-questionnaires, one for the teachers and one for the school heads.

The survey-questionnaire for the teachers had two parts. The first part looked into the profile of the teachers; the second part focused on the attitude of the teachers towards the use of technological tools in the teaching and learning process; and, the third part dealt with the technological competence level of the teachers. Meanwhile, the survey-questionnaire for the school heads simply focused on the technological competence of the teachers. The items here are the same with the third part of the survey-questionnaire for the teachers.

The items in the first part of the survey-questionnaire which is about the profile of the teachers is common in researches. Hence, no validation is required.

With respect to the second part of the survey-questionnaire which is about the attitude of the teachers towards the use of technological tools in the teaching and learning process, the items were based from the Teachers' Attitudes Towards New Technology (TANT) questionnaire of Wijnen, Molen, and Voogt (2024). This questionnaire was tested and validated by the researchers. Hence, the items are considered reliable.

In relation to items in the third part of the survey-questionnaire, the items will be based on the survey instrument of Javier (2020) in her study entitled "The Shift towards New Teaching Modality: Examining the Attitude and Technological Competence among Language Teachers Teaching Filipino." The items in relation to the technological competence has a computed Cronbach's alpha of 0.898. Accordingly, the items are considered valid and reliable.

In collecting the data needed in the study, the researcher personally administered the survey-questionnaire to the teachers and their school heads giving them three weeks to answer. After three weeks, the researcher retrieved the survey questionnaire.

Tools for Data Analysis

To determine the profile of the teachers in the selected public elementary schools, the data gathered were subjected to frequency count and percentage employing the formula:

$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage
f = the observed frequency
N = total number of subject cases

Ethical Considerations

So as not to violate the data privacy of the teachers and the school heads, permission to conduct the study was first secured from the Schools Division Superintendent of Pangasinan I Thereafter, informed consent was taken from the teachers and the school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

RESULTS

This chapter presents the data gathered and their analysis and interpretation to answer the sub-problems raised in the study.

Table 2. Distribution of the Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's Degree	28	23%
Completed academic requirements in the Master's Degree	37	30%
Master's Degree	36	30%
Completed academic requirements in the Doctorate Degree	12	10%
Doctorate Degree	8	7%
Total	121	100%

Table 3.Distribution of the Teachers in terms of Length of Teaching Experience

Length of Experience	Frequency	Percentage
1 to 5 years	12	10%
6 to 10 years	31	26%
11 to 15 years	34	28%
16 to 20 years	23	19%
More than 20 years	21	17%
Total	121	100%

Table 4. Distribution of the Teachers in terms of Number of Relevant Trainings Attended

Number of Trainings Attended	Frequency	Percentage
Have not attended any training related with technological competence for the past five years	0	0%
Have attended not more than three trainings related with technological competence for the past five years	76	63%
Have attended more than three trainings related with technological competence for the past five years	45	37%
Total	121	100%

Table 5. Attitude of the Teachers Towards the Use of Technological Tools in the Teaching and Learning Process

Assessment Items	Responses					WM	DE
	SD	DI	SO	AG	SA		
1. I think it is crucial that learners understand the role of technological tools in society.	0	0	20	63	38	4.15	

							AG
2. I think it is very important for learners' future that they get the opportunity to learn how to work with technological; tools at school.	0	0	21	62	38	4.14	AG
3. I think it is essential that learners learn how to work with technological tools at school so that they are well-prepared for societal development.	0	0	23	55	43	4.17	AG
4. I think that, with the help of technological tools, I can provide more variety in the assignments I offer my learners.	0	0	22	60	39	4.14	AG
5. I think that, with the help of technological tools, I can more easily differentiate in how I offer the content to be learned.	0	0	24	54	43	4.16	AG
6. I get a sinking feeling when I have to do something new with technological tools in my lessons.*	38	66	17	--	--	4.17	AG
7. I feel nervous about the idea of using technological tools in my lessons.*	33	73	15	--	--	4.15	AG
8. I feel tense when I have to use technological tools in my lessons.*	38	65	18	--	--	4.17	AG
9. I think it requires a lot of effort to use technological tools in my lessons.*	43	59	19	--	--	4.20	AG
10. I think it is very difficult to use technological tools in my lessons.*	73	33	15	--	--	4.15	AG
11. I think it is difficult to use technological tools in my lessons in the way that I want.*	74	33	14	--	--	4.16	AG
12. I am well aware of technological tools that I can use in the subjects I teach.	0	0	16	71	34	4.15	AG
13. I know exactly how I can use technological tools to present concepts from the subject I am teaching in a different way.	0	0	13	74	34	4.17	AG
14. I am quite able to choose technological tools that enhance my learners' learning process.	0	0	16	72	33	4.14	AG
15. I am quire able to choose technological tools that enhance the pedagogy in my lessons.	0	0	15	73	33	4.15	AG
16. I am quite able to choose technological tools that support the lesson content for the subjects I teach.	0	0	17	66	38	4.17	AG
17. I am quite able to provide lessons that appropriately combine content, technology, and pedagogy.	0	0	17	70	34	4.14	AG
18. For me, the availability of a training program determines whether I use technological tools in my lessons.*	34	71	16	--	--	4.15	AG
19. For me, the availability of technical support	34	70	17	--	--	4.14	

determines whether I use technological tools in my lessons.*							AG
20. For me, the availability of content support, in the form of an ICT-coordinator, determines whether I use technological tools in my lessons.*	33	72	16	--	--	4.14	AG
21. I have the feeling that technological tools have an important place in education at our school.	0	0	17	70	34	4.14	AG
22. I have the feeling that there is a clear vision about using technological tools in education at our school.	0	0	18	69	34	4.13	AG
23. I have the feeling that using technological tools in lessons is appreciated by colleagues and administration at our school.	0	0	16	71	34	4.15	AG
24. I have the feeling that my colleagues consider the use of technological tools in education to be important.	0	0	19	64	38	4.16	AG
25. My students often use technological tools to work on challenging problems.	0	0	17	71	33	4.13	AG
26. My students often use technological tools to make a product in my lesson.	0	0	15	73	33	4.15	AG
27. My students often use technological tools to present to each other what they have learned in my lessons.	0	0	17	71	33	4.13	AG
28. My students often use technological tools to delve into a subject that interests them in my lessons.	0	0	18	69	34	4.13	AG
29. I often use technological tools to connect learning in school with learning outside of school.	0	0	15	73	33	4.15	AG
30. I often use technological tools to get students to collect and analyze data in my lessons.	0	0	15	73	33	4.15	AG
31. My students often use technological tools for programming in my lessons.	0	0	14	73	34	4.17	AG
					OWM	4.15	AG

Note: Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
OWM	=	overall weighted mean
*	=	reversed value

Scale:

SD	=	strongly disagree (very negative)	=	1.00 – 1.49
DI	=	disagree (negative)	=	1.50 – 2.49
SO	=	somewhat agree (neutral)	=	2.50 – 3.49
AG	=	agree (positive)	=	3.50 – 4.49
SA	=	strongly agree (very positive)	=	4.50 – 5.00

Table 6. Relationship between the Profile Variables of the Teachers and Their Attitude Towards the Use of Technological Tools in the Teaching and Learning Process

Profile Variables	Chi Square Value	Chi Square Critical Value	RM
Highest Educational Attainment	7.31	3.84	S
Length of Teaching Experience	7.11	3.84	S
Number of Relevant Trainings	5.58	3.84	S

Table 7. Technological Competence Level of the Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
	VL	LO	MO	HI	VH		
1. I can access various technological resources and tools (e.g. productivity tool, e-books, Content Management System, and others).	0	0	8	63	50	4.35	HI
2. I can organize and present the learning materials in digital format.	0	0	17	55	49	4.26	HI
3. I can develop assessment through online tools and applications.	0	0	14	48	59	4.37	HI
4. I can utilize computers and other digital devices employed in online classes.	0	0	13	53	55	4.35	HI
5. I can trouble shoot internet connection issues, and device-related troubles.	0	0	20	47	54	4.28	HI
6. I can employ appropriate multimedia technologies appropriate for learning activities.	0	0	10	66	45	4.29	HI
7. I can align content with pedagogical approaches an appropriate technology.	0	0	11	66	44	4.27	HI
8. I can use online communication tools.	0	0	18	54	49	4.26	HI
9. I can design learning activities considering available technologies.	0	0	14	59	48	4.28	HI
10. I can use technology to facilitate collaborative creation and peer editing of students work.	0	0	15	56	50	4.29	HI
					AWM	4.30	HI

Table 8. Technological Competence Level of the Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
My teachers can …	VL	LO	MO	HI	VH		
1. Access various technological resources and tools (e.g. productivity tool, e-books, Content Management System, and others).	0	2	2	1	0	2.80	MO
2. Organize and present the learning materials in	0	1	4	0	0	2.80	

digital format.							MO
3. Develop assessment through online tools and applications.	0	2	3	0	0	2.60	MO
4. Utilize computers and other digital devices employed in online classes.	0	1	4	0	0	2.80	MO
5. Trouble shoot internet connection issues, and device-related troubles.	0	1	3	1	0	3.00	MO
6. Employ appropriate multimedia technologies appropriate for learning activities.	0	1	3	1	0	3.00	MO
7. Align content with pedagogical approaches an appropriate technology.	0	1	3	1	0	3.00	MO
8. Use online communication tools.	0	1	4	0	0	2.80	MO
9. Design learning activities considering available technologies.	0	2	2	1	0	2.80	MO
10. Use technology to facilitate collaborative creation and peer editing of students work.	0	1	3	1	0	3.00	MO
					AWM	2.86	MO

Table 9. Relationship between the Attitude of the Teachers Towards the Use of Technological Tools in the Teaching and Learning Process and Their Technological Competence Level

	Computed r Value	Computed p Value at .05 alpha	RM
Attitude Towards the Use of Technological Tools in the Teaching and Learning Process	0.78	0.00	Significantly strong positive correlation

Table 10. Difference between the Perceptions of the Teachers and the School Heads

	Computed p Value	Level of Significance	RM
Technological Competence Level Teachers	0.00	.05	S

Discussion

The study examined the attitudes and technological competence of teachers in Malasiqui I District Public Elementary Schools and explored how teachers' educational attainment, teaching experience, and training relate to their attitudes toward technology integration.

Most teachers had pursued postgraduate education, with the majority having completed or earned master's degrees, while a smaller number had doctoral qualifications. This indicates a strong commitment to professional growth and continuous learning. In terms of teaching experience, most respondents had more than ten years of service, suggesting that they possessed extensive classroom experience and established instructional practices.

Regarding professional development, all teachers had attended technology-related training within the last five years, although most had participated in three or fewer trainings. This highlights the need for more sustained and frequent technology-focused professional development opportunities.

Teachers generally demonstrated a positive attitude toward the use of technological tools, recognizing their value in improving instruction, supporting diverse learning needs, increasing learner engagement, and preparing students for future challenges. They also believed that technology plays an important role in modern education and supports effective teaching and learning.

The study found that educational attainment, teaching experience, and participation in relevant trainings were significantly associated with teachers' attitudes toward technology. This suggests that teachers' professional backgrounds and development experiences influence how they perceive and accept technological tools in the classroom.

Teachers rated their own technological competence as high, indicating confidence in using digital resources, creating learning materials, conducting online assessments, troubleshooting technical issues, and integrating technology into instruction. However, school heads evaluated teachers' technological competence as only moderate, suggesting that teachers still need improvement in the practical application and demonstration of technology skills.

A significant difference existed between teachers' self-assessments and school heads' evaluations. While teachers viewed themselves as highly competent, school heads perceived a lower level of competence. This discrepancy points to the need for clearer standards, performance-based assessments, and opportunities for teachers to demonstrate their technological capabilities.

The study also revealed a strong positive relationship between teachers' attitudes toward technology and their technological competence ($r = 0.78$). Teachers with more favorable attitudes toward technology generally reported higher levels of competence. This finding highlights the close connection between willingness to use technology and the ability to apply it effectively in teaching.

Overall, the findings suggest that while teachers possess positive attitudes and confidence in using technology, there remains a need to strengthen their actual technological competence through targeted professional development. Consequently, the proposed in-service training program should focus on enhancing practical technology skills, technology integration strategies, digital resource development, online assessment, troubleshooting, and continuous support. The program should also consider differences in teachers' educational backgrounds, teaching experience, and training exposure while encouraging collaboration between teachers and school heads to promote a shared understanding of technological competence and effective technology integration in education

Conclusions

Based on the findings made, the following conclusions were drawn:
1. A typical teacher in the selected public elementary schools in Malasiqui I District has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with technological competence.
2. The teachers have a positive attitude towards the use of technological tools in the teaching and learning process.
3. The attitude of the teachers towards the use of technological tools in the teaching and learning process is influenced by their highest educational attainment, length of teaching experience, and the number of relevant trainings attended.

4. The teachers perceived that they have high technological competence level while the school heads perceived that the teachers only have moderate technological competence level.
5. The technological competence level of the teachers is influenced by their attitude towards the use of technological tools in the teaching and learning process.
6. The teachers and the school heads have different perceptions on the technological competence level of the teachers.
7. The proposed in-service training program will improve the technological competence level of the teachers in the public elementary schools in Malasiqui I District.

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ASSESSMENT SKILLS OF SCIENCE TEACHERS OF SELECTED PUBLIC ELEMENTARY SCHOOLS IN QUEZON CITY

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Abstract

This study sought to determine the level of assessment skills of the science teachers of selected public elementary schools in Quezon City during the School Year 2025-2026 through a descriptive-correlational-developmental research design. The data used in this study came from the 193 science teachers and 19 school heads which were subjected to frequency count, percentage, weighted mean, the t-test, and the chi-square test of independence. Results showed that: majority of the science teachers have no post-graduate degrees, have been teaching for more than 10 years already, and have attended not more than three trainings related with assessment for the past five years; in general, the science teachers perceived that they have high level of assessment skills while the school heads perceived that the science teachers only have moderate level of assessment skills; there is a significant difference between the perceptions of the science teachers and the school heads on the level of assessment skills of the science teachers; and, there is a significant relationship between the highest educational attainment, length of teaching experience, number of trainings related with assessment attended of the science teachers and the level of their assessment skills. Given the findings, the following conclusions were drawn: a typical science teacher of the selected public elementary schools in Quezon City has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with assessment for the past five years; the science teachers of the selected public elementary schools in Quezon City perceived that they have high level of assessment skills while the school heads perceived that the science teachers only have moderate level of assessment skills; the perceptions of the science teachers and the school heads on the level of assessment skills of the science teachers are significantly different from each other; and, the level of assessment skills of the science teachers is influenced by their highest educational attainment, the length of teaching experience, and the number of trainings related with assessment attended for the past five years.

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Keywords: *assessment skills, teachers*

Introduction

The rapid shift toward an information-driven society has made digital proficiency a cornerstone of modern professional life. As technology becomes more embedded in every facet of work, there is a growing expectation for individuals to remain constantly connected and adaptable to new digital tools. However, this perpetual immersion in virtual environments often blurs the lines between professional duties and personal time. When the demands of navigating complex technology outweigh an individual's capacity to cope, it leads to a state of mental and

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physical exhaustion known as digital burnout, which can significantly hinder productivity and long-term well-being.

In the field of education, teachers are particularly vulnerable to this phenomenon as they strive to balance traditional pedagogy with modern technological requirements. The pressure to integrate digital platforms, manage online communications, and facilitate remote learning often occurs without adequate technical training or institutional support. This creates a stressful environment where educators feel overwhelmed by the constant "on-call" nature of digital tools. Over time, the inability to disconnect can lead to a sense of professional inadequacy and emotional depletion, ultimately affecting the quality of instruction and the overall school climate.

This study seeks to investigate the extent of digital burnout among public elementary school teachers in Dagupan City to better understand the factors contributing to their occupational stress. By examining the relationship between job demands and the available resources provided to teachers, the research aims to identify critical areas where support is lacking. The findings will serve as the foundation for a proposed intervention program designed to promote mental health and digital wellness. Ultimately, this research hopes to provide educators with the necessary strategies to navigate the digital landscape without sacrificing their psychological health or professional passion.

METHODOLOGY

Research Design

This study employed the quantitative-descriptive method of research. It will describe the science teachers of the selected public elementary schools in Quezon City in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determine the level of their assessment skills. The study also utilized the correlational research design for it will determine if there is a significant difference between the perceptions of the science teachers and their school heads on the level of assessment skills of the science teachers and if there is a significant relationship between the profile variables of the science teachers and the level of their assessment skills.

Moreover, the developmental method of research was also used for the study came up with a proposed in-service training program for the science teachers of the selected public elementary schools in Quezon City to enhance their assessment skills.

Sources of Data

Research Setting. This study was conducted in selected public elementary schools in Quezon City during the School Year 2025-2026.

Sampling. There were two groups of respondents in this study, namely, the science teachers and the school heads of the selected public elementary schools in Quezon City. All the 193 science teachers and 19 school heads of the selected public elementary schools in the said city were made as respondents. Accordingly, no sampling was done.

Research Participants. As mentioned, all the 193 science teachers and 19 school heads of the selected public elementary schools in Quezon City were made as respondents of the study. The science teachers provided data relative to their highest educational attainment, length of teaching

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experience, number of relevant trainings they attended, and the level of their assessment skills. Meanwhile, the school heads provided data with respect to the level of assessment skills of the science teachers.

TABLE 1 Distribution of the Science Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's degree holder	77	40%
Finished academic requirements for the master's degree	62	32%
Master's degree holder	38	20%
Finished academic requirements for the doctoral degree	9	5%
Doctoral degree holder	7	3%
Total	193	100%

Research Instrument

Instrumentation. The data utilized in this study were gathered through two survey-questionnaires, one for the science teachers and one for the school heads.

The survey-questionnaire for the science teachers had two parts. The first part focused on the profile of the science teachers of the selected public elementary schools in Quezon City in terms of the highest educational attainment, length of teaching experience, and the number of relevant trainings attended; and, the second part focused on the level of assessment skills of the science teachers.

On the other hand, the survey-questionnaire for the school heads simply focused on the level of assessment skills of the science teachers**.**

Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the science teachers is common in researches. Hence, no validation is required.

Meanwhile, the items in the second part of the survey-questionnaire which is about the level of assessment skills science teachers were based from the survey-questionnaire of Cabudol (2025) in her study entitled "Assessment Skills of Teachers in Sual District." The items in this survey-questionnaire were validated by the researcher and, hence, are considered valid and reliable.

Ethical Considerations. So as not to violate the data privacy of the science teachers and the school heads, permission to conduct the study was first secured from the City Schools Division Superintendent of Quezon City. Thereafter, informed consent was taken from the science teachers and the school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

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Data Management and Analysis

To determine the profile of the science teachers of the selected public elementary schools in Quezon City, the data gathered were subjected to frequency count employing the formula:

$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage
f = the observed frequency
N = total number of subject cases

To determine the level of assessment skills of the science teachers, the weighted mean was used employing the formula:

$$WM = \frac{\sum wX}{\sum w}$$

where:

WM = weighted mean
∑ = summation
W = weighing factor
X = frequency.

Moreover, the weighted means computed were interpreted using this scale of interpretation:

very low level	=	1.00 – 1.49
low level	=	1.50 – 2.49
moderate level	=	2.50 – 3.49
high level	=	3.50 – 4.49
very high level	=	4.50 – 5.00.

To determine if there is a significant difference between the perceptions of the science teachers and the school heads on the level of assessment skills of the science teachers, the t-test was utilized. Lastly, to determine the relationship between the profile variables of the science teachers and the level of their assessment skills, the chi square test of independence was used.

RESULTS AND DISCUSSION

The Profile of the Science Teachers

This section presents the profile of the science teachers of the selected public elementary schools in Quezon City to answer the first sub-problem of the study.

On Highest Educational Attainment

As regards to the highest educational attainment, the science teachers were provided with five choices: “bachelor’s degree”, “completed academic requirements in the master’s degree”,

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“master’s degree”, “completed academic requirements in the doctorate degree”, and “doctorate degree”. Table 1 indicates the results.

TABLE 1 Distribution of the Science Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's degree holder	77	40%
Finished academic requirements for the master's degree	62	32%
Master's degree holder	38	20%
Finished academic requirements for the doctoral degree	9	5%
Doctoral degree holder	7	3%
Total	193	100%

As revealed in Table 1, 77 or 40% of the science teachers are bachelor’s degree holders, 62 or 32% have finished the academic requirements for the master’s degree, 38 or 20% are master’s degree holders, nine or 5% have finished the academic requirements for the doctoral degree, and seven or 3% are doctoral degree holders. As can be noted, majority of the science teachers have no post-graduate degree yet.

On Length of Teaching Experience

As regards the length of teaching experience, the science teachers were provided with five choices, scilicet, “1 to 5 years”, “6 to 10 years”, “11 to 15 years”, “16 to 20 years”, and “more than 20 years”. Table 2 presents the results.

TABLE 2 Distribution of the Science Teachers in terms of Length of Teaching Experience

Length of Teaching Experience	Frequency	Percentage
1 to 5 years	23	12%
6 to 10 years	53	27%
11 to 15 years	66	34%
16 to 20 years	36	19%
More than 20 years	15	8%

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Total	193	100%

As presented in Table 2, 23 or 12% of the science teachers have been teaching for one to five years, 53 or 27% have been teaching for six to 10 years already, 66 or 34% have been teaching for 11 to 15 years already, 36 or 19% have been teaching for 16 to 20 years old already, and 15 or 8% have been teaching for more than 20 years already. As noted, majority of the science teachers have been teaching for more than 10 years already.

On Number of Relevant Seminars Attended

In relation to the number of trainings related with assessment attended for the past five years, the science teachers were provided with three choices, namely, "have not attended any training related with assessment for the past five years", "have attended not more than three trainings related with assessment for the past five years", and "have attended more than three trainings related with assessment for the past five years". Table 3 presents the results.

TABLE 3 Distribution of the Teachers in terms of Number of Relevant Seminars Attended

Number of Trainings/Seminars Attended	Frequency	Percentage
Have not attended any training related with assessment for the past five years	0	0%
Have attended not more than three trainings related with assessment for the past five years	152	79%
Have attended more than three trainings related assessment for the past five years	41	21%
Total	193	100%

As revealed in Table 3, 152 or 79% of the science teachers have attended not more than three trainings related with assessment for the past five years and 41 or 21% have attended more than three trainings related with assessment for the past five years. As can be noted, majority of the science teachers have attended not more than three trainings related with assessment for the past five years.

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Level of Assessment Skills of the Science Teachers

This section provides answers to the second sub-problem of the study, which is about the level of assessment skills of the science teachers of the selected public elementary schools in Quezon City as perceived by themselves and by the school heads.

To provide answers to the sub-problem, the science teachers and the school heads were asked to rate the level of assessment skills of the teachers.

On Assessment Skills in terms of

Paper and Pencil Test

The science teachers and the school heads rated the level of assessment skills in terms of paper and pencil test of the science teachers.

Assessment of the Science Teachers. The assessment skills in terms of paper and pencil test of the science teachers as perceived by themselves is presented in Table 4.

As shown by Table 4, when asked as to the level of their assessment skills in writing paper-pencil test, 45 of the science teachers replied “moderate level”, 108 replied “high level”, and 40 replied “very high level”. The weighted mean computed in this item is 3.97 which is pointing to “high level” in the scale of interpretation.

TABLE 4

The Level of Assessment Skills in terms of Paper and Pencil Test of the Science Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Paper and Pencil Test	VL	LO	MO	HI	VH		
1. Writing paper-pencil test	0	0	45	108	40	3.97	HI
2. Writing multiple-choice questions	0	0	45	104	44	3.99	HI
3. Writing matching questions	0	0	45	108	40	3.97	HI
4. Writing fill-in the blank or short answer questions	0	0	51	77	65	4.07	HI

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5. Writing essay questions	0	0	45	88	60	4.08	HI
6. Writing test items for higher cognitive levels	0	0	47	89	57	4.05	HI
AWM						4.02	HI

Legend:

WM = weighted mean

DE = descriptive equivalent

AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49

LO = low level = 1.50 – 2.49

MO = moderate level= 2.50 – 3.49

HI = high level = 3.50 – 4.49

VH = very high = 4.50 – 5.00

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Assessment of the School Heads. The level of assessment skills in terms of paper and pencil test of the science teachers as perceived by the school heads is presented in Table 5

TABLE 5

The Level of Assessment Skills in terms of Paper and Pencil Test of the Science Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Paper and Pencil Test	VL	LO	MO	HI	VH		
1. Writing paper-pencil test	0	3	14	2	0	2.95	MO
2. Writing multiple-choice questions	0	3	13	3	0	3.00	MO
3. Writing matching questions	0	4	13	2	0	2.89	MO
4. Writing fill-in the blank or short answer questions	0	3	13	3	0	3.00	MO
5. Writing essay questions	0	3	14	2	0	2.95	MO
6. Writing test items for higher cognitive levels	0	3	14	2	0	2.95	MO
AWM						2.96	MO

Legend:

WM = weighted mean

DE = descriptive equivalent

AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49

LO = low level = 1.50 – 2.49

MO = moderate level= 2.50 – 3.49

HI = high level = 3.50 – 4.49

VH = very high = 4.50 – 5.00

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Meanwhile, the computed area weighted mean is 2.96 which is indicative of "moderate level" in the scale of interpretation. This implies that the school heads perceived that their science teachers have moderate level of assessment skills in terms of paper and pencil test.

On Assessment Skills in terms of Performance Assessment

The science teachers and the school heads rated the level of assessment skills in terms of performance assessment of the science teachers.

Assessment of the Science Teachers. The level of assessment skills in terms of performance assessment of the science teachers as perceived by themselves is shown in Table 6. As shown in Table 6, when questioned as to the level of their assessment skills in choosing appropriate assessment methods for instructional decisions, 47 of the science teachers claimed "moderate level", 92 replied "high level", and 54 replied "very high level". The computed weighted mean here is 4.04 which has a descriptive equivalent of "high level" in the scale of interpretation.

When queried as to the level of their assessment skills in administering announced quizzes, 47 of the science teachers responded "moderate level", 86 responded "high level", and 60 responded "very high level". Here, the computed weighted mean is 4.07 which is pointing to "high level" in the scale.

TABLE 6
The Level of Assessment Skills in terms of Performance Assessment of the Science Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Performance Assessment	VL	LO	MO	HI	VH		
1. Choosing appropriate assessment methods for instructional decisions	0	0	47	92	54	4.04	HI
2. Administering announced quizzes	0	0	47	86	60	4.07	HI
3. Administering unannounced quizzes	0	0	48	94	51	4.02	HI
4. Recording assessment result on the rating scale/checklist while observing a student's performance	0	0	51	77	65	4.07	HI
5. Following required procedures (time limit, no hints, no interpretation) when administering standardized tests	0	0	51	83	59	4.04	HI
AWM						4.05	HI

Legend:
WM = weighted mean

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DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very low level =	1.00 – 1.49	
LO	=	low level	=	1.50 – 2.49
MO	=	moderate level=	2.50 – 3.49	
HI	=	high level	=	3.50 – 4.49
VH	=	very high	=	4.50 – 5.00

When inquired as to the level of their assessment skills in administering unannounced quizzes, 48 of the science teachers ticked “moderate level”, 94 ticked “high level”, and 51 ticked “very high level”. In this item, the computed weighted mean is 4.02 which is indicative of “high level” in the scale.

When asked as to the level of their assessment skills in recording assessment result on the rating scale/checklist while observing a student’s performance, 51 of the science teachers said “moderate level”, 77 said “high level”, and 65 said “very high level”. The computed weighted mean in this item is 4.07 which is leading to “high level” in the scale.

And, when questioned as to the level of their assessment skills in following required procedures (time limit, no hints, no interpretation) when administering standardized tests, 51 of the science teachers claimed “moderate level”, 83 claimed “high level”, and 59 claimed “very high level”. The weighted mean computed here is 4.04 which is indicative of “high level” in the scale of interpretation.

Meanwhile, the computed area weighted mean is 4.05 which has a descriptive equivalent of “high level” in the scale of interpretation. This means that the science teachers perceived that they have high level of assessment skills in terms of performance assessment.

Assessment of the School Heads. The level of assessment skills in terms of performance assessment of the science teachers as perceived by the school heads is shown in Table 7.

As presented in Table 7, when questioned as to the level of the assessment skills in choosing appropriate assessment methods for instructional decisions of their science teachers, four of the school heads claimed “low level”, 12 replied “moderate level”, and three replied “high level”. The computed weighted mean here is 2.95 which has a descriptive equivalent of “moderate level” in the scale of interpretation.

TABLE 7
The Level of Assessment Skills in terms of Performance Assessment of the Science Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Performance Assessment	VL	LO	MO	HI	VH		
1. Choosing appropriate assessment methods for instructional decisions	0	4	12	3	0	2.95	MO
2. Administering announced quizzes	0	4	13	2	0	2.89	MO

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3. Administering unannounced quizzes	0	4	13	2	0	2.89	MO
4. Recording assessment result on the rating scale/checklist while observing a student's performance	0	3	13	3	0	3.00	MO
5. Following required procedures (time limit, no hints, no interpretation) when administering standardized tests	0	4	13	2	0	2.89	MO
AWM						2.93	MO

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very low level =	1.00 – 1.49	
LO	=	low level	=	1.50 – 2.49
MO	=	moderate level=	2.50 – 3.49	
HI	=	high level	=	3.50 – 4.49
VH	=	very high	=	4.50 – 5.00

When queried as to the level of the assessment skills in administering announced quizzes of their science teachers, four of the school heads responded "low level", 13 responded "moderate level", and two responded "high level". Here, the computed weighted mean is 2.89 which is pointing to "moderate level" in the scale.

When inquired as to the level of the assessment skills in administering unannounced quizzes of their science teachers, four of the school heads ticked "low level", 13 ticked "moderate level", and two ticked "high level". In this item, the computed weighted mean is 2.89 which is indicative of "moderate level" in the scale.

When asked as to the level of the assessment skills in recording assessment result on the rating scale/checklist while observing a student's performance of their science teachers, three of the school heads said "low level", 13 said "moderate level", and three said "high level". The computed weighted mean in this item is 3.00 which is leading to "moderate level" in the scale.

And, when questioned as to the level of the assessment skills in following required procedures (time limit, no hints, no interpretation) when administering standardized tests of their science teachers, four of the school heads claimed "low level", 13 claimed "moderate level", and two claimed "high level". The weighted mean computed here is 2.89 which is indicative of "moderate level" in the scale of interpretation.

Moreover, the computed area weighted mean is 2.93 which has a descriptive equivalent of "moderate level" in the scale of interpretation. This means that the school heads perceived that their science teachers have moderate level of assessment skills in terms of performance assessment.

On Assessment Skills in terms of

Task-based Assessment

The science teacher and the school heads assessed the level of assessment skills in terms of task-based assessment of the science teachers.

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Assessment of the Science Teachers. The assessment of the science teachers on the level of their assessment skills in terms of task-based assessment is presented in Table 8.

As disclosed in Table 8, when asked as to the level of their assessment skills in assessing individual class participation, 50 of the science teachers said “moderate level”, 90 said “high level”, and 53 said “very high level”. The weighted mean computed here is 4.02 which is leading to “high level” in the scale.

When questioned as to the level of their assessment skills in assessing individual hands-on activities, 50 of the science teachers said “moderate level”, 90 said “high level”, and 53 said “very high level”. The weighted mean computed in this item is 4.02 which is indicative of “high level” in the scale of interpretation.

When queried as to the level of their assessment skills in assessing group hands-on activities, 50 of the science teachers responded “moderate level”, 89 responded “high level”, and 54 responded “very high level”. Here, the computed weighted mean is 4.02 which is pointing to “high level” in the scale.

When inquired as to the level of their assessment skills in assessing group class participation, 58 of the science teachers ticked “moderate level”, 85 ticked “high level”, and 50 ticked “very high level”. In this item, the computed weighted mean is 3.96 which is indicative of “high level” in the scale.

TABLE 8
The Level of Assessment Skills in terms of Task-based Assessment of the Science Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Task-based Assessment	VL	LO	MO	HI	VH		
1.Assessing individual class participation	0	0	50	90	53	4.02	HI
2.Assessing individual hands-on activities	0	0	50	90	53	4.02	HI
3.Assessing group hands-on activities	0	0	50	89	54	4.02	HI
4.Assessing group class participation	0	0	58	85	50	3.96	HI
5.Incorporating extra credit	0	0	55	82	56	4.01	HI

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activities in the calculation of grades							
6.Incorporating ability in the calculation of grades	0	0	47	78	68	4.11	HI
7.Incorporating classroom behavior in the calculation of grades.	0	0	49	75	69	4.10	HI
8.Incorporating effort in the calculation of grades.	0	0	51	73	69	4.09	HI
9.Incorporating attendance in the calculation of grades.	0	0	54	70	69	4.08	HI
AWM						4.04	HI

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very low level	=	1.00 – 1.49
LO	=	low level	=	1.50 – 2.49
MO	=	moderate level	=	2.50 – 3.49
HI	=	high level	=	3.50 – 4.49
VH	=	very high	=	4.50 – 5.00

When asked as to the level of their assessment skills in incorporating extra credit activities in the calculation of grades, 55 of the science teachers said “moderate level”, 82 said “high level”, and 56 said “very high level”. The computed weighted mean in this item is 4.01 which is leading to “high level” in the scale.

When asked as to the level of their assessment skills in incorporating ability in the calculation of grades, 47 of the science teachers said “moderate level”, 78 said “high level”, and 68 said “very high level”. The computed weighted mean in this item is 4.11 which is leading to “high level” in the scale.

When questioned as to the level of their assessment skills in incorporating classroom behavior in the calculation of grades, 49 of the science teachers claimed “moderate level”, 75 claimed “high level”, and 69 claimed “very high level”. The weighted mean computed here is 4.10 which is indicative of “high level” in the scale of interpretation.

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When questioned as to the level of their assessment skills in incorporating effort in the calculation of grades, 51 of the science teachers claimed “moderate level”, 73 claimed “high level”, and 69 claimed “very high level”. The weighted mean computed here is 4.09 which is indicative of “high level” in the scale of interpretation.
And, when queried as to the level of their assessment skills in Incorporating attendance in the calculation of grades, 54 of the science teachers answered “moderate level”, 70 said “high level”, and 69 said “very high level”. In this item, the weighted mean computed is 4.08 which has a descriptive equivalent of “high level” in the scale of interpretation.
Moreover, the area weighted mean computed is 4.04 which is pointing to “high level” in the scale of interpretation. This implies that the science teachers perceived that they have high level of assessment skills in terms of task-based assessment.

Assessment of the School Heads. The assessment of the school heads on the level of assessment skills in terms of task-based assessment of their science teachers is presented in Table 9.
As disclosed in Table 9, when asked as to the level of the assessment skills in assessing individual class participation of the science teachers, four of the school heads said “low level”, 13 said “moderate level”, and two said “high level”. The weighted mean computed here is 2.89 which is leading to “moderate level” in the scale.
When questioned as to the level of the assessment skills in assessing individual hands-on activities of their science teacher, four of the school heads said “low level”, 13 said “moderate level”, and two said “high level”. The weighted mean computed in this item is 2.89 which is indicative of “moderate level” in the scale of interpretation.
When queried as to the level of the assessment skills in assessing group hands-on activities of their science teachers, four of the school heads responded “low level”, 13 responded “moderate level”, and two responded “high level”. Here, the computed weighted mean is 2.89 which is pointing to “moderate level” in the scale.

TABLE 9
The Level of Assessment Skills in terms of Task-based Assessment of the Science Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Task-based Assessment	VL	LO	MO	HI	VH		
1. Assessing individual class participation	0	4	13	2	0	2.89	MO
2. Assessing individual hands-on activities	0	4	13	2	0	2.89	MO
3. Assessing group hands-on activities	0	4	13	2	0	2.89	MO
4. Assessing group class participation	0	3	14	2	0	2.95	MO
5. Incorporating extra credit activities in the calculation of grades	0	4	13	2	0	2.89	MO
6. Incorporating ability in the calculation of grades	0	3	14	2	0	2.95	MO
7. Incorporating classroom behavior in the calculation of grades.	0	4	13	2	0	2.89	MO

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8. Incorporating effort in the calculation of grades.	0	4	13	2	0	2.89	MO
9. Incorporating attendance in the calculation of grades.	0	4	13	2	0	2.89	MO
AWM						2.91	MO

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49
LO = low level = 1.50 – 2.49
MO = moderate level= 2.50 – 3.49
HI = high level = 3.50 – 4.49
VH = very high = 4.50 – 5.00

When inquired as to the level of the assessment skills in assessing group class participation of their science teachers, three of the school heads ticked “low level”, 14 ticked “moderate level”, and two ticked “high level”. In this item, the computed weighted mean is 2.95 which is indicative of “moderate level” in the scale.

When asked as to the level of the assessment skills in incorporating extra credit activities in the calculation of grades of their science teachers, four of the school heads said “low level”, 13 said “moderate level”, and two said “high level”. The computed weighted mean in this item is 2.89 which is leading to “moderate level” in the scale.

When asked as to the level of the assessment skills in incorporating ability in the calculation of grades of their science teachers, three of the school heads said “low level”, 14 said “moderate level”, and two said “high level”. The computed weighted mean in this item is 2.95 which is leading to “moderate level” in the scale.

When questioned as to the level of the assessment skills in incorporating classroom behavior in the calculation of grades of their science teachers, four of the school heads claimed “low level”, 13 claimed “moderate level”, and two claimed “high level”. The weighted mean computed here is 2.89 which is indicative of “moderate level” in the scale of interpretation.

When questioned as to the level of the assessment skills in incorporating effort in the calculation of grades of their science teachers, four of the school heads claimed “low level”, 13 claimed “moderate level”, and two claimed “high level”. The weighted mean computed here is 2.89 which is indicative of “moderate level” in the scale of interpretation.

And, when queried as to the level of the assessment skills in incorporating attendance in the calculation of grades of their science teachers, four of the school heads answered “low level”, 13 said “moderate level”, and two said “high level”. In this item, the weighted mean computed is 2.89 which has a descriptive equivalent of “moderate level” in the scale of interpretation.

Moreover, the area weighted mean computed is 2.91 which is pointing to “moderate level” in the scale of interpretation. This implies that the school heads perceived that their science teachers only have moderate level of assessment skills in terms of task-based assessment.

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On Assessment Skills in terms of
Item Analysis

The science teachers and the school heads assessed the level of assessment skills in terms of item analysis of the science teachers.

Assessment of the Science Teachers. The assessment of the science teachers on the level of their assessment skills in terms of item analysis is presented in Table 10.

As presented in Table 10, when asked as to the level of their assessment skills in selecting textbook-provided test items for classroom assessment, 51 of the science teachers said "moderate level", 85 said "high level", and 57 said "very high level". The weighted mean computed here is 4.03 which is leading to "high level" in the scale.

TABLE 10
The Level of Assessment Skills in terms of Item Analysis of the Science Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Item Analysis	VL	LO	MO	HI	VH		
1. Selecting textbook-provided test items for classroom assessment	0	0	51	85	57	4.03	HI
2. Revising previously produced teacher-made tests to match current instructional emphasis	0	0	54	84	55	4.01	HI
3. Establishing students' expectations for determining grades for special education students	0	0	49	77	67	4.09	HI
4. Weighing differently projects, exams, homework, etc. when assigning semester grades	0	0	48	78	67	4.10	HI
5. Determining if a standardized achievement test is valid for classroom assessment	0	0	47	89	57	4.05	HI
6. Using a table of specifications to plan assessment	0	0	46	86	61	4.08	HI
7. Developing assessments based on clearly defined course objectives	0	0	47	83	63	4.08	HI
8. Constructing a model answer for scoring essay questions	0	0	45	85	63	4.09	HI
9. Matching performance tasks to instruction and course objectives	0	0	53	86	54	4.01	HI
10. Defining a rating scale for performance criteria in advance	0	0	46	89	58	4.06	HI
11. Using concept mapping to assess student learning	0	0	46	95	52	4.03	HI
12. Using portfolios to assess student	0	0	58	77	58	4.00	

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progress							HI
13. Interpreting standardized test scores (Stanine, Percentile, Rank)	0	0	48	86	61	4.11	HI
14. Using norm-referenced grading model	0	0	44	81	68	4.12	HI
15. Using criteria-referenced grading model	0	0	40	85	68	4.15	HI
16. Using systematic procedures to determine borderline grades	0	0	48	73	72	4.12	HI
17. Avoiding teaching to the test when preparing students for tests	0	0	50	72	71	4.11	HI
AWM						4.07	HI

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very low level =	1.00 – 1.49	
LO	=	low level	=	1.50 – 2.49
MO	=	moderate level=	2.50 – 3.49	
HI	=	high level	=	3.50 – 4.49
VH	=	very high	=	4.50 – 5.00

When questioned as to the level of their assessment skills in revising previously produced teacher-made tests to match current instructional emphasis, 54 of the science teachers said “moderate level”, 84 said “high level”, and 55 said “very high level”. The weighted mean computed in this item is 4.01 which is indicative of “high level” in the scale of interpretation.
When queried as to the level of their assessment skills in establishing students’ expectations for determining grades for special education students, 49 of the science teachers responded “moderate level”, 77 responded “high level”, and 67 responded “very high level”. Here, the computed weighted mean is 4.09 which is pointing to “high level” in the scale.
When inquired as to the level of their assessment skills in weighing differently projects, exams, homework, and others when assigning semester grades, 48 of the teachers ticked “moderate level”, 78 ticked “high level”, and 67 ticked “very high level”. In this item, the computed weighted mean is 4.10 which is indicative of “high level” in the scale.
When asked as to the level of their assessment skills in determining if a standardized achievement test is valid for classroom assessment, 47 of the science teachers said “moderate level”, 89 said “high level”, and 57 said “very high level”. The computed weighted mean in this item is 4.05 which is leading to “high level” in the scale.
When asked as to the level of their assessment skills in using a table of specifications to plan assessment, 46 of the science teachers said “moderate level”, 86 said “high level”, and 61 said “very high level”. The computed weighted mean in this item is 4.08 which is leading to “high level” in the scale.
When questioned as to the level of their assessment skills in developing assessments based on clearly defined course objectives, 47 of the science teachers claimed “moderate level”, 83

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claimed “high level”, and 63 claimed “very high level”. The weighted mean computed here is 4.08 which is indicative of “high level” in the scale of interpretation.
When questioned as to the level of their assessment skills in constructing a model answer for scoring essay questions, 45 of the teachers claimed “moderate level”, 85 claimed “high level”, and 63 claimed “very high level”. The weighted mean computed here is 4.09 which is indicative of “high level” in the scale of interpretation.
When questioned as to the level of their assessment skills in matching performance tasks to instruction and course objectives, 53 of the science teachers said “moderate level”, 86 said “high level”, and 54 said “very high level”. The weighted mean computed in this item is 4.01 which is indicative of “high level” in the scale of interpretation.
When queried as to the level of their assessment skills in defining a rating scale for performance criteria in advance, 46 of the science teachers responded “moderate level”, 89 responded “high level”, and 58 responded “very high level”. Here, the computed weighted mean is 4.06 which is pointing to “high level” in the scale.
When inquired as to the level of their assessment skills in using concept mapping to assess student learning, 46 of the science teachers ticked “moderate level”, 95 ticked “high level”, and 52 ticked “very high level”. In this item, the computed weighted mean is 4.03 which is indicative of “high level” in the scale.
When asked as to the level of their assessment skills in using portfolios to assess student progress, 58 of the science teachers said “moderate level”, 77 said “high level”, and 58 said “very high level”. The computed weighted mean in this item is 4.00 which is leading to “high level” in the scale.
When asked as to the level of their assessment skills in interpreting standardized test scores (Stanine, Percentile, Rank), 48 of the science teachers said “moderate level”, 86 said “high level”, and 61 said “very high level”. The computed weighted mean in this item is 4.11 which is leading to “high level” in the scale.
When questioned as to the level of their assessment skills in using norm-referenced grading model, 44 of the science teachers claimed “moderate level”, 81 claimed “high level”, and 68 claimed “very high level”. The weighted mean computed here is 4.12 which is indicative of “high level” in the scale of interpretation.
When questioned as to the level of their assessment skills in using criteria-referenced grading model, 40 of the science teachers claimed “moderate level”, 85 claimed “high level”, and 68 claimed “very high level”. The weighted mean computed here is 4.15 which is indicative of “high level” in the scale of interpretation.
When questioned as to the level of their assessment skills in using systematic procedures to determine borderline grades, 48 of the science teachers claimed “moderate level”, 73 claimed “high level”, and 72 claimed “very high level”. The weighted mean computed here is 4.12 which is indicative of “high level” in the scale of interpretation.
And, when queried as to the level of their assessment skills in avoiding teaching to the test when preparing students for tests, 50 of the science teachers answered “moderate level”, 72 said “high level”, and 71 said “very high level”. In this item, the weighted mean computed is 4.11 which has a descriptive equivalent of “high level” in the scale of interpretation.
Moreover, the area weighted mean computed is 4.07 which is pointing to “high level” in the scale of interpretation. This implies that the science teachers perceived that they have high level of assessment skills in terms of item analysis

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Assessment of the School Heads. The assessment of the school heads on the level of the assessment skills in terms of item analysis of the science teachers is presented in Table 11.
As disclosed in Table 11, when asked as to the level of the assessment skills in selecting textbook-provided test items for classroom assessment of their science teachers, three of the school heads said "low level", 14 said "moderate level", and two said "high level". The weighted mean computed here is 2.95 which is leading to "moderate level" in the scale.
When questioned as to the level of the assessment skills in revising previously produced teacher-made tests to match current instructional emphasis of their science teachers, three of the school heads said "low level", 14 said "moderate level", and two said "high level". The weighted mean computed in this item is 2.95 which is indicative of "moderate level" in the scale of interpretation.
When queried as to the level of the assessment skills in establishing students' expectations for determining grades for special education students of their science teachers, four of the school heads responded "low level", 13 responded "moderate level", and two responded "high level". Here, the computed weighted mean is 2.89 which is pointing to "moderate level" in the scale**.**

TABLE 11
The Level of Assessment Skills in terms of Item Analysis of the Science Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Item Analysis	VL	LO	MO	HI	VH		
1. Selecting textbook-provided test items for classroom assessment	0	3	14	2	0	2.95	MO
2. Revising previously produced teacher-made tests to match current instructional emphasis	0	3	14	2	0	2.95	MO
3. Establishing students' expectations for determining grades for special education students	0	4	13	2	0	2.89	MO
4. Weighing differently projects, exams, homework, etc. when assigning semester grades	0	4	13	2	0	2.89	MO
5. Determining if a standardized achievement test is valid for classroom assessment	0	3	14	2	0	2.95	MO
6. Using a table of specifications to plan assessment	0	4	12	3	0	2.95	MO
7. Developing assessments based on clearly defined course objectives	0	3	13	3	0	3.00	MO
8. Constructing a model answer for scoring essay questions	0	4	13	2	0	2.89	MO
9. Matching performance tasks to instruction and course objectives	0	4	13	2	0	2.89	MO
10. Defining a rating scale for	0	4	13	2	0	2.89	

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performance criteria in advance							MO
11. Using concept mapping to assess student learning	0	3	14	2	0	2.95	MO
12. Using portfolios to assess student progress	0	3	14	2	0	2.95	MO
13. Interpreting standardized test scores (Stanine, Percentile, Rank)	0	4	13	2	0	2.89	MO
14. Using norm-referenced grading model	0	4	13	2	0	2.89	MO
15. Using criteria-referenced grading model	0	4	13	2	0	2.89	MO
16. Using systematic procedures to determine borderline grades	0	3	14	2	0	2.95	MO
17. Avoiding teaching to the test when preparing students for tests	0	4	13	2	0	2.89	MO
AWM						2.93	MO

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49
LO = low level = 1.50 – 2.49
MO = moderate level= 2.50 – 3.49
HI = high level = 3.50 – 4.49
VH = very high = 4.50 – 5.00

When inquired as to the level of the assessment skills in weighing differently projects, exams, homework, and others when assigning semester grades of their science teachers, four of the school heads ticked “low level”, 13 ticked “moderate level”, and two ticked “high level”. In this item, the computed weighted mean is 2.89 which is indicative of “moderate level” in the scale.
When asked as to the level of the assessment skills in determining if a standardized achievement test is valid for classroom assessment of their science teachers, three of the school heads said “low level”, 14 said “moderate level”, and two said “high level”. The computed weighted mean in this item is 2.95 which is leading to “moderate level” in the scale.
When asked as to the level of the assessment skills in using a table of specifications to plan assessment of their science teachers, four of the school heads said “low level”, 12 said “moderate level”, and three said “high level”. The computed weighted mean in this item is 2.95 which is leading to “moderate level” in the scale.
When questioned as to the level of the assessment skills in developing assessments based on clearly defined course objectives of their science teachers, three of the school heads claimed “low level”, 13 claimed “moderate level”, and three claimed “high level”. The weighted mean computed here is 3.00 which is indicative of “moderate level” in the scale of interpretation.
When questioned as to the level of the assessment skills in constructing a model answer for scoring essay questions of their science teachers, four of the school heads claimed “low level”,

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13 claimed “moderate level”, and two claimed “high level”. The weighted mean computed here is 2.89 which is indicative of “moderate level” in the scale of interpretation.
When questioned as to the level of the assessment skills in matching performance tasks to instruction and course objectives of their science teachers, four of the school heads said “low level”, 13 said “moderate level”, and two said “high level”. The weighted mean computed in this item is 2.89 which is indicative of “moderate level” in the scale of interpretation.
When queried as to the level of the assessment skills in defining a rating scale for performance criteria in advance of their science teachers, four of the school heads responded “low level”, 13 responded “moderate level”, and two responded “high level”. Here, the computed weighted mean is 2.89 which is pointing to “moderate level” in the scale.
When inquired as to the level of the assessment skills in using concept mapping to assess student learning of their science teachers, three of the school heads ticked “low level”, 14 ticked “moderate level”, and two ticked “high level”. In this item, the computed weighted mean is 2.95 which is indicative of “moderate level” in the scale.
When asked as to the level of the assessment skills in using portfolios to assess student progress of their science teachers, three of the school heads said “low level”, 14 said “moderate level”, and two said “high level”. The computed weighted mean in this item is 2.95 which is leading to “moderate level” in the scale.
When asked as to the level of the assessment skills in interpreting standardized test scores (Stanine, Percentile, Rank) of their science teachers, four of the school heads said “low level”, 13 said “moderate level”, and two said “high level”. The computed weighted mean in this item is 2.89 which is leading to “moderate level” in the scale.
When questioned as to the level of the assessment skills in using norm-referenced grading model of their science teachers, four of the school heads claimed “low level”, 13 claimed “moderate level”, and two claimed “high level”. The weighted mean computed here is 2.89 which is indicative of “moderate level” in the scale of interpretation.
When questioned as to the level of the assessment skills in using criteria-referenced grading model of their science teachers, four of the school heads claimed “low level”, 13 claimed “moderate level”, and two claimed “high level”. The weighted mean computed here is 2.89 which is indicative of “moderate level” in the scale of interpretation.
When questioned as to the level of the assessment skills in using systematic procedures to determine borderline grades of their science teachers, three of the school heads claimed “low level”, 14 claimed “moderate level”, and two claimed “high level”. The weighted mean computed here is 2.95 which is indicative of “moderate level” in the scale of interpretation.
And, when queried as to the level of the assessment skills in avoiding teaching to the test when preparing students for tests of their science teachers, four of the school heads answered “low level”, 13 said “moderate level”, and two said “high level”. In this item, the weighted mean computed is 2.89 which has a descriptive equivalent of “moderate level” in the scale of interpretation.
Moreover, the area weighted mean computed is 2.93 which is pointing to “moderate level” in the scale of interpretation. This implies that the school heads perceived that their science teachers only have moderate level of assessment skills in terms of item analysis.

On Assessment Skills in terms of Communicating Assessment Results, Ethics, and Grading

The science teachers and the school heads assessed the level of assessment skills in terms of communicating assessment results, ethics, and grading of the science teachers.

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Assessment of the Science Teachers. The assessment of the science teachers on the level of their assessment skills in terms of communicating assessment results, ethics, and grading is presented in Table 12.

TABLE 12
The Level of Assessment Skills in terms of Communicating Assessment Results, Ethics, and Grading of the Science Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Communicating Assessment Results, Ethics, and Grading	VL	LO	MO	HI	VH		
1. Communicating performance assessment criteria to student in advance	0	0	50	85	58	4.04	HI
2. Using assessment results when evaluating class improvement	0	0	45	82	66	4.11	HI
3. Using assessment results when evaluating school improvement	0	0	51	80	62	4.06	HI
4. Informing students in advance how grades are to be assigned	0	0	47	81	65	4.09	HI
5. Assigning grades	0	0	45	78	70	4.13	HI
6. Providing oral feedback to students	0	0	48	79	66	4.09	HI
7. Providing written feedback to students	0	0	53	74	66	4.07	HI
8. Communicating classroom assessment results to students.	0	0	53	83	57	4.02	HI
9. Communicating classroom assessment results to parents	0	0	51	94	48	3.98	HI
10. Communicating assessment results to educators	0	0	56	90	47	3.95	HI
11. Incorporating improvement in the calculation of grades	0	0	49	90	54	4.03	HI
12. Using systematic procedures to determine borderline grades	0	0	50	90	53	4.02	HI
13. Protecting student's confidentiality with regard to test scores	0	0	50	89	54	4.02	HI
14. Recognizing unethical, illegal or otherwise inappropriate assessment methods	0	0	50	89	54	4.02	HI
15. Recognizing unethical, illegal or otherwise inappropriate uses of assessment information.	0	0	46	89	58	4.06	HI
AWM						4.05	HI

Legend:
WM = weighted mean

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DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very low level =	1.00 – 1.49	
LO	=	low level	=	1.50 – 2.49
MO	=	moderate level=	2.50 – 3.49	
HI	=	high level	=	3.50 – 4.49
VH	=	very high	=	4.50 – 5.00

As disclosed in Table 12, when asked as to the level of their assessment skills in communicating performance assessment criteria to student in advance, 50 of the science teachers said “moderate level”, 85 said “high level”, and 58 said “very high level”. The weighted mean computed here is 4.04 which is leading to “high level” in the scale.

When inquired as to the level of their assessment skills in using assessment results when evaluating class improvement, 45 of the science teachers ticked “moderate level”, 82 ticked “high level”, and 66 ticked “very high level”. In this item, the computed weighted mean is 4.11 which is indicative of “high level” in the scale.

When asked as to the level of their assessment skills in using assessment results when evaluating school improvement, 51 of the science teachers said “moderate level”, 80 said “high level”, and 62 said “very high level”. The computed weighted mean in this item is 4.06 which is leading to “high level” in the scale.

When asked as to the level of their assessment skills in informing students in advance how grades are to be assigned, 61 of the teachers said “moderate level”, 101 said “high level”, and 76 said “very high level”. The computed weighted mean in this item is 4.06 which is leading to “high level” in the scale.

When questioned as to the level of their assessment skills in assigning grades, 45 of the science teachers claimed “moderate level”, 78 claimed “high level”, and 70 claimed “very high level”. The weighted mean computed here is 4.13 which is indicative of “high level” in the scale of interpretation.

When questioned as to the level of their assessment skills in providing oral feedback to students, 48 of the science teachers claimed “moderate level”, 79 claimed “high level”, and 66 claimed “very high level”. The weighted mean computed here is 4.09 which is indicative of “high level” in the scale of interpretation.

When questioned as to the level of their assessment skills in providing written feedback to students, 53 of the science teachers said “moderate level”, 74 said “high level”, and 66 said “very high level”. The weighted mean computed in this item is 4.07 which is indicative of “high level” in the scale of interpretation.

When queried as to the level of their assessment skills in communicating classroom assessment results to students, 53 of the science teachers responded “moderate level”, 83 responded “high level”, and 57 responded “very high level”. Here, the computed weighted mean is 4.02 which is pointing to “high level” in the scale.

When inquired as to the level of their assessment skills in communicating classroom assessment results to parents, 51 of the science teachers ticked “moderate level”, 94 ticked “high level”, and 48 ticked “very high level”. In this item, the computed weighted mean is 3.98 which is indicative of “high level” in the scale.

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When asked as to the level of their assessment skills in communicating assessment results to educators, 56 of the teachers said “moderate level”, 90 said “high level”, and 47 said “very high level”. The computed weighted mean in this item is 3.95 which is leading to “high level” in the scale.
When asked as to the level of their assessment skills in 1ncorporating improvement in the calculation of grades, 49 of the teachers said “moderate level”, 90 said “high level”, and 54 said “very high level”. The computed weighted mean in this item is 4.03 which is leading to “high level” in the scale.
When questioned as to the level of their assessment skills in using systematic procedures to determine borderline grades, 50 of the science teachers claimed “moderate level”, 90 claimed “high level”, and 53 claimed “very high level”. The weighted mean computed here is 4.02 which is indicative of “high level” in the scale of interpretation.
When questioned as to the level of their assessment skills in protecting student’s confidentiality with regard to test scores, 50 of the science teachers claimed “moderate level”, 89 claimed “high level”, and 54 claimed “very high level”. The weighted mean computed here is 4.02 which is indicative of “high level” in the scale of interpretation.
When questioned as to the level of their assessment skills in recognizing unethical, illegal or otherwise inappropriate assessment methods, 50 of the science teachers claimed “moderate level”, 89 claimed “high level”, and 54 claimed “very high level”. The weighted mean computed here is 4.02 which is indicative of “high level” in the scale of interpretation.
And, when queried as to the level of their assessment skills in recognizing unethical, illegal or otherwise inappropriate uses of assessment information, 46 of the science teachers answered “moderate level”, 89 said “high level”, and 58 said “very high level”. In this item, the weighted mean computed is 4.06 which has a descriptive equivalent of “high level” in the scale of interpretation.
Moreover, the area weighted mean computed is 4.05 which is pointing to “high level” in the scale of interpretation. This implies that the science teachers perceived that they have high level of assessment skills in terms of communicating assessment results, ethics, and grading.

Assessment of the School Heads. The assessment of the school heads on the level of assessment skills in terms of communicating assessment results, ethics, and grading of their science teachers is presented in Table 13.
As disclosed in Table 13, when asked as to the level of the assessment skills in communicating performance assessment criteria to student in advance of their science teachers, three of the school heads said “low level”, 13 said “moderate level”, and three said “high level”. The weighted mean computed here is 3.00 which is leading to “moderate level” in the scale.

TABLE 13
The Level of Assessment Skills in terms of Communicating Assessment Results, Ethics, and Grading of the Science Teachers as Perceived by School Heads

Assessment Items	Responses					WM	DE
Assessment Skills in terms of Communicating Assessment Results, Ethics, and Grading	VL	LO	MO	HI	VH		

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1. Communicating performance assessment criteria to student in advance	0	3	13	3	0	3.00	MO
2. Using assessment results when evaluating class improvement	0	4	12	3	0	2.95	MO
3. Using assessment results when evaluating school improvement	0	4	11	4	0	3.00	MO
4. Informing students in advance how grades are to be assigned	0	4	12	3	0	2.95	MO
5. Assigning grades	0	4	12	3	0	2.95	MO
6. Providing oral feedback to students	0	4	12	3	0	2.95	MO
7. Providing written feedback to students	0	3	13	3	0	3.00	MO
8. Communicating classroom assessment results to students.	0	4	12	3	0	2.95	MO
9. Communicating classroom assessment results to parents	0	4	12	3	0	2.95	MO
10. Communicating assessment results to educators	0	4	12	3	0	2.95	MO
11. Incorporating improvement in the calculation of grades	0	3	13	3	0	3.00	MO
12. Using systematic procedures to determine borderline grades	0	3	13	3	0	3.00	MO
13. Protecting student's confidentiality with regard to test scores	0	3	13	3	0	3.00	MO
14. Recognizing unethical, illegal or otherwise inappropriate assessment methods	0	4	12	3	0	2.95	MO
15. Recognizing unethical, illegal or otherwise inappropriate uses of assessment information.	0	4	12	3	0	2.95	MO
AWM						2.97	MO

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49
LO = low level = 1.50 – 2.49
MO = moderate level= 2.50 – 3.49
HI = high level = 3.50 – 4.49
VH = very high = 4.50 – 5.00

When inquired as to the level of the assessment skills in using assessment results when evaluating class improvement of their science teachers, four of the school heads ticked "low

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level", 12 ticked "moderate level", and three ticked "high level". In this item, the computed weighted mean is 2.95 which is indicative of "moderate level" in the scale.
When asked as to the level of the assessment skills in using assessment results when evaluating school improvement of their science teachers, four of the school heads said "low level", 11 said "moderate level", and four said "high level". The computed weighted mean in this item is 3.00 which is leading to "moderate level" in the scale.
When asked as to the level of the assessment skills in informing students in advance how grades are to be assigned of their science teachers, four of the school heads said "low level", 12 said "moderate level", and three said "high level". The computed weighted mean in this item is 2.95 which is leading to "moderate level" in the scale.
When questioned as to the level of the assessment skills in assigning grades of their science teachers, four of the school heads claimed "low level", 12 claimed "moderate level", and three claimed "high level". The weighted mean computed here is 2.95 which is indicative of "moderate level" in the scale of interpretation.
When questioned as to the level of the assessment skills in providing oral feedback to students of their teachers, four of the teachers claimed "low level", 12 claimed "moderate level", and three claimed "high level". The weighted mean computed here is 2.95 which is indicative of "moderate level" in the scale of interpretation.
When questioned as to the level of the assessment skills in providing written feedback to students of their science teachers, three of the school heads said "low level", 13 said "moderate level", and three said "high level". The weighted mean computed in this item is 3.00 which is indicative of "moderate level" in the scale of interpretation.
When queried as to the level of the assessment skills in communicating classroom assessment results to students of their science teachers, four of the school heads responded "low level", 12 responded "moderate level", and three responded "high level". Here, the computed weighted mean is 2.95 which is pointing to "moderate level" in the scale.
When inquired as to the level of the assessment skills in communicating classroom assessment results to parents of their science teachers, four of the school heads ticked "low level", 12 ticked "moderate level", and three ticked "high level". In this item, the computed weighted mean is 2.95 which is indicative of "moderate level" in the scale.
When asked as to the level of the assessment skills in communicating assessment results to educators of their science teachers, four of the school heads said "low level", 12 said "moderate level", and three said "high level". The computed weighted mean in this item is 2.95 which is leading to "moderate level" in the scale.
When asked as to the level of the assessment skills in incorporating improvement in the calculation of grades of their science teachers, three of the school heads said "low level", 13 said "moderate level", and three said "high level". The computed weighted mean in this item is 3.00 which is leading to "moderate level" in the scale.
When questioned as to the level of the assessment skills in using systematic procedures to determine borderline grades of their science teachers, three of the school heads claimed "low level", 13 claimed "moderate level", and three claimed "high level". The weighted mean computed here is 3.00 which is indicative of "moderate level" in the scale of interpretation.
When questioned as to the level of the assessment skills in protecting student's confidentiality with regard to test scores of their science teachers, three of the school heads claimed "low level", 13 claimed "moderate level", and three claimed "high level". The weighted mean computed here is 3.00 which is indicative of "moderate level" in the scale of interpretation.

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When questioned as to the level of the assessment skills in recognizing unethical, illegal or otherwise inappropriate assessment methods of their science teachers, four of the school heads claimed “low level”, 12 claimed “moderate level”, and three claimed “high level”. The weighted mean computed here is 2.95 which is indicative of “moderate level” in the scale of interpretation. And, when queried as to the level of the assessment skills in recognizing unethical, illegal or otherwise inappropriate uses of assessment information of their science teachers, four of the school heads answered “low level”, 12 said “moderate level”, and three said “high level”. In this item, the weighted mean computed is 2.95 which has a descriptive equivalent of “moderate level” in the scale of interpretation.
Moreover, the area weighted mean computed is 2.97 which is pointing to “moderate level” in the scale of interpretation. This implies that the school heads perceived that their science teachers have moderate level of assessment skills in terms of communicating assessment results, ethics, and grading.

The Level of Assessment Skills of the Science Teachers

The level of assessment skills of the science teachers of the selected public elementary schools in Quezon City is presented in Table 14.
As can be noted in Table 14, the science teachers perceived that they have high level of assessment skills as evidenced by the computed overall weighted mean of 4.05. On the other hand, the school heads perceived that the science teachers only have moderate level of assessment skills as evidenced by the computed overall weighted mean of 2.94.

TABLE 14
The Level of Assessment Skills of the Science Teachers of Selected Public Elementary Schools in Quezon City

Assessment Areas	Teachers		School Heads	
	AWM	DE	AWM	DE
Assessment Skills in terms of Paper and Pencil Test	4.02	HI	2.96	MO
Assessment Skills in terms of Performance Assessment	4.05	HI	2.93	MO
Assessment Skills in terms of Task-based Assessment	4.04	HI	2.91	MO
Assessment Skills in terms of Item Analysis	4.07	HI	2.93	MO
Assessment Skills in terms of Communicating Assessment Results, Ethics, and Grading	4.05	HI	2.97	MO
OWM	4.05	HI	2.94	MO

Legend:
OWM = overall weighted mean
DE = descriptive equivalent
AWM = area weighted mean
Scale:

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VL = very low level = 1.00 – 1.49
LO = low level = 1.50 – 2.49
MO = moderate level= 2.50 – 3.49
HI = high level = 3.50 – 4.49
VH = very high = 4.50 – 5.00

Difference between the Perceptions of the Science Teachers and the School Heads on the Level of Assessment Skills of the Science Teachers

This part of the chapter discusses answers to the third sub-problem of the study which is about the significant difference between the perceptions or assessments of the science teachers and the school heads on the level of assessment skills of the science teachers.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant difference between the perceptions or assessments of science the teachers and the school heads on the level of assessment skills of the science teachers. Thereafter, the researcher compared the perceptions or assessments of the science teachers and the school heads using the t-test. Here, the researcher computed the p value at .05 level of significance. Table 15 presents the results.

TABLE 15
Difference between the Perceptions of the Science Teachers and the School Heads

	Computed p Value	Level of Significance	RM
Level of Assessment Skills of the Science Teachers	0.00	.05	S

Legend:
RM = remarks
S = significant
NS = not significant

As shown in Table 15, when the perceptions of the science teachers and the school heads on the level of assessment skills of the teachers are compared, the p value computed is 0.00. This figure is lower than the .05 level of significance. As such, the null hypothesis is rejected. There is a significant difference between the perceptions of the sciences teachers and the school heads on the level of assessment skills of the science teachers.

Relationship between the Profile Variables of the Science Teachers and the Level of Their Assessment Skills

This part of the chapter provides answers to the fourth sub-problem of the study which is about the significant relationship between the profile variables of the science teachers and the level of their assessment skills.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the profile variables of the science teachers and the level of their assessment skills. Thereafter, the researcher correlated the profile variables of the sciences

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teachers and the level of their assessment skills using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the p value and the chi square value at .05 level of significance. Table 16 presents the results**.**

TABLE 16
Relationship between the Profile Variables of the Science Teachers and the Level of Their Assessment Skills

Profile Variables	P Value .05 LS	Chi Square Value	Chi Square Critical Value	RM
Highest Educational Attainment	0.00	8.46	3.84	S
Length of Teaching Experience	0.00	7.95	3.84	S
Number of Relevant Trainings	0.02	5.42	3.84	S

Legend:
RM = remarks
S = significant
NS = not significant

As shown in Table 16, when the highest educational attainment of the science teachers and the level of their assessment skills are correlated, the p value computed is 0.00. This figure is lower than the .05 level of significance. In the same way, the chi square value computed is 8.46. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. As such, the null hypothesis is rejected. It can be said then that the level of assessment skills of the science teachers is influenced by their highest educational attainment.

Secondly, when the length of teaching experience of the science teachers and the level of their assessment skills are correlated, the p value computed is 0.00. This figure is lower than the .05 level of significance. In the same way, the chi square value computed is 7.95. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. As such, the null hypothesis is rejected. It can be said then that the level of assessment skills of the science teachers is influenced by their length of teaching experience.

Lastly, when the number of relevant trainings of the science teachers and the level of their assessment skills are correlated, the p value computed is 0.02. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 5.42. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the level of assessment skills of the science teachers is influenced by their number of relevant trainings attended.

The Proposed In-Service Training Program to Enhance the Assessment Skills of the Science Teachers of the Selected Public Elementary Schools in Quezon City

This section presents answers to the last sub-problem of the study which is about the proposed in-service training program to enhance the assessment skills of the science teachers of the selected public elementary schools in Quezon City.

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To provide answers to the sub-problem, the researcher considered the findings that majority of the science teachers have attended not more than three trainings related with assessment for the past five years, that the school heads perceived that the science teachers only have moderate level of assessment skills, and that the number of trainings related with assessment attended by the science teachers influenced the level of their assessment skills.
What follows is the proposed in-service training program to enhance the level of assessment skills of the science teachers.

AN IN-SERVICE TRAINING PROGRAM TO ENHANCE THE ASSESSMENT SKILLS OF THE SCIENCE TEACHERS OF SELECTED PUBLIC ELEMENTARY SCHOOLS IN QUEZON CITY

Program Title: An In-Service Training Program to Enhance the Assessment Skills of the Science Teachers of Selected Public Elementary Schools in Quezon City

Prerequisite Program: None

Duration: This program shall run for five sessions with one day for each session

Management Level of the Program: This program is a division-based program for the selected schools in Quezon City

Delivery Mode: Depending on the nature of the activity, priority will be given to interactive and collaborative approaches - such as mentoring, coaching, professional learning sessions, peer discussions, workshops, and similar engagements - that aim to strengthen teachers' assessment skills.

Target Personnel: Science teachers of the selected public elementary schools in Quezon City

Budget Requirement: The cost of the program shall be shouldered by the Schools Division of Quezon City

Rationale:

In the past, teachers primarily relied on assessment results to determine students' grades. Today, however, assessment serves not only as a basis for grading but also as a tool for enhancing classroom instruction and improving student learning. In recent years, the importance of

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assessment and its critical role in shaping educational goals and objectives have become more widely recognized. It influences the "how, what, how much, and when" of teaching and learning processes. Moreover, assessment significantly impacts the design of the learning environment, the professional identity of teachers, and the overall development of students as learners.

What teachers choose to assess ultimately shapes what is emphasized in the classroom; therefore, focusing on what truly matters and assessing it effectively should be a central priority in education policy. To keep pace with modern demands, education must undergo reforms in assessment, moving toward next-generation approaches. In line with this, teachers need to be well-informed about the strengths and limitations of the assessment methods they use and must carefully select the most suitable formats for evaluating student performance.
Assessment tasks should demonstrate content validity and be designed to promote higher-order thinking skills. In performance-based assessments, reliability and validity can be strengthened by establishing clear, measurable, and observable standards, utilizing descriptive scoring rubrics, involving multiple evaluators to assess varied samples of student behavior, and systematically recording results throughout the process. Likewise, teacher-made tests should be continuously improved through item analysis.
Ultimately, assessment involves examining diverse sources of evidence - such as journal entries, written work, portfolios, skill demonstrations, participation, test results, and rubric-based evaluations - gathered over time to provide a comprehensive picture of students' progress in mastering competencies.
Furthermore, assessment plays a crucial role in informing and directing instruction. Through the use of varied assessment tools, teachers can identify which teaching approaches are most effective and appropriate for their learners. It also provides meaningful feedback that enables teachers to improve their instructional strategies and refine their classroom plans.
In addition, assessment serves as a valuable source of information for students, parents, and school administrators. While this information was once primarily conveyed through grades, it is now also utilized to help students reflect on, track, and take responsibility for their own learning, thereby promoting self-motivation and independence. Furthermore, assessment results can be used as a basis for improving curricula and strengthening educational programs.
Given the critical role of assessment, it is essential to strengthen teachers' assessment competencies.

Objectives: This in-service training program is designed to improve the assessment skills of the science teachers in selected public elementary schools in Quezon City.

Program Content Focus/Matrix

Program Title	Training Content	Duration
Training-Workshop on Assessment in terms of Paper and Pencil Test	This session will focus on: 1. Writing paper-pencil test, 2. Writing multiple-choice questions, 3. Writing matching questions, 4. Writing fill-in the blank or short answer questions, 5. Writing essay questions, and	1 day

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	6. Writing test items for higher cognitive levels.	
Training-Workshop on Assessment in terms of Performance Assessment	This session will focus on: 1. Choosing appropriate assessment methods for instructional decisions, 2. Administering announced quizzes, 3. Administering unannounced quizzes, 4. Recording assessment result on the rating scale/checklist while observing a student's performance, and 5. Following required procedures (time limit, no hints, no interpretation) when administering standardized tests.	1 day
Training-Workshop on Assessment in terms of Task-based Assessment	This session will focus on: 1. Assessing individual class participation, 2. Assessing individual hands-on activities, 3. Assessing group hands-on activities, 4. Assessing group class participation, 5. Incorporating extra credit activities in the calculation of grades, 6. Incorporating ability in the calculation of grades, 7. Incorporating classroom behavior in the calculation of grades, 8. Incorporating effort in the calculation of grades, and 9. Incorporating attendance in the calculation of grades.	1 day
Training-Workshop on Assessment in terms of Item Analysis	This session will focus on: 1. Selecting textbook-provided test items for classroom assessment, 2. Revising previously produced teacher-made tests to match current instructional emphasis, 3. Establishing students' expectations for determining grades for special education students, 4. Weighing differently projects, exams, homework, and others when assigning semester grades, 5. Determining if a standardized achievement test is valid for classroom assessment, 6. Using a table of specifications to plan assessment,	1 day

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	7. Developing assessments based on clearly defined course objectives, 8. Constructing a model answer for scoring essay questions, 9. Matching performance tasks to instruction and course objectives, 10. Defining a rating scale for performance criteria in advance, 11. Using concept mapping to assess student learning, 12. Using portfolios to assess student progress, 13. Interpreting standardized test scores (Stanine, Percentile, Rank), 14. Using norm-referenced grading model, 15. Using criteria-referenced grading model, 16. Using systematic procedures to determine borderline grades, and 17. Avoiding teaching to the test when preparing students for tests.	
Training-Workshop on Assessment in terms of Communicating Assessment Results, Ethics, and Grading	This session will focus on: 1. Communicating performance assessment criteria to student in advance, 2. Using assessment results when evaluating class improvement, 3. Using assessment results when evaluating school improvement, 4. Informing students in advance how grades are to be assigned, 5. Assigning grades, 6. Providing oral feedback to students, 7. Providing written feedback to students, 8. Communicating classroom assessment results to students, 9. Communicating classroom assessment results to parents, 10. Communicating assessment results to educators, 11. Incorporating improvement in the calculation of grades, 12. Using systematic procedures to determine borderline grades, 13. Protecting student's confidentiality with regard to test scores,	1 day

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	14. Recognizing unethical, illegal or otherwise inappropriate assessment methods, and 15. Recognizing unethical, illegal or otherwise inappropriate uses of assessment information.	

CONCLUSIONS

Based on the findings made, the following conclusions were drawn:

1. A typical science teacher of the selected public elementary schools in Quezon City has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with assessment for the past five years.

2. The science teachers of the selected public elementary schools in Quezon City perceived that they have high level of assessment skills while the school heads perceived that the science teachers only have moderate level of assessment skills.

3. The perceptions of the science teachers and the school heads on the level of assessment skills of the science teachers are significantly different from each other.

4. The level of assessment skills of the science teachers is influenced by their highest educational attainment, the length of teaching experience, and the number of trainings related with assessment attended for the past five years.

5. The proposed in-service training program will enhance the extent of assessment skills of the science teachers.

RECOMMENDATIONS

Based on the findings made and the conclusions drawn, the following recommendations are offered:

1. The proposed in-service training program be implemented in the selected public elementary schools in Quezon City to enhance the level of assessment skills of the science teachers.

2. The implementation of the in-service training program to enhance the level of assessment skills of the science teachers in the selected public elementary schools in Quezon City should be evaluated.

3. Similar study may be conducted by other researchers to validate the findings of the study.

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APPENDICES

THE SURVEY-QUESTIONNAIRE FOR THE SCIENCE TEACHERS

March 10, 2026

Dear Colleagues,

Greetings!

The undersigned is conducting a study entitled “Assessment Skills of the Science Teachers of Selected Public Elementary Schools in Quezon City” in partial fulfillment of the degree Master of Arts in Education.

In connection with this, and knowing that you are a science teacher in one of the selected public elementary school in Quezon City, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

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(Sgd.) John Mark Lery Montalban

Researcher

Name (Optional): _____

I. Please provide your profile in the following:

1. Highest Educational Attainment:

( ) Bachelor's Degree
( ) Finished academic requirements in the Master's Degree
( ) Master's Degree
( ) Finished academic requirements in the Doctorate Degree
( ) Doctorate Degree

2. Length of Teaching Experience:

( ) 1 – 5 years
( ) 6 – 10 years
( ) 11 – 15 years
( ) 16 – 20 years
( ) more than 20 years

3. Number of trainings related with assessment skills attended for the past five years:

( ) have not attended any trainings/seminars related with assessment skills for the past five years
( ) have attended not more than three trainings/seminars related with assessment skills for the past five years
( ) have attended not more than three trainings/seminars related with assessment skills for the past five years

II. Please rate the level of your assessment skills. Please be guided by the following:

1 = very low level

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2 = low level
3 = moderate level
4 = high level
5 = very high level

Assessment Items	1	2	3	4	5
A. Assessment Skill in terms of Paper and Pencil Test					
1. Writing paper-pencil test					
2. Writing multiple-choice questions					
3. Writing matching questions					
4. Writing fill-in the blank or short answer questions					
5. Writing essay questions					
6. Writing test items for higher cognitive levels					
B. Assessment Skill in terms of Performance Assessment					
1. Choosing appropriate assessment methods for instructional decisions					
2. Administering announced quizzes					
3. Administering unannounced quizzes					
4. Recording assessment result on the rating scale/checklist while observing a student's performance					
5. Following required procedures (time limit, no hints, no interpretation) when administering standardized tests					
C. Assessment Skill in terms of Task-based Assessment					
1. Assessing individual class participation					
2. Assessing individual hands-on activities					
3. Assessing group hands-on activities					
4. Assessing group class participation					
5. Incorporating extra credit activities in the calculation of grades					
6. Incorporating ability in the calculation of grades					
7. Incorporating classroom behavior in the calculation of grades.					
8. Incorporating effort in the calculation of grades.					
9. Incorporating attendance in the calculation of grades.					
D. Assessment Skill in terms of Item Analysis					
1. Selecting textbook-provided test items for classroom assessment					
2. Revising previously produced teacher-made tests to match current instructional emphasis					
3. Establishing students' expectations for determining grades for special education students					

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4. Weighing differently projects, exams, homework, etc. when assigning semester grades					
5. Determining if a standardized achievement test is valid for classroom assessment					
6. Using a table of specifications to plan assessment					
7. Developing assessments based on clearly defined course objectives					
8. Constructing a model answer for scoring essay questions					
9. Matching performance tasks to instruction and course objectives					
10. Defining a rating scale for performance criteria in advance					
11. Using concept mapping to assess student learning					
12. Using portfolios to assess student progress					
13. Interpreting standardized test scores (Stanine, Percentile, Rank)					
14. Using norm-referenced grading model					
15. Using criteria-referenced grading model					
16. Using systematic procedures to determine borderline grades					
17. Avoiding teaching to the test when preparing students for tests					
E. Assessment Skill in terms of Communicating Assessment Results, Ethics, and Grading					
1. Communicating performance assessment criteria to student in advance					
2. Using assessment results when evaluating class improvement					
3. Using assessment results when evaluating school improvement					
4. Informing students in advance how grades are to be assigned					
5. Assigning grades					
6. Providing oral feedback to students					
7. Providing written feedback to students					
8. Communicating classroom assessment results to students.					
9. Communicating classroom assessment results to parents					
10. Communicating assessment results to educators					
11. Incorporating improvement in the calculation of					

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grades					
12. Using systematic procedures to determine borderline grades					
13. Protecting student's confidentiality with regard to test scores					
14. Recognizing unethical, illegal or otherwise inappropriate assessment methods					
15. Recognizing unethical, illegal or otherwise inappropriate uses of assessment information.					

THE SURVEY-QUESTIONNAIRE FOR THE SCHOOL HEADS
March 10, 2026

Dear School Heads,

Greetings!

The undersigned is conducting a study entitled **"**Assessment Skills of the Science Teachers of Selected Public Elementary Schools in Quezon City" in partial fulfillment of the degree Master of Arts in Education.

In connection with this, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

(Sgd.) John Mark Lery Montalban
Researcher

NAME (Optional): _____

I. Please rate the level of assessment skills of your science teachers. Please be guided by the following:

1 = very low level
2 = low level

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3 = moderate level
4 = high level
5 = very high level

Assessment Items	1	2	3	4	5
A. Assessment Skill in terms of Paper and Pencil Test					
1. Writing paper-pencil test					
2. Writing multiple-choice questions					
3. Writing matching questions					
4. Writing fill-in the blank or short answer questions					
5. Writing essay questions					
6. Writing test items for higher cognitive levels					
B. Assessment Skill in terms of Performance Assessment					
1. Choosing appropriate assessment methods for instructional decisions					
2. Administering announced quizzes					
3. Administering unannounced quizzes					
4. Recording assessment result on the rating scale/checklist while observing a student's performance					
5. Following required procedures (time limit, no hints, no interpretation) when administering standardized tests					
C. Assessment Skill in terms of Task-based Assessment					
1. Assessing individual class participation					
2. Assessing individual hands-on activities					
3. Assessing group hands-on activities					
4. Assessing group class participation					
5. Incorporating extra credit activities in the calculation of grades					
6. Incorporating ability in the calculation of grades					
7. Incorporating classroom behavior in the calculation of grades.					
8. Incorporating effort in the calculation of grades.					
9. Incorporating attendance in the calculation of grades.					
D. Assessment Skill in terms of Item Analysis					
1. Selecting textbook-provided test items for classroom assessment					
2. Revising previously produced teacher-made tests to match current instructional emphasis					
3. Establishing students' expectations for determining grades for special education students					
4. Weighing differently projects, exams, homework, etc. when assigning semester grades					

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5. Determining if a standardized achievement test is valid for classroom assessment					
6. Using a table of specifications to plan assessment					
7. Developing assessments based on clearly defined course objectives					
8. Constructing a model answer for scoring essay questions					
9. Matching performance tasks to instruction and course objectives					
10. Defining a rating scale for performance criteria in advance					
11. Using concept mapping to assess student learning					
12. Using portfolios to assess student progress					
13. Interpreting standardized test scores (Stanine, Percentile, Rank)					
14. Using norm-referenced grading model					
15. Using criteria-referenced grading model					
16. Using systematic procedures to determine borderline grades					
17. Avoiding teaching to the test when preparing students for tests					
E. Assessment Skill in terms of Communicating Assessment Results, Ethics, and Grading					
1. Communicating performance assessment criteria to student in advance					
2. Using assessment results when evaluating class improvement					
3. Using assessment results when evaluating school improvement					
4. Informing students in advance how grades are to be assigned					
5. Assigning grades					
6. Providing oral feedback to students					
7. Providing written feedback to students					
8. Communicating classroom assessment results to students.					
9. Communicating classroom assessment results to parents					
10. Communicating assessment results to educators					
11. Incorporating improvement in the calculation of grades					
12. Using systematic procedures to determine borderline					

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grades					
13. Protecting student's confidentiality with regard to test scores					
14. Recognizing unethical, illegal or otherwise inappropriate assessment methods					
15. Recognizing unethical, illegal or otherwise inappropriate uses of assessment information.					

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ICT COMPETENCE OF TEACHERS OF PUBLIC SECONDARY SCHOOLS IN THE MUNICIPALITY OF ASINGAN, PANGASINAN

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Abstract

This study sought to determine the extent of ICT competence of the teachers of public secondary schools in the Municipality of Asingan, Pangaasinan during the School Year 2025-2026 through a quantitative-descriptive-correlational research design. The data used in this study came from the 168 teachers and eight school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, and the t-test. Results showed that: majority of the teachers have no post-graduate degrees, have been teaching for more than ten years already, and have attended not more than three trainings/seminars related with ICT; in general, the teachers perceived that their ICT competence is to a great extent as evidenced by the computed overall weighted mean of 4.02 while the school heads perceived that the ICT competence of the teachers is only to a moderate extent as evidenced by the computed overall weighted mean of 2.95; there is a significant relationship between the highest educational attainment, the length of teaching experience, and the number of relevant trainings attended of the teachers and the extent of their ICT competence; there is a significant difference between the perceptions of the teachers and their school heads on the extent of ICT competence of the teachers; and, the teachers encountered four challenges in integrating ICT in the classroom. Given the findings, the following conclusions were drawn: a typical teacher of a public secondary school in the Municipality of Asingan, Pangasinan is a bachelor's degree holder, has been teaching for more than ten years already, and has attended not more than three trainings/seminars related with ICT for the past five years; the teachers perceived that their ICT competence is to a great extent while their school heads perceived that their ICT competence is only to a moderate extent; the extent of ICT competence of the teachers is influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended; the teachers and their school heads have different perceptions on the extent of ICT competence of the teachers; and, the challenges encountered by the teachers in integrating ICT in the classroom may be addressed.

Keywords: *ICT competence, teachers, public secondary schools, National ICT Competency Standards, enhancement training program*

Introduction

The integration of technology in education is not a new concept, as its roots can be traced to the early era of television when many believed it would transform the educational system. In the present time, the incorporation of computers has greatly influenced the field of education and

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almost every aspect of everyday life. As computers become more affordable and readily available in homes and schools, policymakers and other stakeholders continue to recognize and anticipate the capacity of technology to enhance and redefine learning experiences (Wong & Daud, 2018).

According to Mijares (2022), the rapid growth of digital technologies, particularly Information and Communication Technology (ICT), in the 21st century has significantly altered traditional educational practices, resulting in major changes in the processes of teaching and learning. Drawing from the views of different scholars, Gangmei and Thomas (2025) described ICT as technologies utilized for the creation, transmission, storage, sharing, and exchange of information among people—a definition that includes tools and platforms such as radio, television, video, telephones, satellite systems, computer hardware and networks, and communication services like email and video conferencing. Similarly, Junio (2023) explained ICT as computer-based technologies comprising hardware, software, networks, and various digital devices that transform information in the form of text, sound, and motion into digital data, spanning both traditional media (radio, television, telephones) and modern innovations (computers, satellites, wireless technologies, and the Internet). Meanwhile, in line with the Commission on Information and Communication Technology in the Philippines, Quidon (2024) described ICT as a broad array of electronic technologies used for gathering, storing, processing, and disseminating information, while Rubach and Lazarides (2023) noted that ICT facilitates access to information and communication through telecommunication technologies, thereby providing opportunities for digital connectivity and interaction.

According to UNESCO, as cited by Manaban, Piñero, and Futalan (2025), societies in an increasingly information-, knowledge-, and technology-driven world must establish mechanisms that develop a workforce equipped with ICT competencies, critical thinking abilities, creativity, and problem-solving skills necessary for knowledge creation, while also promoting inclusive participation among all members of society. In response, the United Nations adopted the 2030 Agenda for Sustainable Development, acknowledging the vast potential of ICT to hasten development, narrow the digital divide, and promote inclusive knowledge societies grounded in human rights, gender equality, and empowerment. ICT plays a crucial role in advancing the Sustainable Development Goals, particularly quality education (Goal 4), gender equality (Goal 5), industry and infrastructure (Goal 9), reduced inequalities (Goal 10), peace, justice, and strong

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institutions (Goal 16), and partnerships for the goals (Goal 17). Hence, ICT competence, which refers to the ability and ethical responsibility to participate effectively in the digital world, has become an essential skill in the 21st century.

In line with the foregoing discussion, Alharthi (2020) asserted that the ongoing development of ICT continues to reshape the global educational environment. Likewise, Costa (2026) emphasized that the utilization and integration of ICT in teaching have become vital elements of the pedagogical process, as they enhance teacher-student interaction and maximize learning outcomes, allowing students to learn more effectively when technology is used appropriately and efficiently. Through ICT, teachers are able to facilitate discussions that deepen students' understanding of various concepts and strengthen instructional delivery (Alharthi, 2020). As a cognitive technological tool, ICT also offers external representations of different processes, allowing learners to reflect on concepts, conventions, and strategic decisions while participating in educational activities (Asagar, 2025). Muñoz (2024) pointed out that the integration of technology across all levels of learning enables students to become more skilled, confident, and efficient in using digital tools—competencies that are crucial in today's technology-oriented academic and professional environments. As ICT continues to play a growing role in knowledge acquisition, content understanding, and learning processes, there is an increasing need to strengthen teachers' ICT competence so they can effectively address the evolving learning styles of digital-native learners (Murithi & Yoo, 2021).

It is thus important for teachers to possess the necessary competencies to effectively integrate ICT into their professional practice in order to promote equitable and quality learning and to help learners develop essential knowledge-society skills, including critical and creative thinking, complex problem-solving, collaboration, and socio-emotional abilities (Bingimlas, 2021). According to Villegas and Buquia (2023), ICT competencies refer to the ability to use technological tools and equipment for accessing, distributing, and transferring knowledge, and are categorized into four major domains: basic technology operations, personal and professional utilization of technological tools, social and ethical concerns, and the application of technology in instruction. Junio (2023), citing the works of various authorities, likewise classified ICT competencies into basic or fundamental competencies (entry-level skills such as managing electronic files, using databases and spreadsheets, and sending emails) and advanced competencies

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(applying these foundational skills to teaching, administration, counseling, and other professional functions). Unfortunately, Cayabyab (2024) noted that findings from numerous studies indicate the need for stronger encouragement, greater support, and more opportunities to enhance teachers' ICT competence and increase their motivation, thereby improving both the extent and quality of ICT integration in classroom instruction.

Considering the extensive presence of ICT and its substantial potential to transform education, this study investigated the extent of ICT competence among teachers in public secondary schools in the Municipality of Asingan, Pangasinan.

Theoretical and Conceptual Framework

This study was anchored on the National ICT Competency Standards for Teachers (NICS-Teachers), a framework formulated by the Commission on Information and Communications Technology (CICT) in the Philippines (Caburao, 2025). The NICS-Teachers framework is composed of four major domains. The first, Technology Operations and Concepts, covers proficiency in basic computer operations and other digital devices, including simple troubleshooting; the use of appropriate office and instructional productivity software; efficient access to internet-based and networked applications and resources; and competence in the management of information and data. The second, the Social and Ethical Domain, emphasizes understanding and compliance with legal regulations governing technology use, ethical conduct in personal and professional applications of technology, the creation of a safe and responsible technology-supported learning environment, and equitable and inclusive access to technology. The third, the Pedagogical Domain, highlights competencies associated with integrating technology into the planning, implementation, and assessment phases of the teaching-learning process. The fourth, the Professional Domain, covers competencies associated with continuous professional growth, research, innovation, and collaboration (Caburao, 2025).

Related literature further enriches this framework. Almerich, Orellana, Suarez-Rodriguez, and Diaz-Garcia (2016) explained that ICT competencies center on five key aspects—productivity, communication, research, media, and presentation—each encompassing specific classroom-relevant skills such as producing instructional documents, using digital communication and collaboration tools, evaluating online sources, adapting digital media for diverse learners, and

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creating effective digital presentations. Muñoz (2024), drawing from several authorities, classified ICT competencies in education into four areas: technological (technical expertise in using and maintaining ICT tools), pedagogical (incorporating ICT into instructional practice), didactical (mastery of subject-matter content), and social (ethical, legal, and social awareness in ICT use). Meanwhile, drawing from UNESCO, Caburao (2025) explained that the development of teachers' ICT competencies progresses through three successive stages: knowledge acquisition (foundational technology knowledge and awareness of ICT's role in national policy), knowledge deepening (student-centered, technology-enhanced classroom practice and project-based learning), and knowledge creation (leadership in developing school-wide technology strategies and modeling innovative practice).

Empirical studies likewise inform this investigation. Joshi et al. (2021), using a structural model with 1,095 primary and secondary teachers in Spain, found that teachers demonstrated stronger technological competencies than pedagogical competencies, that most possessed ICT competencies only at the general user level, and that competency levels were significantly influenced by gender, educational attainment, and frequency of computer use. Murithi and Yoo (2021), studying 351 teacher-respondents anchored on the Constructivist Learning Theory and the Technology Acceptance Model, found that teachers considered school ICT facilities insufficient and that most had received only basic computer literacy training, although age was found to influence perceptions of technology's usefulness. Dela Fuente and Biñas (2020), assessing 72 secondary teachers using an instrument adapted from the NICS-Basic standards, found that teachers possessed an intermediate level of ICT competence overall; while age, gender, educational attainment, and teaching position had no significant influence on competence, the number of ICT-related seminars and trainings attended showed significant effects, leading the researchers to recommend integrating ICT-focused activities into teachers' In-Service Training.

Statement of the Problem

This study aimed to propose an enhancement training program on ICT for the teachers of public secondary schools in the Municipality of Asingan, Pangasinan. Specifically, it sought answers to the following questions:

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1. What is the profile of the teachers of public secondary schools in the Municipality of Asingan in terms of (a) highest educational attainment, (b) length of teaching experience, and (c) number of relevant seminars/trainings attended?

2. What is the extent of ICT competence of the teachers as perceived by themselves and by their school heads?

3. Is there a significant relationship between the profile variables of the teachers and the extent of their ICT competence?

4. Is there a significant difference between the perceptions of the teachers and their school heads on the extent of ICT competence of the teachers?

5. What are the challenges encountered by the teachers in integrating ICT in the classroom?

6. Based on the findings, what enhancement training program on ICT may be proposed for the teachers of public secondary schools in the Municipality of Asingan, Pangasinan?

Correspondingly, the study tested the following hypotheses at the .05 level of significance: (1) there is a significant relationship between the profile variables of the teachers and the extent of their ICT competence; and (2) there is a significant difference between the perceptions of the teachers and the school heads on the extent of ICT competence of the teachers.

Methods

Research Design

This study employed the quantitative-descriptive method of research to describe the teachers of public secondary schools in the Municipality of Asingan, Pangasinan in terms of their highest educational attainment, length of teaching experience, and number of relevant trainings attended, as well as to determine the extent of their ICT competence and the challenges they encountered in integrating ICT in the classroom. The correlational design was likewise used to determine whether a significant relationship existed between the profile variables of the teachers and the extent of their ICT competence, and whether a significant difference existed between the perceptions of the teachers and their school heads on the extent of ICT competence of the teachers. In addition, the developmental method of research was used, as the study culminated in a proposed enhancement training program on ICT for the teachers. The study was anchored on the positivist research

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paradigm, which emphasizes empirical observation, logical reasoning, and the pursuit of objective knowledge (Raj, 2023).

Participants and Sampling

The study was conducted in the public secondary schools of the Municipality of Asingan, Pangasinan during the School Year 2025-2026. Two groups of respondents were involved: the teachers and the school heads. Of the 290 teachers in the municipality's public secondary schools, a sample of 168 was determined using Slovin's formula ($s = N / [1 + Ne^2]$) at a 0.05 margin of error. The sample was proportionally distributed across the eight public secondary schools and randomly selected within each school, as shown in Table 1. All eight school heads of the public secondary schools were included as respondents through total enumeration.

Table 1
Distribution of the Sample Teachers per Public Secondary School

Public Secondary School	Total Number of Teachers	Sample Population
Ariston-Bantog NHS	35	20
Angela Valdez Ramos NHS	61	35
Calepaan Integrated School	13	8
Carosucan Norte NHS	16	9
Carosucan Sur NHS	17	10
Luciano Millan NHS	110	64
San Vicente West Integrated School	10	6
Toboy NHS	28	16
Total	**290**	**168**

Instrumentation and Data Collection

Data were gathered using two researcher-administered survey questionnaires — one for the teachers and one for the school heads. The teachers' questionnaire had three parts: profile (highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended), extent of ICT competence, and challenges encountered in integrating ICT in the classroom. The school heads' questionnaire focused solely on their assessment of the teachers' extent of ICT competence. The profile items followed common survey conventions and required no further validation. The ICT competence items were based on the National ICT Competency Standards for Teachers of the Commission on Information and Communications Technology of

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the Philippines and were therefore considered valid and reliable. The items on challenges in ICT integration were adapted from the validated instrument of Manaban, Piñero, and Futalan (2025) used in their study on mathematics teachers' competence and barriers in integrating ICT.

The researcher personally administered the questionnaires to the teachers and school heads, allowing two weeks for completion before retrieval. Permission to conduct the study was first secured from the school heads of the different public secondary schools, after which informed consent was obtained from the teachers and school heads. Data were treated with utmost confidentiality and used solely to answer the research questions, in accordance with the Data Privacy Act of the Philippines. All authors of works used in the study were properly cited and acknowledged.

Data Analysis

Frequency count and percentage were used to describe the profile of the teachers. The weighted mean was used to determine the extent of ICT competence of the teachers and the challenges they encountered in integrating ICT in the classroom, with the following scales of interpretation: for extent of ICT competence — very limited extent (1.00–1.49), limited extent (1.50–2.49), moderate extent (2.50–3.49), great extent (3.50–4.49), and very great extent (4.50–5.00); for the seriousness of challenges — not serious (1.00–1.49), less serious (1.50–2.49), somewhat serious (2.50–3.49), serious (3.50–4.49), and very serious (4.50–5.00). Only items with a descriptive equivalent of at least somewhat serious were considered as challenges actually encountered by the teachers. The chi-square test of independence was used to determine the significance of the relationship between the profile variables of the teachers and the extent of their ICT competence, while the t-test was used to determine the significance of the difference between the perceptions of the teachers and the school heads. All tests were computed at the .05 level of significance.

Results

Profile of the Teachers

Of the 168 teacher-respondents, 82 (49%) were bachelor's degree holders, 41 (24%) had completed academic requirements for the master's degree, 34 (20%) were master's degree holders, five (3%) had completed academic requirements for the doctorate degree, and six (4%) were doctorate degree holders — indicating that the majority of the teachers have no post-graduate degree. In

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terms of teaching experience, 29 (17%) had taught for one to five years, 43 (26%) for six to ten years, 49 (29%) for 11 to 15 years, 38 (23%) for 16 to 20 years, and nine (5%) for more than 20 years, showing that the majority have been teaching for more than ten years. With respect to ICT-related training, none of the teachers had attended no training at all; 115 (68%) had attended not more than three ICT-related trainings/seminars in the past five years, while 53 (32%) had attended more than three, indicating that most teachers would greatly benefit from further training.

Table 2
Profile of the Teachers (N = 168)

Profile Variable	f	%
Highest Educational Attainment		
Bachelor's degree holder	82	49%
Completed academic requirements, master's degree	41	24%
Master's degree holder	34	20%
Completed academic requirements, doctorate degree	5	3%
Doctorate degree holder	6	4%
Length of Teaching Experience		
1 to 5 years	29	17%
6 to 10 years	43	26%
11 to 15 years	49	29%
16 to 20 years	38	23%
More than 20 years	9	5%
Number of Relevant Trainings Attended (past 5 years)		
None	0	0%
Not more than three trainings	115	68%
More than three trainings	53	32%

Extent of ICT Competence of the Teachers

The extent of ICT competence of the teachers was assessed by the teachers themselves and by their school heads across the four domains of the NICS-Teachers framework: Social, Technological, Pedagogical, and Professional. Table 3 summarizes the results.

Along the Social Domain, the teachers rated themselves highest on their ability to recognize and practice the ethical use of technology (WM = 4.09) and lowest on planning, modeling, and promoting a safe and sound technology-supported learning environment (WM = 4.03), yielding an

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area weighted mean (AWM) of 4.06, described as great extent. In contrast, the school heads' ratings across the same items ranged from 2.88 to 3.00, yielding an AWM of 2.94, described as moderate extent — the lowest-rated items among school heads being the teachers' ethical use of technology and their ability to plan and model a safe technology-supported environment, both at WM = 2.88.

Along the Technological Domain, teachers rated themselves highest on basic computer operation and troubleshooting (WM = 4.01) and lowest on the use of office and teaching productivity tools (WM = 3.98), for an AWM of 3.99 (great extent). School heads rated the same domain lower, with an AWM of 2.97 (moderate extent), their lowest ratings (WM = 2.88) given to teachers' basic computer operation skills and information/data management skills.

Along the Pedagogical Domain — the most extensive domain with 14 items — teachers rated themselves highest on identifying and evaluating technology resources for appropriateness (WM = 4.06) and applying technology to develop students' higher-order thinking skills and creativity (WM = 4.04), and lowest on utilizing best practices and research results in designing technology-enhanced learning environments (WM = 3.97), for an AWM of 4.01 (great extent). School heads rated this domain at an AWM of 2.96 (moderate extent), with their highest ratings (WM = 3.13) given to teachers' ability to apply technology to develop higher-order thinking skills and to support learner-centered strategies, and their lowest ratings (WM = 2.88) given to several items including identifying technology resources, accessing resources for instructional planning, and using technology to manage learning environments.

Along the Professional Domain, teachers rated themselves highest on continuously evaluating and reflecting on the use of technology for professional development (WM = 4.04) and lowest on sharing experiences and collaborating with peers and stakeholders (WM = 4.02), for an AWM of 4.03 (great extent). School heads' ratings on this domain ranged from 2.88 to 3.00, yielding an AWM of 2.92 (moderate extent).

Table 3
The Extent of ICT Competence of the Teachers as Perceived by Themselves and by the School Heads

Assessment Areas	Teachers		School Heads	
	AWM	DE	AWM	DE
Social Domain	4.06	GE	2.94	ME

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Technological Domain	3.99	GE	2.97	ME
Pedagogical Domain	4.01	GE	2.96	ME
Professional Domain	4.03	GE	2.92	ME
Overall Weighted Mean (OWM)	**4.02**	**GE**	**2.95**	**ME**

Note. GE = great extent (3.50–4.49); ME = moderate extent (2.50–3.49); AWM = area weighted mean.

As shown in Table 3, the teachers perceived their overall ICT competence to be at a great extent (OWM = 4.02) across all four domains, while the school heads perceived the teachers' overall ICT competence to be only at a moderate extent (OWM = 2.95), with the Professional Domain receiving the lowest rating (AWM = 2.92) among school heads and the Technological Domain the highest (AWM = 2.97).

Relationship between the Profile Variables of the Teachers and the Extent of Their ICT Competence

The profile variables of the teachers were correlated with the extent of their ICT competence using the chi-square test of independence at the .05 level of significance. As shown in Table 4, all three profile variables — highest educational attainment ($\chi^2 = 7.12$, $p = 0.01$), length of teaching experience ($\chi^2 = 5.98$, $p = 0.01$), and number of relevant trainings attended ($\chi^2 = 6.55$, $p = 0.01$) — yielded computed chi-square values greater than the critical value of 3.84 and p-values below .05. The null hypothesis was therefore rejected for all three variables, indicating that the extent of ICT competence of the teachers is significantly influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended.

Table 4
Relationship between the Profile Variables of the Teachers and the Extent of Their ICT Competence

Profile Variable	p-value (.05 LS)	Computed χ^2	Critical χ^2	Remarks
Highest Educational Attainment	0.01	7.12	3.84	Significant
Length of Teaching Experience	0.01	5.98	3.84	Significant
Number of Relevant Trainings Attended	0.01	6.55	3.84	Significant

Difference between the Perceptions of the Teachers and the School Heads

The perceptions of the teachers and the school heads on the extent of ICT competence of the teachers were compared using the t-test at the .05 level of significance. As shown in Table 5, the computed p-value of 0.00 is lower than the .05 level of significance; hence, the null hypothesis

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was rejected. There is a significant difference between the perceptions of the teachers and the school heads on the extent of ICT competence of the teachers, consistent with the pattern observed in Table 3, where teachers consistently rated their own ICT competence considerably higher than their school heads did across all four domains.

Table 5
Difference between the Perceptions of the Teachers and the School Heads on the Extent of ICT Competence of the Teachers

Variable	Computed p-value	Level of Significance	Remarks
Extent of ICT Competence of the Teachers	0.00	.05	Significant

Challenges Encountered by the Teachers in Integrating ICT in the Classroom

The teachers rated the seriousness of seven potential challenges in integrating ICT in the classroom. Only items with a descriptive equivalent of at least somewhat serious were considered actual challenges. As shown in Table 6, the teachers encountered four such challenges: limited access to resources (WM = 3.22, rank 1), internet connectivity (WM = 3.11, rank 2), lack of technical support (WM = 3.01, rank 3), and limited ICT infrastructure (WM = 2.78, rank 4). Insufficient ICT training (WM = 1.45), limited ability to manipulate ICT tools (WM = 2.40), and resistance to change (WM = 1.48) were not considered serious challenges by the teachers.

Table 6
Challenges Encountered by the Teachers in Integrating ICT in the Classroom

Challenge	WM	DE	Rank
Limited access to resources	3.22	Somewhat serious	1
Internet connectivity	3.11	Somewhat serious	2
Lack of technical support	3.01	Somewhat serious	3
Limited ICT infrastructure	2.78	Somewhat serious	4
Limited ability to manipulate ICT tools	2.40	Less serious	—
Resistance to change	1.48	Not serious	—
Insufficient ICT training	1.45	Not serious	—

Discussion

The findings that the majority of teachers hold no post-graduate degree, have taught for more than a decade, and have attended only limited ICT-related training reflect a teaching force that is experienced but under-supported in continuing technology-focused professional development.

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This is consistent with Cayabyab's (2024) observation that findings across studies point to the need for stronger encouragement, support, and opportunity for enhancing teachers' ICT competence.

The consistently higher self-ratings of teachers relative to the ratings given by their school heads across all four NICS-Teachers domains — resulting in an overall great-extent self-perception (OWM = 4.02) against a moderate-extent external perception (OWM = 2.95) — echoes a well-documented pattern in the literature in which self-reported competence tends to exceed observer-rated competence. This gap may stem from differing vantage points: teachers assess their own comfort and familiarity with ICT tools, while school heads observe the consistency and depth of ICT integration as demonstrated in actual classroom practice. This finding aligns with Joshi et al. (2021), who found that although teachers generally demonstrated adequate technological competencies, most possessed ICT competencies only at the general user level rather than the advanced level required for effective classroom integration — a distinction that may not be fully captured in self-assessment but becomes more apparent to an external observer such as a school head.

The significant relationships found between the teachers' profile variables — highest educational attainment, length of teaching experience, and number of relevant trainings attended — and the extent of their ICT competence support the view that ICT competence is not static but is shaped by continuing exposure to formal education and targeted professional development. This corroborates the findings of Joshi et al. (2021), who reported that teachers' ICT competency levels were significantly influenced by educational attainment, and of Dela Fuente and Biñas (2020), who found that the number of ICT-related seminars and trainings attended by teachers had significant effects on their competence, even though variables such as age, gender, and teaching position did not. Given that 68% of the teacher-respondents in this study had attended no more than three ICT-related trainings in five years, the significant relationship between training frequency and competence underscores training as one of the most actionable levers available to school administrators for improving teachers' ICT competence.

The significant difference between teachers' and school heads' perceptions, together with the four challenges identified — limited access to resources, internet connectivity, lack of technical support, and limited ICT infrastructure — suggests that the barriers to fuller ICT integration in the Municipality of Asingan may be less about teachers' willingness or foundational skill (since

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resistance to change and insufficient training were not rated as serious challenges) and more about structural and infrastructural constraints. This is consistent with Murithi and Yoo (2021), who found that teachers considered school ICT facilities insufficient, which posed challenges to effective technology integration during curriculum implementation, despite teachers acknowledging the importance and usefulness of ICT in education.

Taken together, these findings point to the value of a structured, domain-based enhancement training program. Anchored on the four domains of the NICS-Teachers framework — Social, Technological, Pedagogical, and Professional — such a program, delivered through an interactive and participative four-session, district-based approach, would directly address the training gap identified in the teachers' profile while reinforcing the specific competency areas rated lowest by school heads, particularly within the Professional and Social domains.

Conclusion and Recommendations

Conclusion

Based on the findings, it is concluded that a typical teacher of a public secondary school in the Municipality of Asingan, Pangasinan is a bachelor's degree holder who has been teaching for more than ten years and has attended not more than three ICT-related trainings/seminars in the past five years. The teachers perceive their ICT competence to be at a great extent, while their school heads perceive it to be only at a moderate extent — a statistically significant difference. The extent of teachers' ICT competence is significantly influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended. Teachers encounter identifiable, structurally-rooted challenges — namely, limited access to resources, internet connectivity, lack of technical support, and limited ICT infrastructure — in integrating ICT in the classroom, and these challenges may be addressed. An enhancement training program on ICT, anchored on the four domains of the National ICT Competency Standards for Teachers, is likely to improve the extent of ICT competence of the teachers of public secondary schools in the Municipality of Asingan, Pangasinan.

Recommendations

1. The proposed enhancement training program on ICT — comprising four one-day, district-based sessions covering the Social, Technological, Pedagogical, and Professional domains of the NICS-

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Teachers framework, delivered through an interactive and participative approach — be approved for implementation in the public secondary schools of the Municipality of Asingan, Pangasinan.

2. The implementation of the enhancement training program be monitored and evaluated to determine its effectiveness in improving teachers' ICT competence.

3. School administrators address the structural challenges identified — particularly limited access to ICT resources, unreliable internet connectivity, insufficient technical support, and limited ICT infrastructure — as a complement to training-based interventions.

4. Future researchers conduct similar studies in other municipalities or divisions to validate and extend the findings of this study, and consider incorporating classroom observation or performance-based measures alongside self- and supervisor-rating instruments to further examine the gap between perceived and demonstrated ICT competence.

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UTILIZATION OF ACTIVE LEARNING STRATEGIES OF THE ENGLISH TEACHERS OF PUBLIC ELEMENTARY SCHOOLS IN MALASIQUI II DISTRICT

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Abstract

This study sought to determine the extent to which the English teachers of public elementary schools in Malasiqui II District during the School Year 2026-2027 are utilizing active learning strategies through a quantitative-descriptive-correlational research design. The data used in this study came from the 157 English teachers and 28 school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, Pearson r, and regression analysis. Results showed that: majority of the English teachers have no post graduate degrees, have been teaching for more than ten years, and have attended not more than three trainings related with active learning; the English teachers perceived that they are almost always utilizing active learning strategies as evidenced by the computed overall weighted mean of 4.10 while the school heads perceived that the English teachers are only sometimes utilizing active learning strategies as evidenced by the computed overall weighted mean of 3.05; there is a significant relationship between the highest educational attainment, the length of teaching experience, and the number of relevant trainings attended of the English teachers and the extent to which they are utilizing active learning strategies; there is a significant difference between the perceptions of the English teachers and their schools on the extent to which the English teachers are utilizing active learning strategies; and, the English teachers have positive attitude towards active learning. Based from the findings, the following conclusions were drawn: a typical English teacher of a public elementary school in Malasiqui II District has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with active learning; the English teachers perceived that they are frequently using active learning strategies while the school heads perceived that the English teachers are utilizing active learning once in a while; the extent to which the English teachers are utilizing active learning strategies is influenced by their highest educational attainment, length of teaching experience, and the number of relevant trainings attended; the perceptions of the English teachers and the school heads on the extent to which the English teachers are utilizing active learning strategies are significantly different from each other; and, the attitude of the English teachers towards active learning may be capitalized as one of the bases for the proposed enhancement program.

Keywords: *Active learning, English teachers*

Introduction

In the contemporary world, according to Al Suwaidi (2024), education is regarded as a structured and purposeful process that serves as a vital means of preparing individuals for life. It fosters the

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holistic development of a person's character, guides the refinement of behavior toward personal well-being and fulfillment, and promotes active participation in societal growth and advancement. Thus, education may be viewed as a fundamental human endeavor upon which society heavily relies. It functions as a vehicle for the survival, continuity, development, and progress of society, as these aspects are intrinsically connected to the lives and contributions of individuals.

Accordingly, there is an increasing recognition that effective learning requires students to engage in more than simply listening to instruction. This awareness has led to the emergence and growing emphasis on active learning. As noted by Bavishi et al. (2022), active learning constitutes an essential aspect of the learning process, with many instructional models identifying interaction as a critical element of meaningful learning experiences. Dogani (2023) defined active learning as any classroom activity in which students participate beyond passively listening to a teacher's lecture. Such activities range from reflective listening tasks and brief writing exercises that encourage students to respond to instructional content, to more complex collaborative tasks where learners apply concepts to real-life situations and solve new problems.

Similarly, Martinez and Gomez (2025) described active learning as an instructional approach that enables students to participate effectively in classroom activities. Through this approach, learners move beyond the traditional role of passive recipients who merely take notes and instead become active contributors who initiate and engage in learning tasks alongside their peers. In this context, the teacher assumes the role of a facilitator who guides students in discovering and constructing knowledge, thereby fostering deeper understanding of the curriculum. Active learning encompasses a variety of teaching strategies and techniques, including small-group discussions, role-playing activities, research projects, and the use of higher-order questioning. Ultimately, these approaches aim to cultivate independent and self-directed learners under the guidance and supervision of the teacher.

Apkarian et al. (2021) defined active learning strategies as instructional approaches that require students not only to perform tasks but also to reflect on and think critically about what they are doing. In learning environments that effectively integrate active learning, considerable emphasis is placed on enabling students to construct their own understanding while examining their beliefs, attitudes, and values (Dixit, Bedekar, Jahagirdar, & Sathe, 2020). Furthermore, Valverde, Allen, Small, and Carr (2022) argued that meaningful learning activities foster a deep

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understanding of essential concepts and ideas. Such activities should therefore be aligned with significant learning outcomes and encourage thoughtful and purposeful student engagement. These activities, according to Sari, Roulina, and Nurlaila (2025), prompt learners to reflect on the content they are studying, thereby enhancing comprehension and retention. Ultimately, the hallmark of active learning lies in the use of instructional practices that actively involve students in the learning process.

According to Dorée and Quinn (2024), the significance of active learning lies in its capacity to help learners build upon their prior knowledge as they acquire new understanding. This perspective aligns with the view that activating existing knowledge is a fundamental prerequisite for meaningful learning. Through active learning, students are able to develop meaningful solutions to problems by relating new concepts and information to ideas and procedures that are already familiar to them. Rather than relying solely on the answers or solutions provided by others, learners engaged in active learning receive opportunities to validate and strengthen their understanding of newly acquired knowledge. Moreover, the expectation to produce outcomes or articulate ideas encourages students to draw upon previously learned information, often integrating concepts from multiple subject areas and establishing connections among them. This process promotes deeper comprehension and more meaningful learning experiences.

Similarly, Gosavi and Arora (2022) asserted that active student engagement extends beyond merely listening to lectures. To participate meaningfully in the learning process, students should be involved in activities such as reading, writing, discussing ideas, solving problems, and collaborating with peers through cooperative and group-based tasks. More importantly, genuine engagement requires learners to perform higher-order cognitive processes, including analysis, synthesis, and evaluation. In relation to the essential elements of active learning strategies, Lavi and Bertel (2024) argued that effective active learning activities possess similar characteristics regardless of whether they are implemented in traditional face-to-face settings or online environments. Specifically, such activities should have a clearly defined beginning and conclusion, explicit goals or objectives, and mechanisms for providing feedback to support and enhance student learning.

Furthermore, Mason and Gayton (2022) asserted that active participation enhances learning outcomes regardless of the instructional setting. They explained that active learning

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demands intellectual engagement by encouraging learners to perform higher-order cognitive tasks, such as analysis, synthesis, and evaluation. Through these processes, students are better able to assimilate, apply, and retain new knowledge. Likewise, Ortiz-Martín, Del Espino-Pérez, García-Luque, and Viguera-Mínguez (2024) argued that instructional strategies that foster active learning are more effective than passive approaches, such as traditional lectures, in developing students' thinking and writing abilities. In addition, active learning supports diverse learning styles, improves academic achievement, increases student motivation, positively influences learners' attitudes, and ultimately leads to deeper and more meaningful learning experiences (Roderick, 2023). Sekwena (2023) further observed that students generally favor active learning approaches over conventional lecture-based methods. Consequently, integrating active learning techniques into classroom instruction is essential because of their substantial contribution to student learning and development. Sholicha and El-Yunusi (2024) also noted that although many active learning strategies are comparable to lectures in facilitating mastery of subject content, they are considerably more effective in promoting higher-level thinking and enhancing writing skills. Moreover, they emphasized that numerous learners possess learning preferences that are better accommodated by instructional methods other than lecturing. Therefore, effective and reflective teaching requires educators to become familiar with a wide range of active learning strategies and approaches. Equally important, teachers should engage in ongoing self-reflection and demonstrate openness to experimenting with alternative instructional practices that better address the diverse needs of their students.

Despite the widespread recognition among educational scholars regarding the effectiveness of active learning, many teachers continue to rely on the traditional lecture-based approach, wherein instructors primarily deliver information while students assume passive listening roles. In this regard, Vale and Barbosa (2023) argued that conventional teaching methods tend to be monotonous and may contribute to student absenteeism. Similarly, Yuni, Rambe, and Gusmaneli (2024) suggested that students are more likely to skip classes when they are not actively engaged in classroom activities, particularly when lecture content fails to reflect the demands and realities of a changing environment - an issue commonly associated with traditional instructional practices. In the same context, the researcher observed that in the school where he is affiliated, many teachers seldom employ active learning strategies and instead continue to depend predominantly on the lecture method as their primary mode of instruction.

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In light of the foregoing discussion, this study sought to examine the extent to which the English teachers of public elementary schools in Malasiqui II District are utilizing various active learning strategies as well as to determine their attitudes toward active learning. Ultimately, the study aimed to develop an enhancement program to improve the English teachers' use of diverse active learning strategies in their instructional practices.

Theoretical Framework

This study was framed by the Experiential Learning Theory of David Kolb and the Theory of Constructivism of Lev Vygotsky.

The Experiential Learning Theory of David Kolb emphasizes that learning occurs naturally. Kolb proposed that experience is critical in the development of knowledge construction, as learning occurs through discovery and active participation. Kolb defined leaning as the process whereby knowledge is created through the transformation of experience (Kurt, 2022).

There are two parts to Kolb's Experiential Learning Theory. The first is that learning follows a four-stage cycle. Kolb believed that, ideally, learners progress through the stages to complete a cycle, and, as a result, transform their experiences into knowledge (Kurt, 2022).

Kolb's learning process cycle begins with a concrete experience. This can either be a completely new experience or a reimagined experience that already happened. In a concrete experience, each of the learners engage in an activity or task. Kolb believed that the key to learning is involvement. It is not enough for learners to just read about it or watch it in action. In order to acquire new knowledge, learners must actively engage in the task (Kurt, 2022).

After engaging in the concrete experience, the learners step back to reflect on the task. Accordingly, the learners move to the reflective observation stage. This stage in the learning cycle allows the learners to ask questions and discuss the experience with others. Communication at this stage is vital, as it allows the learners to identify any discrepancies between their understanding and the experience itself. Good vocabulary also allows a solid review of the events that occurred (Kurt, 2022).

The next step in the learning cycle is to make sense of the events. The learners then move to the abstract conceptualization stage. The learners attempt to draw conclusions of the experience by

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reflecting on their prior knowledge, using ideas with which they are familiar or discussing possible theories with peers. The learners move from reflective observation to abstract conceptualization when they begin to classify concepts and form conclusions on the events that occurred.

This involves interpreting the experience and making comparisons to their current understanding on the concept. Concepts need not be new; learners can analyze new information and modify their conclusions on already existing ideas (Kurt, 2022).

The last stage in the cycle is the testing stage or active experimentation. Learners return to participating in a task, this time with the goal of applying their conclusions to new experiences. They are able to make predictions, analyze tasks, and make plans for the acquired knowledge in the future. By allowing learners to put their knowledge into practice and showing how it is relevant to their lives, you are ensuring that the information is retained in the future (Kurt, 2022).

As Kolb's learning theory is cyclical, one can enter the process at any stage in the cycle. However, the cycle should be completed in entirety to ensure that effective learning has taken place. Each stage is dependent on the others and all must be completed to develop new knowledge. Thus, completion of all stages of the cycle allows the transformation of experience to knowledge to occur. Kolb's entire theory is based on this idea of converting experience into knowledge. With each new experience, the learner is able to integrate new observations with their current understanding. Ideally, learners should have the opportunity to pass through each stage (Kurt, 2022).

The second part of Kolb's Experiential Learning Theory focused on learning styles, or the cognitive processes that occur in order to acquire knowledge

. Essentially, Kolb believed that individuals can demonstrate their knowledge, or the learning that occur when they are able to apply abstract concepts to new situations (Kurt, 2022).

The first learning style is the diverging learning style, which is expressive of the concrete experience and reflective observation stages in the learning cycles. This learning style takes an original and creative approach. Rather than examining concrete experiences by the actions taken, individuals tend to assess them from various perspectives. They value feelings and take an interest in others. Individuals who prefer this learning style tend to enjoy tasks such as brainstorming ideas

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and working collaboratively in groups. The instructional techniques that "divergers" prefer include hands-on activities and the opportunity to explore and classic teacher-class lecture that highlights how to use a system as well as its strengths and weaknesses (Kurt, 2022).

The second learning style is the assimilating learning style, which is reflective of abstract conceptualization and reflective observation learning stages. This learning style emphasizes reasoning. Individuals who demonstrate this learning style are able to review the facts and assess the experience as a whole. They tend to enjoy designing experiments and working on projects from start to completion. The instructional techniques that "assimilators" prefer include: independent, prepared exercises that the learner can complete without the instructor; classic teacher-class lecture supported by an audio or video presentation; and, private exploration or demonstration that follows a tutorial, with answers provided (Kurt, 2022).

The third learning style is the converging learning style, which is reflective of abstract conceptualization and active experimentation stages in the learning cycle. This learning style highlights problem solving as an approach to learning. Individuals who prefer this learning style are able to make decisions and apply their ideas to new experiences. Unlike "divergers," they tend to avoid people and perceptions, choosing instead to find technical solutions. The instructional techniques that "convergers" prefer include workbooks or worksheets that provide problems sets, tasks that are computer-based, and interactive activities (Kurt, 2022).

The last learning style is the accommodating learning style, which is expressive of the concrete experience and active experimentation stages in the learning cycle. This learning style is adaptable and intuitive. These individuals use trial and error to guide their experiences, preferring to discover the answers for themselves. They are able to alter their path based on the circumstance and generally have good people skills. The instructional techniques that "accommodators" prefer include: activities that allow them to be actively engaged; exploration and instructor support for deeper questioning, such as "what if?" or "why not?"; and, tasks that promote independent discovery (Kurt, 2022).

Additionally, experiences are central to Kolb's theory, as he viewed it as a process by which something must be changed or transformed. Memorization or recollection of ideas taught does not equal learning, as no value has been added to the learner. Kolb's model acknowledges

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that something must be generated from the experience in order for it to be defined as learning (Kurt, 2022).

Meanwhile, the Theory of Constructivism of Lev Vygotsky suggests that learning involves more than simply acquiring facts or memorizing information. Knowledge is actively constructed through social interactions, meaningful discussions, and the integration of new ideas with an individual's cultural and social experiences. Thus, learning is shaped not only by the content being studied but also by the interactions and relationships that surround the learner (Martin, 2026).

Vygotsky maintained that learning does not occur in isolation; rather, interactions with others play a vital role in expanding an individual's understanding. He emphasized that knowledge is developed through communication, collaboration, and engagement with cultural experiences. Consistent with this view, Vygotsky's Constructivist Theory proposes several key principles. First, learning is grounded in prior knowledge, as learners relate new information to their existing beliefs, experiences, and understandings. Second, learning is inherently social, with meaningful interactions among teachers, classmates, and peers fostering greater cognitive development. Third, learning is an active process that requires students to engage in discussions, projects, and experiential activities rather than passively receive information. Fourth, motivation is a crucial factor, since curiosity and interest encourage learners to invest the effort necessary to construct new knowledge. Finally, the theory recognizes that each learner is unique, bringing distinct experiences and perspectives that influence how information is interpreted and understood. Consequently, this framework views the classroom as a collaborative learning community rather than a setting characterized by a one-way transmission of knowledge from teacher to student (Martin, 2026).

Conceptual Framework

This study was guided by literatures and studies on active learning.

Active learning does not have a single universally accepted definition. However, Sahito and Hussain (2025) described it as an approach in which students actively participate in the learning process rather than merely listening to lectures. According to Dubinsky and Hamid (2024), active learning requires learners to engage meaningfully with the content being studied. Similarly, Vasquez (2026) emphasized that active learning involves students both performing tasks and reflecting on their actions, while Keeth (2026) highlighted its reflective nature. These perspectives suggest that active learning exists along a continuum of student participation. At the

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most basic level, learners are involved in activities beyond passive listening, whereas at the highest level, they take full responsibility for exploring, applying, and constructing knowledge independently. It is at this advanced stage of engagement that the greatest educational benefits are realized, enabling students to attain higher-order thinking skills such as analysis, synthesis, and evaluation (Teaching and Learning Center of the University of California, Los Angeles, 2025). Therefore, active learning may be understood as an instructional approach that actively engages students in meaningful learning experiences, with varying degrees of participation and involvement throughout the learning process.

Active learning encompasses a wide range of experiential instructional strategies that differ in terms of the level of student engagement. At the highest level of the active learning continuum, students are deeply immersed in hands-on experiences, such as applying project management principles to design and construct a catapult and then using statistical methods to analyze the accuracy of its launches. Other highly engaging approaches may include participation in simulations that require learners to actively apply knowledge and skills in realistic contexts. Moderate levels of active learning may involve students viewing instructional videos, collaborating in group workshops, and applying the concepts learned through guided activities. At the lower end of the continuum, active learning can take the form of brief pauses during lectures that allow students to reflect on, discuss, or process the information being presented. These examples illustrate that active learning can range from simple reflective activities to highly immersive experiential tasks, depending on the degree of student participation (Smart, 2025).

Active learning is a dynamic and continually developing concept that does not have rigid boundaries. As new technologies continue to emerge, educators are presented with increasing opportunities to enrich and transform students' learning experiences. One of the most significant strengths of active learning is its capacity to foster innovative and meaningful educational activities. By incorporating active learning principles, teachers can design engaging, creative, and nontraditional learning environments that encourage greater student participation, exploration, and enjoyment in the learning process (Morris, 2025).

According to the University of Connecticut (2021), active learning consists of four key elements: talking and listening, writing, reading, and reflecting. The first element involves students actively engaging with information through asking and answering questions, sharing comments, delivering presentations, and explaining concepts. Rather than merely listening, learners participate in active learning when they analyze, connect, and apply the information they receive. The second element, writing, enables students to process information by expressing ideas in their own words, which helps organize their thinking, deepen understanding, and prepare them for meaningful discussions. The third element, reading, becomes an active learning process when students engage critically with texts rather than reading solely to complete an assignment. Strategies such as guided questions, summarization activities, discussion posts, and reflective exercises can encourage deeper engagement with reading materials. Furthermore, instruction in active reading techniques can help students become more effective learners. The fourth element, reflection, allows students to process newly acquired knowledge and relate it to prior learning. Providing opportunities for learners to consider the applications and implications of what they have learned can foster higher-order thinking skills and strengthen metacognitive awareness. Together, these four elements contribute to a more meaningful and engaging learning experience.

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Moreover, for active learning to take place, there are certain preconditions that should be met. The University of Connecticut (2021) mentioned of these preconditions as preparation, motivation, and absence of tear. In the case of preparation, the teacher should change pupil expectations on the first day and in the curriculum or syllabus. The teacher should learn about his or her students. He/she should use out-of-class assignments to prepare for active learning in-class. Also, he/she should prepare written instructions, worksheets, slides, etc., for the exercises. Secondly, with respect to motivation, the teacher should explain the educational purpose of the exercise to the pupils. He/she should also create challenging exercises. Moreover, he/she should have students summarize what they have learned at the conclusion of the exercise. Lastly, with regard to absence of fear, the teacher should provide a climate where risk-taking is rewarded. He/she should allow students to get to know each other and should reward pupils for their participation with positive feedback. He/she should practice "instructional immediacy" (smile, make eye contact, use student names, move around the classroom, and others).

There are various studies conducted in relation to the effectiveness of active learning.

Alruthia et al. (2019) conducted a study entitled "The Use of Active Learning Strategies in Healthcare Colleges in the Middle East." This study was anchored on the insight that multiple studies have explored the use of active learning strategies among faculty members in different healthcare colleges worldwide, however, very few have described the use of these strategies in the Middle East. The aim of this study was to evaluate the extent of the implementation of active learning and its various techniques across different fields of healthcare education in various countries in the Middle East. A web-based questionnaire was developed to obtain information on the use of active learning methods. This survey was disseminated among faculty members in healthcare colleges in 17 Middle Eastern countries. Out of 22,734 online invitations that were sent to faculty members in different healthcare colleges, 2085 (9.17%) accepted the invitations, however, only 722 (34.63%) of those who agreed to participate filled out the questionnaire. The results showed that eighty-seven percent of the responders utilized at least one technique of active learning. Active learning was used more frequently by female responders. 54.30% of the female responders reported using learning by teaching as one of their teaching methods compared to 41.30% of their male counterparts ($p = 0.0005$). The various forms of active learning were used at similar levels in both public and private healthcare colleges. Only minor differences were seen among different age groups or academic positions of the responders, but significant variabilities were noted among the several fields of healthcare education. For example, 61.54% of responders from the nursing faculty reported using reaction to videos as one of their teaching methods compared to 31.11% of their counterparts in the faculty of dentistry ($p = 0.0021$). The most frequently reported obstacles interfering with the effectuation of active learning include the lack of technical support and time constraints. The researchers concluded that although some barriers to the implementation of active learning exist, it is extensively used by faculty members in healthcare colleges in the Middle East.

The study of Dano-Hinosolango and Vedua-Dinagsao (2019), entitled "The Impact of Learner-centered Teaching on Students' Learning Skills and Strategies," explored the experience, impression and understanding of student-centered learning by 44 business education students at a university. The study sought to establish whether such a learning approach enhances the competencies of students in accord with the demands made by employers for critical employee

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characteristics in the 21st century workplace, while also enhancing learning outcomes in students' current studies. The study was informed by two other studies, using complementary methodologies in qualitative and quantitative data collection and analysis. The first study utilized a survey instrument, while the second employed focus groups. The findings revealed that students generally held positive views of student-centered learning and that they believed it enhanced their learning experience in their current studies. However, they were not clear as to whether the approach was being utilized fully and/or effectively and whether current resources were adequate to support the effective implementation and maintenance of such an approach. Findings further revealed that many of the competencies developed through the practice of student-centered learning are complimentary to not only desirable, but indeed, identified characteristics that the 21st century worker should be ideally equipped with. The importance of "gearing" such learning at the tertiary level to the demands of employers for well prepared and effective employees that complement and indeed enhance the workplace is recognized as a national imperative, and thus policy, as developed through educational leadership should be in accord. This research posited that the utilization of student-centered learning will not only benefit learning at the tertiary level, it will also better prepare graduates for the workplace.

The study of Daouk, Bahous, and Bacha (2016), entitled "Perceptions on the Effectiveness of Active Learning Strategies" aimed to determine the perceptions of the students and instructors on the effectiveness of implementing active learning strategies in higher education courses in a tertiary institution in Lebanon. It employed the descriptive method of research where data were gathered through a survey-questionnaire, interview, and classroom observation. There were two limitations in the study, namely, the number of respondents was rather small as only 37 education students were involved and all the participants were females. The findings showed that majority of the learners as well as the instructors favored active learning and are strong proponents of putting into effect this approach in all their courses and that they have positive perceptions towards active learning strategies.

The study of Everly (2017), entitled "Are Students' Impressions of Improved Learning through Active Learning Methods Reflected by Improved Test Scores?", aimed to report the transformation from lecture to more active learning methods in a maternity nursing course and to evaluate whether student perception of improved learning through active-learning methods is supported by improved test scores. The study utilized the descriptive method of research describing the process of transforming a course into an active-learning model of teaching. A voluntary mid-semester survey for student acceptance of the new teaching method was conducted. Course examination results, from both a standardized exam and a cumulative final exam, among students who received lecture in the classroom and students who had active learning activities in the classroom were compared. Results showed that active learning activities were very acceptable to students. The majority of students reported learning more from having active-learning activities in the classroom rather than lecture-only and this belief was supported by improved test scores. Students who had active learning activities in the classroom scored significantly higher on a standardized assessment test than students who received lecture only.

And, noting that for effective learning to take place in the classroom, the learner needs to be actively engaged during the lecture, the study of Fayombo (2016), entitled "Active Learning Strategies and Student Learning Outcomes among Some University Students in Barbados",

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investigated the relationships between the active learning strategies (discussion, video clips simulation, game show, role – play, five minute paper, clarification pauses, group work) and the students' learning outcomes (SLOs) among a sample of 158 undergraduate psychology students in the University of the West Indies, Barbados. They responded to Active Learning Strategies Questionnaire and Student Learning Outcomes Assessment Scale. Results revealed statistically significant positive correlations between active learning strategies and student learning outcomes; so also, the active learning strategies contributed 14% (Rsq= 0.139) to the variance being accounted for in student learning outcomes and this was found to be statistically significant ($F(1,156) = 25.23$, $p < .05$). Additionally, video - clips simulation emerged as the best active learning strategy and had the highest correlations with student learning outcomes (($r=0.340$, $p<0.05$). These results were discussed in the light of the importance of the active learning strategies promoting learning among the university students.

Statement of the Problem

This study endeavored to propose an enhancement program for the English teachers of public elementary schools in Malasiqui II District to enhance the extent of their utilization of active learning strategies. Specifically, it found answers to the following problems:

Main Problem. What enhancement program may be proposed for the English teachers of public elementary schools in Malasiqui II District to enhance the extent of their utilization of active learning strategies?

Sub-problems. To substantially answer the main problem, answers to the following problems were likewise sought:

1. What is the profile of the English teachers in terms of:

    a. Highest educational attainment

    b. Length of teaching experience, and

    c. Number of trainings attended related with active learning for the past 5 years?

2. To what extent are the English teachers utilizing active learning strategies as perceived by themselves and the school heads?

3. Is there a significant relationship between the profile variables of the English teachers and the extent to which they are utilizing active learning strategies?

4. Is there a significant difference between the perceptions of the English teachers and the school heads on the extent to which the English teachers are utilizing active learning strategies?

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5. What is the attitude of the English teachers towards active learning?

6. Based on the findings, what enhancement program may be proposed for the English teachers of public elementary schools in Malasiqui II District to enhance the extent of their utilization off active learning strategies?

Methods

Research Design

This study employed the quantitative-descriptive method of research. It described the English teachers of public elementary schools in Malasiqui II District in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determined the extent to which they are utilizing active learning strategies as perceived by themselves and the school heads and their attitude towards active learning. The study was also correlational for it determine if there is a significant relationship between the profile variables of the English teachers and the extent to which they are utilizing active learning strategies and if there is a significant difference between the perceptions of the English teachers and the school heads on the extent to which the English teachers are utilizing active learning strategies.

Moreover, the developmental method of research was also employed for the study came up with an enhancement program to enhance the extent to which the English teachers are utilizing active learning strategies

Participants and Sampling

This study was conducted in the different public elementary schools in Malsiqui II District during the School Year 2026-2027. There were two groups of respondents in this study, namely, the English teachers and the school heads. In Malasiqui II District, there are 259 English teachers in the different public elementary schools. Out of this total population, a sample size was computed using the Slovin's formula, which is:

$$S = \frac{N}{1 + Ne2}$$

where:

s = sample size

N = total population

e = margin of error of .05

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Conformably, a sample size of 157 English teachers was arrived at.

In the case of the school heads, no sampling was done as all the 28 school heads were made as respondents of the study.

Research Participants. From the sample size of 157 English teachers, the researcher employed convenience cluster sampling to have the 157 sample English teachers. These English teachers provided data relative to their highest educational attainment, length of teaching experience and the number of relevant trainings they attended for the past five years as well as the extent to which they are utilizing active learning and their attitude towards active learning. Table 1 shows the distribution of the sample English teachers per the clustered public elementary schools.

TABLE 1
Distribution of the Sample English Teachers per the Clustered Public Elementary Schools

Public Elementary Schools	Number of Teachers	Percentage
1. Aliaga Elementary School	14	8.92%
2. Bakitiw Elementary School	12	7.64%
3. BIBA Elementary School	12	7.64%
4. J.C. Macaranas Elementary School	9	5.73%
5. Cabatling Elementary School	9	5.73%
6. Canan Elementary School	15	9.55%
7. Don Pedro Elementary School	12	7.64%
8. Malimpec Elementary School	14	8.92%
9. Nalsian Tomiling Elementary School	15	9.55%
10. Olea Elementary School	12	7.64%
11. Talospatang Elementary School	21	13.38%
12. Tobor Elementary School	10	6.37%
13. IBA Elementary School	2	1.27%
Total	157	100%

Moreover, as mentioned, all the school heads of the public elementary schools in Malasiqui II District were made as respondents of the study. These school heads provided data relative to the extent to which the English teachers are utilizing active learning.

Instrumentation and Data Collection

To gather the data needed, the researcher used two survey-questionnaires, that is, one for the English teachers and one for the school heads.

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The survey-questionnaire for the English teachers had three parts. The first part looked into the profile of the English teachers; the second part focused into the extent to which the English teachers are utilizing active learning strategies; and, the third part concentrated on the attitude of the English teachers towards active learning.

On the other hand, the survey-questionnaire for the school head simply looked into the extent to which the English teachers are utilizing active learning strategies. The items here were the same with the second part of the survey-questionnaire for the English teachers.

Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the English teachers is common in researches. Hence, no validation is required.

In relation to the second part of the survey-questionnaire which is about the extent to which the English teachers are utilizing active learning strategies, the items will be based on the survey-questionnaire of Doria (2020) in her study entitled "A Proposed Guide on Active Learning Strategies for Public Primary Grade Teachers in the Municipality of Binmaley, Pangasinan." This survey-questionnaire was validated by the researcher and, hence, are considered valid and reliable.

Meanwhile, with respect to the third part of the survey-questionnaire which is about the attitude of the English teachers towards active learning, the items will be based on the survey-questionnaire used by Castillo (2022) in her study entitled "Assessment of the Active learning strategies of public primary grade teachers of Malasiqui I District." The items here were also validated by the researcher and, thus, are considered valid and reliable.

Data Collection. In collecting the data needed in the study, the researcher personally administered the survey-questionnaire to the English teachers and the school heads giving them three weeks to answer. After three weeks, the researcher retrieved the survey questionnaire.

Ethical Considerations. So as not to violate the data privacy of the English teachers and the school heads, permission to conduct the study was first secured from the Schools Division Superintendent of Pangasinan I Thereafter, informed consent was taken from the English teachers and the school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

Data Analysis

To determine the profile of the English teachers in the public elementary schools in Malasiqui II District, the data gathered were subjected to frequency count and percentage employing the formula:

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$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage

f = the observed frequency

N = total number of subject cases

To determine the extent to which the English teachers are utilizing active learning strategies, the weighted mean was used employing the formula:

$$WM = \frac{\sum wX}{\sum w}$$

where:

WM = weighted mean

$\sum$ = summation

W = weighing factor

X = frequency.

Moreover, the weighted means computed in relation to the extent to which the English teachers are utilizing active learning strategies were interpreted using this scale of interpretation:

never	=	1.00 – 1.49
almost never	=	1.50 – 2.49
sometimes	=	2.50 – 3.49
almost always	=	3.50 – 4.49
always	=	4.50 – 5.00.

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On the other hand, the weighted means computed in relation to the attitude of the English teachers towards active learning were interpreted using this scale:

strongly disagree	=	very negative	=	1.00 - 1.49
disagree	=	negative	=	1.50 – 2.49
undecided	=	neutral	=	2.50 – 3.49
agree	=	positive	=	3.50 – 4.49
strongly agree	=	very positive	=	4.50 – 5.00.

To determine if there is a significant relationship between the profile variables of the English teachers and the extent to which they are utilizing active learning strategies, the chi-square test of independence was used.

And, to determine if there is a significant difference between the perceptions of the English teachers and the school heads on the extent to which the English teachers are utilizing active learning strategies, the t-test was used.

Results

Profile of the Teachers

The Profile of the English Teachers

This section presents the profile of the English teachers of public elementary schools in Malasiqui II District to answer the first sub-problem of the study.

On Highest Educational Attainment

With respect to the educational attainment, the English teachers were given five choices, namely, bachelor's degree, completed academic requirements in the master's degree, master's

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degree, completed academic requirements in the doctorate degree, and doctorate degree. Table 2 indicates the results.

TABLE 2
Distribution of the English Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's Degree	29	18%
Completed academic requirements in the Master's Degree	53	34%
Master's Degree	49	31%
Completed academic requirements in the Doctorate Degree	14	9%
Doctorate Degree	12	8%
Total	157	100%

As presented by Table 2, 29 or 18% of the English teachers are bachelor's degree holders, 53 or 34% have completed the academic requirements for the master's degree, 49 or 31% are master's degree holders, 14 or 9% have completed the academic requirements for the doctorate degree, and 12 or 8% are doctorate degree holders. It can be noted that majority of the English teachers of public elementary schools in Malasiqui II District have no post-graduate degree.

On Length of Teaching Experience

In relation to the length of teaching experience, the English teachers were provided with five choices to choose from, viz., five years and below, six to ten years, 11 to 15 years, 16 to 20 years, and more than 20 years. Table 3 shows the results.

TABLE 3
Distribution of the English Teachers in terms of Length of Teaching Experience

Length of Experience	Frequency	Percentage
1 to 5 years	15	9%
6 to 10 years	33	21%
11 to 15 years	42	27%

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16 to 20 years	48	31%
More than 20 years	19	12%
Total	157	100%

As disclosed by Table 3, 15 or nine% of the English teachers have been teaching for one to five years, 33 or 21% have been teaching for six to ten years already, 42 or 27% have been teaching for 11 to 15 years already, 48 or 31% have been teaching for 16 to 20 years already, and 19 or 12% have been teaching for more than 20 years already. It can be noted here that majority of the English teachers of public elementary schools in Malasiqui II District have been teaching for more than ten years already.

On Number of Trainings/Seminars Attended

In relation to the number of trainings/seminars related with active learning attended for the past five years, the English teachers were given three choices, to wit: have not attended any training/seminar related with active learning for the past five years, have attended not more than three trainings/seminars related with active learning for the past five years, and have attended more than three trainings/seminars related with active learning for the past five years. Table 4 presents the results.

Table 4
Distribution of the English Teachers in terms of Number of Relevant Trainings Attended

Number of Trainings Attended	Frequency	Percentage
Have not attended any training related with active learning for the past five years	0	0%
Have attended not more than three trainings related with active learning for the past five years	105	67%
Have attended more than three trainings related with active learning for the past five years	52	33%
Total	157	100%

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As disclosed by Table 4, 105 or 67% of the English teachers have attended not more than three trainings related with active learning for the past five years and 52 or 33% have attended more than three trainings. It can be noted that majority of the English teachers of the public elementary schools in Malasiqui II District have attended not more than three trainings related with active learning for the past five years.

The Extent to which the English Teachers are Utilizing Active Learning Strategies

This section provides answers to the second sub-problem of the study, which is about the extent to which the English teachers of public elementary schools in Malasiqui II District are utilizing active learning strategies,

To provide answers to the sub-problem, the English teachers and the school heads were asked to rate the extent to which the English are utilizing the different active learning strategies.

Assessment of the English Teachers. The assessment of the English teachers on the extent to which they are utilizing active learning strategies is presented in Table 5.

As manifested in Table 5, when queried as to the extent to which they are utilizing the "experiential learning" strategy, 25 of the English teachers replied "sometimes," 91 replied "almost always," and 41 replied "always." The computed weighted mean here is 4.10 which is indicative of "almost always" in the scale.

TABLE 5
The Extent to which the English Teachers are Utilizing Active Learning Strategies as Perceived by Themselves

Assessment Items	Responses					WM	DE
	NE	AN	SO	AA	AL		
1. Experiential Learning	0	0	25	91	41	4.10	AA
2. Inquiry Learning	0	0	24	89	44	4.13	AA

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3, Forum Theater	0	0	19	99	39	4.13	AA
4. Clarification Pauses	0	0	18	101	38	4.13	AA
5. Place-based Education	0	0	20	101	36	4.10	AA
6. Worksheets/Study Guides	0	0	24	102	31	4.04	AA
7. Audience Polling	0	0	21	95	41	4.13	AA
8. Hands-on Technology	0	0	19	97	41	4.14	AA
9. Question & Answer	0	0	19	101	37	4.11	AA
10. One minute paper/Focus Listing/One Sentence Summary	0	0	19	110	28	4.06	AA
11. Think-Pair-Share	0	0	17	111	29	4.08	AA
12. Brain Dump/Free Write	0	0	19	104	34	4.10	AA
13. Muddiest Point	0	0	21	102	34	4.08	AA
14. Misconception/ Preconception Check	0	0	19	104	34	4.10	AA
15. Application Activity	0	0	17	97	43	4.17	AA
16. Student-Generated Questions	0	0	22	93	42	4.13	AA
17. Formative Quizzes/ Surveys/Background Knowledge Probe	0	0	22	89	46	4.15	AA
18. Personal Response Cards	0	0	20	98	39	4.12	AA
19. Self/Peer Formative Assessment	0	0	27	80	50	4.15	AA
20. Small Group Presentation/Discussions	0	0	24	97	36	4.08	AA
21. Role Playing/Simulations/Games	0	0	27	89	41	4.09	AA
22. Categorizing Grid/ Pro-Con Grid	0	0	24	85	48	4.15	AA
23. Defining Feature Matrix/Memory Matrix	0	0	15	101	41	4.17	AA
24. Debates	0	0	28	97	32	4.03	AA
25. Peer Teaching	0	0	22	108	27	4.03	AA
26. Concept Maps	0	0	24	102	31	4.04	AA
27. Cases	0	0	23	107	27	4.03	AA
28. Cooperative Cases	0	0	21	101	35	4.09	AA
29. Jigsaw	0	0	22	100	35	4.08	AA
30. Cooperative Learning/Problem-Based Learning	0	0	27	94	36	4.06	AA
					OWM	4.10	AA

Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
OWM	=	area weighted mean

Scale:

NE	=	never	=	1.00 – 1.49
AN	=	almost never	=	1.50 – 2.49
SO	=	sometimes	=	2.50 – 3.49
AA	=	almost always	=	3.50 – 4.49
AL	=	always	=	4.50 – 5.00

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When inquired as to the extent to which they are utilizing the “inquiry learning” strategy, 24 of the English teachers claimed “sometimes,” 89 claimed “almost always,” and 44 claimed “always”. In this item, the computed weighted mean is 4.13 which is pointing to “almost always” in the scale.

When asked as to the extent to which they are utilizing the “forum theater” strategy, 19 of the English teachers responded “sometimes,” 99 responded “almost always,” and 39 responded “always”. The computed weighted mean here is 4.13 which has a descriptive equivalent of “almost always” in the scale.

When queried as to the extent to which they are utilizing the “clarification pause” strategy, 18 of the English teachers replied “sometimes,” 101 replied “almost always,” and 38 replied “always”. The computed weighted mean here is 4.13 which is indicative of “almost always” in the scale.

When asked about the extent to which they are utilizing the “place-based education” strategy, 20 of the English teachers replied “sometimes,” 101 replied “almost always,” and 36 replied “always”. The computed weighted mean here is 4.10 which is pointing to “almost always” in the scale.

When questioned on the extent to which they are utilizing the “worksheet/study guide” strategy, 24 of the English teachers ticked “sometimes,” 102 ticked “almost always,” and 31 ticked “always.” In this item, the computed weighted mean is 4.04 which is leading to “almost always” in the scale.

When asked as to the extent to which they are utilizing the “audience polling” strategy, 21 of the English teachers responded “sometimes,” 95 responded “almost always,” and 41

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responded “always.”. Here, the computed weighted mean is 4.13 which has a descriptive equivalent of “almost always” in the scale.

When queried on the extent to which they are utilizing the “hands-on technology” strategy, 19 of the English teachers answered “sometimes,” 97 answered “almost always,” and 41 answered “always.” In this item, the computed weighted mean is 4.14 which is indicative of “almost always” in the scale.

When asked as to the extent to which they are utilizing the “question and answer” strategy, 19 of the English teachers claimed “sometimes,” 101 claimed “almost always,” and 37 claimed “always.” The weighted mean computed here is 4.11 which has a descriptive equivalent of “almost always” in the scale of interpretation.

When asked about the extent to which they are utilizing the “one minute paper/focus listing/one sentence summary” strategy, 19 of the English teachers replied “sometimes,” 110 replied “almost always,” and 28 replied “always.” The computed weighted mean here is 4.06 which is pointing to “almost always” in the scale.

When questioned on the extent to which they are utilizing the “think-pair-share” strategy, 17 of the English teachers ticked “sometimes,” 111 ticked “almost always,” and 29 ticked “always.” In this item, the computed weighted mean is 4.08 which is leading to “almost always” in the scale.

When asked as to the extent to which they are utilizing the “brain dump/free write” strategy, 19 of the English teachers responded “sometimes,” 104 responded “almost always,” and 34 responded “always.” Here, the computed weighted mean is 4.10 which has a descriptive equivalent of “almost always” in the scale.

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When queried on the extent to which they are utilizing the “muddiest point” strategy, 21 of the English teachers answered “sometimes,” 102 answered “almost always,” and 34 answered “always.” In this item, the computed weighted mean is 4.08 which is indicative of “almost always” in the scale.

When inquired as to the extent to which they are utilizing the “misconception/preconception check” strategy, 19 of the English teachers claimed “sometimes,” 104 claimed “almost always,” and 34 claimed “always.” In this item, the computed weighted mean is 4.10 which is pointing to “almost always” in the scale.

When asked as to the extent to which they are utilizing the “application activity” strategy, 17 of the English teachers responded “sometimes,” 97 responded “almost always,” and 43 responded “always”. The computed weighted mean here is 4.17 which has a descriptive equivalent of “almost always” in the scale.

When queried as to the extent to which they are utilizing the “student-generated questions” strategy, 22 of the English teachers replied “sometimes,” 93 replied “almost always,” and 42 replied “always”. The computed weighted mean here is 4.13 which is indicative of “almost always” in the scale.

When asked about the extent to which they are utilizing the “formative quizzes/surveys” strategy, 22 of the English teachers replied “sometimes,” 89 replied “almost always,” and 46 replied “always.” The computed weighted mean here is 4.15 which is pointing to “almost always” in the scale.

When questioned on the extent to which they are utilizing the “personal response cards” strategy, 20 of the English teachers ticked “sometimes,” 98 ticked “almost always,” and 39 ticked

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"always." In this item, the computed weighted mean is 4.12 which is leading to "almost always" in the scale.

When asked as to the extent to which they are utilizing the "self/peer formative assessment" strategy, 27 of the English teachers responded "sometimes," 80 responded "almost always," and 50 responded "always.". Here, the computed weighted mean is 4.15 which has a descriptive equivalent of "almost always" in the scale.

When queried on the extent to which they are utilizing the "small group presentation/discussions" strategy, 24 of the English teachers answered "sometimes," 97 answered "almost always", and 36 answered "always." In this item, the computed weighted mean is 4.08 which is indicative of "almost always" in the scale.

When inquired as to the extent to which they are utilizing the "role playing/simulations/games" strategy, 27 of the English teachers claimed "sometimes," 89 claimed "almost always," and 41 claimed "always." In this item, the computed weighted mean is 4.09 which is pointing to "almost always" in the scale.

When asked as to the extent to which they are utilizing the "categorizing grid/pro-con grid" strategy, 24 of the English teachers responded "sometimes," 85 responded "almost always," and 48 responded "always." The computed weighted mean here is 4.15 which has a descriptive equivalent of "almost always" in the scale.

When queried as to the extent to which they are utilizing the "defining feature matrix/memory matrix" strategy, 15 of the English teachers replied "sometimes," 101 replied "almost always," and 41 replied "always." The computed weighted mean here is 4.17 which is indicative of "almost always" in the scale.

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When inquired as to the extent to which they are utilizing the “debate” strategy, 28 of the English teachers claimed “sometimes,” 97 claimed “almost always,” and 32 claimed “always.” In this item, the computed weighted mean is 4.03 which is pointing to “almost always” in the scale.

When asked as to the extent to which they are utilizing the “peer teaching” strategy, 22 of the English teachers responded “sometimes,” 108 responded “almost always,” and 27 responded “always.” The computed weighted mean here is 4.03 which has a descriptive equivalent of “almost always” in the scale.

When queried as to the extent to which they are utilizing the “concept map” strategy, 24 of the English teachers replied “sometimes,” 102 replied “almost always,” and 31 replied “always.” The computed weighted mean here is 4.04 which is indicative of “almost always” in the scale.

When asked about the extent to which they are utilizing the “cases” strategy, 23 of the English teachers replied “sometimes,” 107 replied “almost always,” and 27 replied “always.” The computed weighted mean here is 4.04 which is pointing to “almost always” in the scale.

When questioned on the extent to which they are utilizing the “cooperative cases” strategy, 21 of the English teachers ticked “sometimes,” 101 ticked “almost always,” and 35 ticked “always.” In this item, the computed weighted mean is 4.09 which is leading to “almost always” in the scale.

When asked as to the extent to which they are utilizing the “jigsaw” strategy, 22 of the English teachers responded “sometimes,” 100 responded “almost always,” and 35 responded “always.” Here, the computed weighted mean is 4.08 which has a descriptive equivalent of “almost always” in the scale.

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Finally, when queried on the extent to which they are utilizing the "cooperative learning/problem-based learning" strategy, 27 of the English teachers answered "sometimes," 94 answered "almost always," and 36 answered "always." In this item, the computed weighted mean is 4.06 which is indicative of "almost always" in the scale.

Furthermore, the computed overall weighted mean is 4.10 which has a descriptive equivalent of "almost always" in the scale of interpretation. This implies that the English teachers perceived that they are utilizing the different active learning strategies frequently.

Assessment of the School Heads. The assessment of the school heads on the extent to which the English teachers are utilizing active learning strategies is presented in Table 6.

As manifested in Table 6, when queried as to the extent to which their English teachers are utilizing the "experiential learning" strategy, five of the school heads replied "almost never," 15 replied "sometimes," and eight replied "almost always." The computed weighted mean here is 3.11 which is indicative of "sometimes" in the scale.

When inquired as to the extent to which their English teachers are utilizing the "inquiry learning" strategy, seven of the school heads claimed "almost never," 14 claimed "sometimes," and seven claimed "almost always". In this item, the computed weighted mean is 3.00 which is pointing to "sometimes" in the scale.

When asked as to the extent to which their English teachers are utilizing the "forum theater" strategy, seven of the school heads responded "almost never," 14 responded "sometimes," and seven responded "almost always". The computed weighted mean here is 3.00 which has a descriptive equivalent of "sometimes" in the scale.

TABLE 6
The Extent to which the English Teachers are Utilizing Active

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Learning Strategies as Perceived by the School Heads

Assessment Items	Responses					WM	DE
	NE	AN	SO	AA	AL		
1. Experiential Learning	0	5	15	8	0	3.11	SO
2. Inquiry Learning	0	7	14	7	0	3.00	SO
3, Forum Theater	0	7	14	7	0	3.00	SO
4. Clarification Pauses	0	8	14	6	0	2.93	SO
5. Place-based Education	0	7	13	8	0	3.04	SO
6. Worksheets/Study Guides	0	6	13	9	0	3.11	SO
7. Audience Polling	0	8	12	8	0	3.00	SO
8. Hands-on Technology	0	5	14	9	0	3.14	SO
9. Question & Answer	0	6	14	8	0	3.07	SO
10. One minute paper/Focus Listing/One Sentence Summary	0	7	13	8	0	3.04	SO
11. Think-Pair-Share	0	7	13	8	0	3.04	SO
12. Brain Dump/Free Write	0	7	13	8	0	3.04	SO
13. Muddiest Point	0	7	12	9	0	3.07	SO
14. Misconception/ Preconception Check	0	6	14	8	0	3.07	SO
15. Application Activity	0	7	13	8	0	3.04	SO
16. Student-Generated Questions	0	6	14	8	0	3.07	SO
17. Formative Quizzes/ Surveys/Background Knowledge Probe	0	6	13	9	0	3.11	SO
18. Personal Response Cards	0	7	13	8	0	3.04	SO
19. Self/Peer Formative Assessment	0	7	13	8	0	3.04	SO
20. Small Group Presentation/Discussions	0	6	14	8	0	3.07	SO
21. Role Playing/Simulations/Games	0	6	14	8	0	3.07	SO
22. Categorizing Grid/ Pro-Con Grid	0	7	13	8	0	3.04	SO
23. Defining Feature Matrix/Memory Matrix	0	8	12	8	0	3.00	SO
24. Debates	0	6	14	8	0	3.07	SO
25. Peer Teaching	0	7	14	7	0	3.00	SO
26. Concept Maps	0	6	15	7	0	3.04	SO
27. Cases	0	6	14	8	0	3.07	SO
28. Cooperative Cases	0	7	13	8	0	3.04	SO
29. Jigsaw	0	6	14	8	0	3.07	SO
30. Cooperative Learning/Problem-Based Learning	0	8	12	8	0	3.00	SO
					OWM	3.05	SO

Legend:

WM = weighted mean
DE = descriptive equivalent
OWM = area weighted mean

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Scale:

NE	=	never	=	1.00 – 1.49
AN	=	almost never	=	1.50 – 2.49
SO	=	sometimes	=	2.50 – 3.49
AA	=	almost always	=	3.50 – 4.49
AL	=	always	=	4.50 – 5.00

When queried as to the extent to which their English teachers are utilizing the "clarification pause" strategy, eight of the school heads replied "almost never," 14 replied "sometimes," and six replied "almost always". The computed weighted mean here is 2.93 which is indicative of "sometimes" in the scale.

When asked about the extent to which their English teachers are utilizing the "place-based education" strategy, seven of the school heads replied "almost never," 13 replied "sometimes," and eight replied "almost always". The computed weighted mean here is 3.04 which is pointing to "sometimes" in the scale.

When questioned on the extent to which their English teachers are utilizing the "worksheet/study guide" strategy, six of the school heads ticked "almost never," 13 ticked "sometimes," and nine ticked "almost always." In this item, the computed weighted mean is 3.11 which is leading to "sometimes" in the scale.

When asked as to the extent to which their English teachers are utilizing the "audience polling" strategy, eight of the school heads responded "almost never," 12 responded "sometimes," and eight responded "almost always.". Here, the computed weighted mean is 3.00 which has a descriptive equivalent of "sometimes" in the scale.

When queried on the extent to which their English teachers are utilizing the "hands-on technology" strategy, five of the school heads answered "almost never," 14 answered "sometimes," and nine answered "almost always." In this item, the computed weighted mean is 3.14 which is indicative of "sometimes" in the scale.

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When asked as to the extent to which their English teachers are utilizing the "question and answer" strategy, six of the school heads claimed "almost never," 14 claimed "sometimes," and eight claimed "almost always." The weighted mean computed here is 3.07 which has a descriptive equivalent of "sometimes" in the scale of interpretation.

When asked about the extent to which their English teachers are utilizing the "one minute paper/focus listing/one sentence summary" strategy, seven of the school heads replied "almost never," 13 replied "sometimes," and eight replied "almost always." The computed weighted mean here is 3.04 which is pointing to "sometimes" in the scale.

When questioned on the extent to which their English teachers are utilizing the "think-pair-share" strategy, seven of the school heads ticked "almost never," 13 ticked "sometimes," and eight ticked "almost always." In this item, the computed weighted mean is 3.04 which is leading to "sometimes" in the scale.

When asked as to the extent to which their English teachers are utilizing the "brain dump/free write" strategy, seven of the school heads responded "almost never," 13 responded "sometimes," and eight responded "almost always." Here, the computed weighted mean is 3.04 which has a descriptive equivalent of "sometimes" in the scale.

When queried on the extent to which their English teachers are utilizing the "muddiest point" strategy, seven of the school heads answered "almost never," 12 answered "sometimes," and nine answered "almost always." In this item, the computed weighted mean is 3.07 which is indicative of "sometimes" in the scale.

When inquired as to the extent to which their English teachers are utilizing the "misconception/preconception check" strategy, six of the school heads claimed "almost never,"

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14 claimed “sometimes,” and eight claimed “almost always.” In this item, the computed weighted mean is 3.07 which is pointing to “sometimes” in the scale.

When asked as to the extent to which their English teachers are utilizing the “application activity” strategy, seven of the school heads responded “almost never,” 13 responded “sometimes,” and eight responded “almost always”. The computed weighted mean here is 3.04 which has a descriptive equivalent of “sometimes” in the scale.

When queried as to the extent to which their English teachers are utilizing the “student-generated questions” strategy, six of the school heads replied “almost never,” 14 replied “sometimes,” and eight replied “almost always”. The computed weighted mean here is 3.07 which is indicative of “sometimes” in the scale.

When asked about the extent to which their English teachers are utilizing the “formative quizzes/surveys” strategy, six of the school heads replied “almost never,” 13 replied “sometimes,” and nine replied “almost always.” The computed weighted mean here is 3.11 which is pointing to “sometimes” in the scale.

When questioned on the extent to which their English teachers are utilizing the “personal response cards” strategy, seven of the school heads ticked “almost never,” 13 ticked “sometimes,” and eight ticked “almost always.” In this item, the computed weighted mean is 3.04 which is leading to “sometimes” in the scale.

When asked as to the extent to which their English teachers are utilizing the “self/peer formative assessment” strategy, seven of the school heads responded “almost never,” 13 responded “sometimes,” and eight responded “almost always.”. Here, the computed weighted mean is 3.04 which has a descriptive equivalent of “sometimes” in the scale.

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When queried on the extent to which their English teachers are utilizing the "small group presentation/discussions" strategy, six of the school heads answered "almost never," 14 answered "sometimes", and eight answered "almost always." In this item, the computed weighted mean is 3.07 which is indicative of "sometimes" in the scale.

When inquired as to the extent to which their English teachers are utilizing the "role playing/simulations/games" strategy, six of the school heads claimed "almost never," 14 claimed "sometimes," and eight claimed "almost always." In this item, the computed weighted mean is 3.07 which is pointing to "sometimes" in the scale.

When asked as to the extent to which their English teachers are utilizing the "categorizing grid/pro-con grid" strategy, seven of the school heads responded "almost never," 13 responded "sometimes," and eight responded "almost always." The computed weighted mean here is 3.04 which has a descriptive equivalent of "sometimes" in the scale.

When queried as to the extent to which their English teachers are utilizing the "defining feature matrix/memory matrix" strategy, eight of the school heads replied "almost never," 12 replied "sometimes," and eight replied "almost always." The computed weighted mean here is 3.00 which is indicative of "sometimes" in the scale.

When inquired as to the extent to which their English teachers are utilizing the "debate" strategy, six of the school heads claimed "almost never," 14 claimed "sometimes," and eight claimed "almost always." In this item, the computed weighted mean is 3.07 which is pointing to "sometimes" in the scale.

When asked as to the extent to which their English teachers are utilizing the "peer teaching" strategy, seven of the school heads responded "almost never," 14 responded

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"sometimes," and seven responded "almost always." The computed weighted mean here is 3.00 which has a descriptive equivalent of "sometimes" in the scale.

When queried as to the extent to which their English teachers are utilizing the "concept map" strategy, six of the school heads replied "almost never," 15 replied "sometimes," and seven replied "almost always." The computed weighted mean here is 3.04 which is indicative of "sometimes" in the scale.

When asked about the extent to which their English are utilizing the "cases" strategy, six of the school heads replied "almost never," 14 replied "sometimes," and eight replied "almost always." The computed weighted mean here is 3.07 which is pointing to "sometimes" in the scale.

When questioned on the extent to which their English teachers are utilizing the "cooperative cases" strategy, seven of the school heads ticked "almost never," 13 ticked "sometimes," and eight ticked "almost always." In this item, the computed weighted mean is 3.04 which is leading to "sometimes" in the scale.

When asked as to the extent to which their English teachers are utilizing the "jigsaw" strategy, six of the school heads responded "almost never," 14 responded "sometimes," and eight responded "almost always." Here, the computed weighted mean is 3.07 which has a descriptive equivalent of "sometimes" in the scale.

And, when queried on the extent to which their English teachers are utilizing the "cooperative learning/problem-based learning" strategy, eight of the school heads answered "almost never," 12 answered "sometimes," and eight answered "almost always." In this item, the computed weighted mean is 3.00 which is indicative of "sometimes" in the scale.

Furthermore, the computed overall weighted mean is 3.05 which has a descriptive equivalent of "sometimes" in the scale of interpretation. This implies that the school heads

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perceived that their English teachers are utilizing the different active learning strategies only once in a while.

Relationship between the Profile Variables of the English Teachers and the Extent to which They are Utilizing Active Learning Strategies

This part of the chapter provides answers to the third sub-problem of the study which is about the significant relationship between the profile variables of the English teachers and the extent to which they are utilizing active learning strategies.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the profile variables of the English teachers and the extent to which they are utilizing active learning strategies. Thereafter, the researcher correlated the profile variables of the English teachers and the extent to which they are utilizing active learning strategies using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the chi square value at .05 level of significance. Table 7 presents the results.

TABLE 7
Relationship between the Profile Variables of the English Teachers and the Extent to which They are Utilizing Active Learning Strategies

Profile Variables	Chi Square Value	Chi Square Critical Value	RM
Highest Educational Attainment	6.87	3.84	S
Length of Teaching Experience	7.72	3.84	S
Number of Relevant Trainings	7.70	3.84	S

Legend:
RM = remarks
S = significant
NS = not significant

As shown in Table 7, when the highest educational attainment of the English teachers and the extent to which they are utilizing active learning strategies are correlated, the chi square value

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computed is 6.87. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the extent to which the English teachers are utilizing active learning strategies is influenced by their highest educational attainment.

Secondly, when the length of teaching experience of the English teachers and the extent to which they are utilizing active learning strategies are correlated, the chi square value computed is 7.72. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the extent to which the English teachers are utilizing active learning strategies is influenced by their length of teaching experience.

Lastly, when the number of relevant trainings of the English teachers and the extent to which they are utilizing active learning strategies are correlated, the computed chi square value computed is 7.70. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the extent to which the English teachers are utilizing active learning strategies is influenced by the number of relevant trainings they attended.

Difference between the Perceptions of the English Teachers and the School Heads on the Extent to which the English Teachers are Utilizing Active Learning Strategies

This part of the chapter discusses answers to the fourth sub-problem of the study which is about the significant difference between the perceptions of the English teachers and the school heads on the extent to which the English teachers are utilizing active learning strategies.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant difference between the perceptions of the English teachers and their school

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heads on the extent to which the English teachers are utilizing active learning strategies. Thereafter, the researcher compared the perceptions of the English teachers and their school heads on the extent to which the English teachers are utilizing active learning strategies using the t-test. Here, the researcher computed the p value at .05 level of significance. Table 8 presents the results.

TABLE 8
Difference between the Perceptions of the English Teachers and the School Heads

	Computed p Value	Level of Significance	RM
The Extent to which the English Teachers are Utilizing Active Learning Strategies	0.00	.05	S

Legend:
RM = remarks
S = significant
NS = not significant

As shown in Table 8, when the perceptions of the English teachers and their school heads on the extent to which the English teachers are utilizing active learning strategies are compared, the p value computed is 0.00. This figure is lower than the .05 level of significance. As such, the null hypothesis is rejected. There is a significant difference between the perceptions of the English teachers and their school heads on the extent to which the English teachers are utilizing active learning strategies.

The Attitude of the English Teachers Towards Active Learning

This section gives answers to the fourth problem which is about the attitude of the English teachers of public elementary schools in Malasiqui II District towards active learning.

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To provide light to the problem, the English teachers were given thirty statements about active learning and were asked to give their agreement or disagreement on them. Table 9 presents the results.

TABLE 9
Attitude of the English Teachers
Towards Active Learning

Assessment Items	Responses					WM	DE
Active learning strategies ….	SD	DA	UD	AG	SA		
1. are meaningful.	0	0	38	67	52	4.09	AG
2. are communicative	0	0	33	77	47	4.09	AG
3. are practical.	0	0	34	76	47	4.08	AG
4. are participatory	0	0	39	68	50	4.07	AG
5. are liked by learners.	0	0	39	68	50	4.07	AG
6. are effective.	0	0	34	74	49	4.10	AG
7. are enjoyable.	0	0	39	68	50	4.07	AG
8. are goal-oriented.	0	0	39	66	52	4.08	AG
9. are easy to use and implement.	0	0	34	76	47	4.08	AG
10. are liked by teachers	0	0	38	67	52	4.09	AG
11. accommodate learners of differing ability	0	0	38	67	52	4.09	AG
12. keep learners lively	0	0	38	67	52	4.09	AG
13. are flexible.	0	0	37	68	52	4.10	AG
14. emphasize learning process more than learning outcomes	0	0	31	79	47	4.10	AG
15. emphasize learners' role for their own learning.	0	0	38	67	52	4.09	AG
16. engage learners in higher order thinking skills such as analysis and synthesis.	0	0	33	77	47	4.09	AG
17. can accommodate learner diversity	0	0	37	68	52	4.10	AG
18. can be used and implemented in large class.	0	0	37	68	52	4.10	AG
19. enhance learners’ performance.	0	0	39	68	50	4.07	AG
20. enhance learners’ retention of what they learn.	0	0	40	67	50	4.06	AG
21. introduce variety of learning experience	0	0	31	77	49	4.11	AG
22. make evaluation easy.	0	0	33	77	47	4.09	AG
23. promote deep learning.	0	0	36	74	47	4.07	AG

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24. can be used regardless of the class size of the learners.	0	0	31	79	47	4.10	AG
25. enable the teacher to cover the year's curriculum.	0	0	38	67	52	4.09	AG
26. do not take long time to prepare.	0	0	31	79	47	4.10	AG
27. are not limited by the workload per week of the teacher.	0	0	39	68	50	4.07	AG
28. are not limited by the time allocated for the subject.	0	0	39	68	50	4.07	AG
29. are not limited by the available materials and equipment in school.	0	0	39	66	52	4.08	AG
30. improve classroom interaction.	0	0	31	77	49	4.11	AG
					OWM	4.09	AG

Legend:
WM = weighted mean
DE = descriptive equivalent
OWM = overall weighted mean

Scale:
SD = strongly disagree = very negative = 1.00 – 1.49
DA = disagree = negative = 1.50 – 2.49
UD = undecided = neutral = 2.50 – 3.49
AG = agree = positive = 3.50 – 4.49
SA = strongly agree = very positive = 4.50 – 5.00

As shown in Table 9, when asked as to whether active learning strategies are meaningful, 38 of the English teachers replied "undecided," 67 replied "agree," and 52 replied "strongly agree." The computed weighted mean here is 4.09 which is pointing to "agree" in the scale of interpretation.

When queried as to whether active learning strategies are communicative, 33 of the English teachers answered "undecided," 77 answered "agree," and 47 answered "strongly agree." In this item, the computed weighted mean is 4.09 which is pointing to "agree" in the scale.

When inquired as to whether active learning strategies are practical, 34 of the English teachers responded "undecided," 76 responded "agree," and 47 responded "strongly agree". Here, the computed weighted mean is 4.08 which is leading to "agree" in the scale of interpretation.

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When asked as to whether active learning strategies are participatory, 39 of the English teachers ticked “undecided,” 68 ticked “agree”, and 50 ticked “strongly agree”. The computed weighted mean in this item is 4.07 which is indicative of “agree” in the scale.

When questioned as to whether active learning strategies are liked by learners, 39 of the English teachers stated “undecided,” 68 stated “agree,” and 50 stated “strongly agree.” The weighted mean computed here is 4.07 which is “agree” in the scale.

When questioned as to whether active learning strategies are effective, 34 of the English teachers said “undecided,” 74 said “agree,” and 49 said “strongly agree.” The computed weighted mean in this item is 4.10 which has a descriptive equivalent of “agree” in the scale.

When inquired as to whether active learning strategies are enjoyable, 39 of the English teachers claimed “undecided,” 68 claimed “agree,” and 50 claimed “strongly agree”. In this item, the weighted mean computed is 4.07 which is indicative of “agree” in the scale.

When asked as to whether active-learning strategies are goal-oriented, 39 of the English teachers mentioned “undecided,” 66 mentioned “agree,” and 52 mentioned “strongly agree”. Here, the computed weighted mean is 4.08 which is leading to “agree” in the scale”.

When queried as to whether active learning strategies are easy to use and implement, 34 of the English teachers said “undecided,” 76 said “agree,” and 47 said “strongly agree.” In this item, the computed weighted mean is 4.08 which has a descriptive equivalent of “agree” in the scale.

When asked as to whether active learning strategies are liked by teachers, 38 of the English teachers responded “undecided,” 52 responded “agree,” and 52 responded “strongly agree.” The weighted mean computed in this item is 4.09 which is leading to “agree” in the scale.

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When inquired as to whether active learning strategies accommodate learners of differing ability, 38 of the English teachers replied “undecided,” 67 replied “agree,” and 52 replied “strongly agree.” The weighted mean computed here is 4.09 which is pointing to “agree” in the scale.

When questioned whether active learning strategies keep learners lively, 38 of the English teachers responded “undecided,” 67 responded “agree,” and 52 responded “strongly agree.” Here, the weighted mean computed is 4.09 which is leading to “agree” in the scale.

When asked as to whether active learning strategies are flexible, 37 of the English teachers said “undecided,” 68 said “agree,” and 52 said “strongly agree.” In this item, the computed weighted mean is 4.10 which is indicative of “agree” in the scale.

When questioned as to whether active learning strategies emphasize learning process more than learning outcomes, 31 of the English teachers indicated “undecided,” 79 indicated “agree,” and 47 indicated “strongly agree.” The weighted mean computed here is 4.10 which has a descriptive equivalent of “agree” in the scale.

When inquired as to whether active learning strategies emphasize learners’ role for their own learning, 38 of the English teachers responded “undecided,” 67 responded “agree,” and 52 responded “strongly agree.” The weighted mean computed here is 4.09 which is indicative of “agree” in the scale.

When queried as to whether active learning strategies engage learners in higher order thinking skills, 33 of the English teachers replied “undecided,” 77 replied “agree” and 47 replied “strongly agree.” Here, the computed weighted mean is 4.09 which has a descriptive equivalent of “agree” in the scale.

\When asked as to whether active learning strategies can accommodate learner diversity, 37 of the English teachers replied “undecided,” 68 replied “agree,” and 52 replied “strongly agree.”

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The computed weighted mean here is 4.10 which has a descriptive equivalent of “agree” in the scale of interpretation.

When queried as to whether active learning strategies can be used and implemented in large class, 37 of the English teachers answered “undecided,” 68 answered “agree,” and 52 answered “strongly agree.” In this item, the computed weighted mean is 4.10 which is pointing to “agree” in the scale.

When inquired as to whether active learning strategies enhance learners’ performance, 39 of the English teachers responded “undecided,” 68 responded “agree,” and 50 responded “strongly agree.” Here, the computed weighted mean is 4.07 which is leading to “agree” in the scale of interpretation.

When asked as to whether active learning strategies enhance learners’ retention of what they learn, 40 of the English teachers ticked “undecided,” 67 ticked “agree,” and 50 ticked “strongly agree.” The computed weighted mean in this item is 4.06 which is indicative of “agree” in the scale.

When questioned as to whether active learning strategies introduce variety of learning experience, 31 of the English teachers stated “undecided,” 77 stated “agree,” and 49 stated “strongly agree.” The weighted mean computed here is 4.11 which is “agree” in the scale.

When questioned as to whether active learning strategies make evaluation easy, 33 of the English teachers said “undecided,” 77 said “agree,” and 47 said “strongly agree.” The computed weighted mean in this item is 4.09 which has a descriptive equivalent of “agree” in the scale.

When inquired as to whether active learning strategies promote deep learning, 36 of the English teachers claimed “undecided,” 74 claimed “agree,” and 47 claimed “strongly agree.” In this item, the weighted mean computed is 4.07 which is indicative of “agree” in the scale.

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When asked as to whether active-learning strategies can be used regardless of class size of the learners, 31 of the English teachers mentioned “undecided,” 79 mentioned “agree,” and 47 mentioned “strongly agree.” Here, the computed weighted mean is 4.10 which is leading to “agree” in the scale.

When queried as to whether active learning strategies enable the teacher to cover the year’s curriculum, 38 of the English teachers said “undecided,” 67 said “agree,” and 52 said “strongly agree.” In this item, the computed weighted mean is 4.09 which has a descriptive equivalent of “agree” in the scale.

When asked as to whether active learning strategies do not take long time to prepare, 31 of the English teachers responded “undecided,” 79 responded “agree,” and 47responded “strongly agree.” The weighted mean computed in this item is 4.10 which is leading to “agree” in the scale.

When inquired as to whether active learning strategies are not limited by the workload per week of the teacher, 39 of the English teachers replied “undecided,” 68 replied “agree,” and 50 replied “strongly agree.” The weighted mean computed here is 4.07which is pointing to “agree” in the scale.

When questioned whether active learning strategies are not limited by the time allocated for the subject, 39 of the English teachers responded “undecided,” 68 responded “agree,” and 50 responded “strongly agree.” Here, the weighted mean computed is 4.07 which is leading to “agree” in the scale.

When asked as to whether active learning strategies are not limited by the available materials and equipment in school, 39 of the English teachers said “undecided,” 66 said “agree,” and 52 said “strongly agree.” In this item, the computed weighted mean is 4.08 which is indicative of “agree” in the scale.

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Finally, when questioned as to whether active learning strategies improve classroom interaction, 31 of the English teachers "undecided," 77 indicated "agree," and 49 indicated "strongly agree." The weighted mean computed here is 4.11 which has a descriptive equivalent of "agree" in the scale.

Meanwhile the computed overall weighted mean is 4.09 which has a descriptive equivalent of "agree" in the scale of interpretation. This implies that, generally, the English teachers have a positive attitude towards active learning.

The Proposed Enhancement Program fort the English Teachers to Enhance Their Utilization of Active Learning

This section presents answers to the last sub-problem of the study which is about the proposed enhancement program to enhance the extent to which the English teachers of are utilizing active learning strategies.

To provide answers to the sub-problem, the researcher considered the findings that the majority of the English teachers have attended not more than three trainings related with active learning for the past five years, that school heads perceived that the English teachers are only sometimes utilizing active learning, that the extent to which the English teachers are utilizing active learning is influenced by the number of relevant trainings they attended, and that the English teachers have positive attitude towards active learning. What follows is the proposed enhancement program.

Conclusion and Recommendations

Conclusion

Based on the findings made, the following conclusions were drawn:

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1. A typical English teacher of a public elementary school in Malasiqui II District has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with active learning.

2. The English teachers perceived that they are frequently using active learning strategies while the school heads perceived that the English teachers are utilizing active learning once in a while.

3. The extent to which the English teachers are utilizing active learning strategies is influenced by their highest educational attainment, length of teaching experience, and the number of relevant trainings attended.

4. The perceptions of the English teachers and the school heads on the extent to which the English teachers are utilizing active learning strategies are significantly different from each other.

5. The attitude of the English teachers towards active learning may be capitalized as one of the bases for the proposed enhancement program.

6. The proposed enhancement program will enhance the extent to which the English teachers are utilizing active learning strategies.

Recommendations

Based on the findings made and the conclusions drawn, the following recommendations are offered:

1. The proposed enhancement program be approved for implementation in the public elementary schools in Malasiqui II District to enhance the extent to which the English teachers are utilizing active learning strategies.

2. The implementation of the proposed enhancement program to enhance the extent to which the English teachers of public elementary schools in Malasiqui II District are utilizing active learning should be evaluated.

3. Similar study may be conducted by other researchers to validate the findings of the study.

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PSYCHOLOGICAL BURNOUT AND JOB SATISFACTION OF THE FILIPINO TEACHERS IN SELECTED PUBLIC ELEMENTARY SCHOOLS IN THE SCHOOLS DIVISION OF QUEZON CITY

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ABSTRACT

This study determined the psychological burnout and job satisfaction levels of Filipino teachers in selected public elementary schools in the Schools Division of Quezon City during School Year 2025–2026. It used a quantitative descriptive-correlational design, with a developmental component for proposing intervention measures. The respondents were 261 Filipino teachers selected randomly from a population of 750 across five public elementary schools. Data were gathered through a survey questionnaire and analyzed using frequency counts, percentages, weighted means, and the chi-square test of independence at the .05 level. Most respondents held a bachelor's degree, had more than ten years of teaching experience, and had attended no more than three wellness-related trainings during the previous five years. The overall psychological burnout weighted mean was 3.17, interpreted as moderate; the dimensions were emotional exhaustion (3.15), depersonalization (3.16), and lack of personal achievement (3.20). Overall job satisfaction was also moderate (weighted mean = 3.08). The thesis reported statistically significant relationships between burnout and each of the three profile variables, and between burnout and job satisfaction. Proposed interventions included team building, recollection, peer coaching or mentoring, burnout management training, monthly informal check-ins, time-management training, school-issue discussions, tree planting, classroom-management training, and leadership training. The findings support school-based attention to teacher well-being and working conditions. Because the design is correlational, the reported relationships should not be interpreted as proof of causation.

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INTRODUCTION

Background and Rationale

Teaching involves sustained instructional, interpersonal, and organizational demands. Beyond classroom instruction, teachers prepare lessons, assess pupils, respond to diverse learning needs, attend meetings and trainings, and complete administrative responsibilities. When work demands persist and are not adequately managed, they may contribute to psychological strain and burnout. The thesis frames burnout as a workplace-related condition characterized by energy depletion or exhaustion, psychological distance or negative attitudes toward work, and reduced professional efficacy.

The thesis adopts the three-dimensional conceptualization of teacher burnout: emotional exhaustion, depersonalization, and lack of personal achievement. Emotional exhaustion concerns feeling drained by work; depersonalization concerns detachment or reduced sensitivity in interactions; and lack of personal achievement concerns diminished perceived effectiveness and accomplishment. These dimensions are relevant to teaching because educators' work depends on sustained interaction with pupils, colleagues, and school leaders.

Job satisfaction is presented as an overall attitude toward one's work and its conditions. It may be shaped by compensation, promotion opportunities, supervision, recognition, relationships, communication, working conditions, professional development, work-life balance, and the nature of assigned responsibilities. In school settings, satisfaction matters because it relates to teachers' engagement and their experience of the workplace.

The thesis's rationale draws on prior studies linking prolonged teacher stress with burnout and lower job satisfaction. It also notes that working conditions, workload, student behavior, limited resources, and support from school leadership may be relevant to teacher well-being. The present study focuses specifically on Filipino teachers teaching Filipino in selected public elementary schools in Quezon City, addressing the need for localized descriptive and correlational evidence.

Theoretical and Conceptual Framework

The study is guided by the Job Demands–Resources (JD-R) model, which distinguishes work demands that require sustained effort from resources that help employees achieve work goals, manage demands, and support growth. The thesis also draws on Herzberg's Two-Factor Theory, distinguishing hygiene factors—such as salary, supervision, policies, relationships, and working conditions—from motivators such as achievement, recognition, advancement, and responsibility. Equity Theory provides

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an additional lens by emphasizing perceived fairness between employees' contributions and the rewards they receive.

Within this framework, the study examines teachers' profile characteristics (highest educational attainment, length of teaching experience, and number of wellness-related trainings), their burnout level, and their job satisfaction level. The intended practical output is a set of intervention measures to address burnout and improve job satisfaction.

Research Questions and Hypotheses

The main purpose was to propose intervention measures for Filipino teachers in the selected public elementary schools in the Schools Division of Quezon City. Specifically, the study asked: (1) What is the teachers' profile in terms of highest educational attainment, teaching experience, and wellness-related trainings? (2) What is their psychological burnout level? (3) Are profile variables significantly related to burnout? (4) What is their job satisfaction level? (5) Is burnout significantly related to job satisfaction? and (6) What interventions may be proposed based on the findings?

The stated hypotheses were that significant relationships exist between the profile variables and psychological burnout, and between psychological burnout and job satisfaction. These were examined using the chi-square test of independence.

Scope

The study covered School Year 2025–2026 and five public elementary schools: Bagong Silangan Elementary School, Pres. Corazon C. Aquino Elementary School, Commonwealth Elementary School, Doña Juana Elementary School, and Benigno S. Aquino, Jr. Elementary School. It focused on teachers of Filipino and the three specified profile variables, burnout, job satisfaction, and proposed interventions. Findings should be interpreted within this setting and sample.

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METHODOLOGY

Research Design

The research used a quantitative descriptive-correlational design, with a developmental component. The descriptive component summarized teacher profiles, burnout, and job satisfaction. The correlational component tested associations between profile variables and burnout, and between burnout and job satisfaction. The developmental component was used to formulate proposed intervention measures based on the results.

Research Setting, Population, and Sample

The study was conducted in five selected public elementary schools in the Schools Division of Quezon City. The stated population was 750 Filipino teachers. Using Slovin's formula with a .05 margin of error, the researcher obtained a sample of 261. The sample was proportionally distributed across the five schools, and participants were randomly selected within the school groupings.

School	Population	Sample
Bagong Silangan Elementary School	177	62
Pres. Corazon C. Aquino Elementary School	180	63
Commonwealth Elementary School	161	56
Doña Juana Elementary School	136	47
Benigno S. Aquino, Jr. Elementary School	96	33
Total	750	261

Research Instrument

Data was collected using a survey questionnaire with three parts. Part I recorded highest educational attainment, length of teaching experience, and number of wellness-related trainings attended during the preceding five years. Part II measured psychological burnout. Its items were based on the questionnaire used by Domingo (2023), which the thesis states had been validated by that

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researcher. Part III measured job satisfaction using items based on Gandel (2022), also described in the thesis as previously validated.

Data Collection and Ethics

The researcher personally administered the questionnaire and gave respondents two weeks to complete it, after which the questionnaires were retrieved. The thesis states that permission was to be secured from the Schools Division Superintendent and informed consent obtained from participating teachers. It also describes confidentiality, use of data only for the research purpose, observance of the Philippine Data Privacy Act, and acknowledgment of scholarly sources.

Statistical Treatment

Frequency counts and percentages summarized respondent profiles. Weighted means described burnout and job satisfaction. Burnout means were interpreted as: 1.00–1.49 very low/never; 1.50–2.49 low/rarely; 2.50–3.49 moderate/sometimes; 3.50–4.49 high/often; and 4.50–5.00 very high/always. Job satisfaction means were interpreted as 1.00–1.49 very low/strongly disagree, 1.50–2.49 low/disagree, 2.50–3.49 moderate/somewhat agree, 3.50–4.49 high/agree, and 4.50–5.00 very high/strongly agree. The chi-square test of independence was used at the .05 significance level.

Reporting note: The source thesis contains some inconsistencies in its narrative and tables regarding certain chi-square values and null-hypothesis decisions. This condensed article reports the values shown in the relevant results table where available and avoids claiming causal influence.

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RESULTS AND DISCUSSION

Respondent Profile

The 261 respondents were characterized by educational attainment, years of teaching, and participation in wellness-related training. The thesis reports that 126 (48%) held a bachelor's degree; 68 (26%) had completed master's academic requirements; 50 (19%) held a master's degree; 11 (4%) had completed doctoral academic requirements; and 6 (3%) held a doctorate. Thus, 74% had not completed a postgraduate degree.

Highest educational attainment	N	%
Bachelor's degree	126	48
Completed master's academic requirements	68	26
Master's degree	50	19
Completed doctoral academic requirements	11	4
Doctoral degree	6	3
Total	261	100

Regarding teaching experience, 35 (13%) had 1–5 years, 78 (30%) had 6–10 years, 88 (34%) had 11–15 years, 39 (15%) had 16–20 years, and 21 (9%) had more than 20 years. The largest group had 11–15 years of experience; 57% had taught for more than ten years.

Teaching experience	N	%
1–5 years	35	13
6–10 years	78	30
11–15 years	88	34
16–20 years	39	15
More than 20 years	21	9
Total	261	100

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For wellness-related trainings during the preceding five years, none reported no training, 197 (75%) reported attending no more than three, and 64 (25%) reported attending more than three. The distribution indicates that most respondents had attended no more than three such trainings.

Wellness-related trainings	N	%
None	0	0
Not more than three	197	75
More than three	64	25
Total	261	100

Psychological Burnout

The overall weighted mean for psychological burnout was 3.17, interpreted by the thesis as moderate. All three dimensions fell within the moderate range. Lack of personal achievement had the highest dimension mean (3.20), followed by depersonalization (3.16) and emotional exhaustion (3.15).

Burnout dimension	Area weighted mean	Interpretation
Emotional exhaustion	3.15	Moderate
Depersonalization	3.16	Moderate
Lack of personal achievement	3.20	Moderate
Overall	3.17	Moderate

Within emotional exhaustion, the reported item means ranged from 3.12 to 3.18. Feeling at the end of one's rope had the highest item mean (3.18), while frustration by work had a mean of 3.12. The dimension mean of 3.15 indicates that respondents reported these experiences at a moderate level.

Within depersonalization, item means ranged from 3.12 to 3.23. Feeling tired upon waking and facing another workday had the highest reported mean (3.23). Items concerning reduced care or fear of becoming uncaring had means of 3.12. The dimension mean was 3.16.

Within lack of personal achievement, means ranged from 3.09 to 3.31. The item concerning difficulty understanding pupils' feelings had the highest mean (3.31), followed by lack of energy (3.29). Feeling exhausted after being close to pupils at work had the lowest mean (3.09). The dimension mean was 3.20.

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Taken together, the results describe moderate burnout across emotional, interpersonal, and self-evaluative dimensions. The pattern supports attention to teacher support and professional conditions, while the survey results alone do not establish the causes of burnout.

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Relationships Between Profile Variables and Burnout

The thesis tested the association of highest educational attainment, teaching experience, and wellness-related training participation with psychological burnout using the chi-square test of independence. The results table reports p values of 0.00 for all three relationships and marks each as significant at the .05 level.

Profile variable	Reported χ^2	Reported p	Thesis table interpretation
Highest educational attainment	7.98	0.00	Significant
Length of teaching experience	7.98	0.00	Significant
Number of relevant trainings	8.05	0.00	Significant

These results indicate statistical association in the analyzed sample, not that educational attainment, experience, or training caused burnout. The thesis's narrative elsewhere gives a different chi-square value for training (6.81), so the table value of 8.05 is retained here with this discrepancy noted. The source also reports a critical chi-square value of 3.84; the article does not independently recompute the tests because the underlying cross-tabulated data are not provided in the summarized material.

Job Satisfaction

The overall weighted mean for job satisfaction was 3.08, corresponding to "somewhat agree" and interpreted in the thesis as moderate job satisfaction. All 40 questionnaire items were summarized by the thesis under this overall mean. Individual reported means generally clustered near 3.00.

The item on adequate safety equipment had a mean of 2.98, the lowest among the displayed items. The item on fairness of the school principal had a mean of 3.00. Several items related to supervision, communication, benefits, recognition, training, work-life balance, and cooperation were also in the moderate range. The highest displayed item mean was 3.20 for the statement that the school follows a fair promotion policy.

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Selected job-satisfaction item	Weighted mean	Interpretation
School follows a fair promotion policy	3.20	Somewhat agree / moderate
School provides ample professional advancement opportunities	3.15	Somewhat agree / moderate
Training programs increased job satisfaction	3.13	Somewhat agree / moderate
Cooperation among teachers and staff	3.13	Somewhat agree / moderate
Principal is fair to me	3.00	Somewhat agree / moderate
School has enough safety equipment	2.98	Somewhat agree / moderate
Overall	3.08	Somewhat agree / moderate

The moderate overall rating suggests that respondents were neither uniformly dissatisfied nor uniformly highly satisfied. The lower-scoring items point to areas that could be explored by school leaders, including safety provisions, fairness, and support. These are descriptive findings from this sample and should not be generalized to all teachers without additional evidence.

Relationship Between Burnout and Job Satisfaction

The results table reports a chi-square value of 7.90 and p value of 0.00 for the relationship between psychological burnout and job satisfaction, with the relationship marked significant at the .05 level. This supports the conclusion that the two measured variables were statistically associated among the respondents.

The thesis's narrative contains an inconsistent statement about whether the null hypothesis was accepted or rejected. Because the table marks the relationship significant and the stated hypothesis anticipated a significant relationship, this article reports the table's statistical finding and does not reproduce the contradictory null-hypothesis decision. The cross-sectional correlational design does not establish directionality or causation.

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Proposed Intervention Measures

Based on the moderate burnout and job-satisfaction findings, the thesis proposes school-based activities intended to strengthen collegial connection, commitment, coping skills, participation, classroom practice, and leadership capacity. The interventions below retain the activities and objectives described in the thesis; implementation should be adapted to school schedules and resources.

Intervention	Purpose stated in thesis	Timeline stated in thesis
Team-building activity	Renew commitment, belongingness, responsibility for school goals, camaraderie and unity	May 2026
Recollection	Renew commitment to the teaching profession	June 2026
Peer coaching/mentoring or team teaching	Encourage teachers to share knowledge and expertise and support one another	Year-round
Seminar-workshop on managing burnout	Build understanding of burnout and ways to cope with and manage it	Second week of June 2026 (2 days)
Kapehan/Kumustahan	Improve teachers' socio-emotional condition	Every last Friday of the month (1 hour)
Seminar-workshop on time management and multitasking	Help teachers manage limited time across tasks	Third week of July 2026 (1 day)
Meeting-discussion on key school issues and concerns	Build ownership of decisions, rules, and policies through participation	Every first Friday of the month
Tree-planting activity	Promote commitment and a sense of accomplishment in addressing climate change	Once a year

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Seminar-workshop on classroom management, disciplining and motivating pupils	Strengthen classroom management and approaches to discipline and motivation	Last week of August 2026 (2 days)
Leadership training	Develop knowledge and skills concerning leadership styles and characteristics	July 2026

Implementation and Monitoring Considerations

The thesis recommends approval and implementation of the proposed measures in the selected schools, evaluation of their implementation, and similar studies to validate the findings. In practical application, school leaders may document participation, collect brief participant feedback, and review whether activities are delivered as scheduled. Any monitoring indicators or changes to the original timeline should be treated as implementation planning rather than findings of the present study.

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CONCLUSION

Among the 261 Filipino teachers in five selected public elementary schools in Quezon City, the largest educational-attainment group held a bachelor's degree, the largest experience group had 11–15 years in teaching, and three-quarters had attended no more than three wellness-related trainings in the preceding five years. The thesis summarizes 74% as having no postgraduate degree and 57% as having more than ten years of teaching experience.

Teachers reported moderate psychological burnout overall (3.17), with moderate ratings in emotional exhaustion (3.15), depersonalization (3.16), and lack of personal achievement (3.20). Job satisfaction was also moderate (3.08). The thesis's statistical tables identify significant associations between burnout and each profile variable, and between burnout and job satisfaction. These associations should not be interpreted causally.

The proposed intervention measures emphasize collegial support, reflection, burnout management, time management, participatory discussion, classroom practice, and leadership development. The study recommends implementing and evaluating the measures and conducting similar research to validate the findings.

Limitations

The study is limited to 261 Filipino teachers from five selected public elementary schools in one division during School Year 2025–2026. Data were based on self-reported questionnaire responses. The correlational design does not establish causality. Some narrative values and hypothesis-decision statements in the source thesis are inconsistent with its tables; these discrepancies are flagged rather than silently reconciled. The condensed article does not reproduce all 40 job-satisfaction items or every burnout item.

RECOMMENDATIONS

1. Consider the proposed interventions for implementation in the selected public elementary schools, subject to school-level review and available resources.

2. Evaluate implementation and gather feedback to determine whether activities are reaching teachers and addressing their expressed needs.

3. Conduct similar studies with additional schools or divisions to examine whether the findings are observed in other settings.

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4. Future studies may report complete cross-tabulations, degrees of freedom, exact p values, and effect-size measures to support clearer interpretation of associations.

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Note: This is a condensed IMRAD article, not a replacement for the complete thesis reference list. Complete and verify every citation against the source thesis before submission.

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DATA LITERACY LEVEL OF SENIOR HIGH SCHOOL TEACHERS IN SELECTED PRIVATE SCHOOLS IN LAS PIÑAS CITY

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Abstract

This study determined the data literacy level of senior high school (SHS) teachers in seven selected private schools in Las Piñas City during School Year 2025–2026 and proposed a professional development program based on the findings. Using a quantitative-descriptive, correlational, and developmental research design, the study gathered survey responses from all 128 SHS teachers and seven school heads. Two questionnaires assessed teacher profiles and data literacy in data collection, data analysis, and data visualization, interpretation, and representation. Frequency counts, percentages, weighted means, the chi-square test of independence, and the t-test were used. Most teachers (70%) held a bachelor's degree, 70% had 1–10 years of teaching experience, and 68% had not attended literacy-related training in the preceding five years. Teachers rated their overall data literacy as high (overall weighted mean [OWM] = 4.00), whereas school heads rated it as moderate (OWM = 2.84). Significant relationships were reported between literacy level and educational attainment ($\chi^2 = 6.85$, $p = 0.01$), teaching experience ($\chi^2 = 6.20$, $p = 0.01$), and relevant training attendance ($\chi^2 = 7.20$, $p = 0.01$). The difference between teacher and school-head perceptions was significant ($p = 0.00$). The study proposed a three-session, school-based professional development program covering data collection, data analysis, and data visualization, interpretation, and representation. The findings support the recommendation to implement and evaluate the proposed program.

Keywords: data literacy, senior high school teachers, private schools, professional development, data-driven decision-making

1. Introduction

Data literacy has become increasingly important as educational institutions rely on information to support planning, assessment, and decision-making. In education, teachers are expected not only to gather data but also to analyze and interpret it and use the resulting information to guide instructional practices. The thesis frames data literacy as the capacity to interpret data critically, draw meaningful conclusions, recognize patterns, and apply analytical results appropriately. It also notes that teachers' pedagogical beliefs, assessment literacy, and prior experiences influence how they use data in their work (Lee et al., 2024; McDowall et al., 2021).

Within the Philippine context, the Philippine Professional Standards for Teachers, particularly Domain 5 on Assessment and Reporting, expects teachers to use assessment data to improve teaching and learning practices and programs. Data literacy can therefore support teachers in identifying students' learning needs, planning instruction, communicating with stakeholders, and recognizing areas for professional growth.

The study was conducted in response to the need to determine how well SHS teachers in selected private schools in Las Piñas City perceived their ability to collect, analyze, visualize, interpret, and represent data. It also examined how school heads assessed teachers' data literacy and whether literacy level was related to teachers' educational attainment, teaching experience, and participation in literacy-related training. The study's main purpose was to propose a professional development program to enhance teachers' data literacy.

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Specifically, the study sought to: (1) describe the teachers' highest educational attainment, length of teaching experience, and relevant trainings attended during the previous five years; (2) determine teachers' data literacy as perceived by the teachers themselves and their school heads; (3) test the relationship between teacher profile variables and data literacy; (4) determine whether teachers' and school heads' perceptions differed significantly; and (5) propose a professional development program based on the findings.

The study was intended to benefit SHS teachers through opportunities to strengthen data collection, analysis, interpretation, and reporting skills; school heads through information that could guide school-based professional development; and future researchers through further inquiry into teachers' data literacy. The rationale and research gap are presented here only as described in the thesis; no additional external claims have been introduced.

2. Methods

Research Design

The study employed a quantitative-descriptive method to describe teachers' profile and data literacy. It also used a correlational approach to examine relationships between profile variables and literacy level and a comparative test to determine differences between teachers' and school heads' perceptions. A developmental method was used to formulate a proposed professional development program. The study adopted a positivist research paradigm.

Research Locale and Participants

The study was conducted during School Year 2025–2026 in seven selected private schools in Las Piñas City: South East-Asia Institute of Trade and Technology, Inc.; Movers International School, Inc.; Saint Francis of Assisi College; OB Montessori Center; Centro Escolar Las Piñas, Inc.; Don Carlo Cavina School; and Bloomfield Academy. All 128 SHS teachers and all seven school heads in these schools were included; the thesis states that no sampling was done.

Selected private school	SHS teachers	Percentage
South East-Asia Institute of Trade and Technology, Inc.	47	37%
Movers International School, Inc.	12	9%
Saint Francis of Assisi College	19	15%
OB Montessori Center	9	7%
Centro Escolar Las Piñas, Inc.	16	13%
Don Carlo Cavina School	11	8%
Bloomfield Academy	14	11%
Total	128	100%

Research Instruments and Data Collection

Data were collected through two survey questionnaires: one for SHS teachers and another for school heads. The teacher questionnaire included profile information and items assessing data literacy. The school-head questionnaire assessed the same literacy dimensions using items corresponding to the second part of the teacher questionnaire. The literacy items were based on Ramos (2022), as reported in the thesis, and were treated by the researcher as not requiring further validation.

The researcher personally administered the questionnaires and gave participants two weeks to complete them. Permission was secured from school heads before data collection, and informed consent was obtained from teachers and school heads. The thesis states that responses were treated confidentially and used only for the study, in accordance with the Philippine Data Privacy Act.

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Data Analysis

Frequency counts and percentages described teachers' profile. Weighted means summarized perceived data literacy, using the thesis's scale: very low (1.00–1.49), low (1.50–2.49), moderate (2.50–3.49), high (3.50–4.49), and very high (4.50–5.00). The chi-square test of independence examined relationships between profile variables and literacy level. The t-test compared teachers' and school heads' perceptions. The level of significance was set at .05.

The thesis reports chi-square values, p values, and a t-test p value, but does not provide all associated degrees of freedom, effect sizes, or confidence intervals in the reported summary tables. These statistics are therefore not added here.

3. Results

Teacher Profile

Of the 128 SHS teachers, 90 (70%) held a bachelor's degree, 27 (21%) had completed the academic requirements for a master's degree, and 11 (9%) held a master's degree. None had completed doctorate academic requirements or held a doctorate degree.

Profile variable	Category	Frequency	Percentage
Highest educational attainment	Bachelor's degree	90	70%
	Completed master's academic requirements	27	21%
	Master's degree	11	9%
	Doctorate academic requirements / doctorate degree	0	0%
Teaching experience	1–5 years	37	29%
	6–10 years	52	41%
	11–15 years	23	18%
	16–20 years	11	8%
	>20 years	5	4%
Relevant literacy training in past 5 years	None	87	68%
	Not more than three trainings	41	32%
	More than three trainings	0	0%

The largest group had 6–10 years of teaching experience (52; 41%). Taken together, 89 teachers (70%) were in the 1–10-year experience categories. Most respondents (87; 68%) had not attended literacy-related training during the preceding five years; the remaining 41 (32%) had attended not more than three trainings.

Perceived Data Literacy Levels

Teachers rated their data literacy as high across all three assessed areas. School heads rated teachers' literacy as moderate in each area. The combined results are presented in Table 2.

Data literacy area	Teachers' area weighted mean	Interpretation	School heads' area weighted mean	Interpretation
Data collection	3.99	High	2.84	Moderate
Data analysis	4.01	High	2.86	Moderate
Data visualization, interpretation, and representation	3.99	High	2.83	Moderate
Overall	4.00	High	2.84	Moderate

For teachers' self-assessment, data analysis received the highest area weighted mean (4.01), while data collection and data visualization, interpretation, and representation each received 3.99. School heads' ratings

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ranged from 2.83 to 2.86, with data analysis rated 2.86, data collection 2.84, and visualization, interpretation, and representation 2.83. The overall difference between the two groups' ratings was 1.16 points (4.00 versus 2.84); this subtraction is descriptive and is not presented as a separate inferential statistic.

Relationship Between Profile Variables and Data Literacy

The chi-square test of independence indicated statistically significant relationships between each of the three profile variables and teachers' data literacy at the .05 significance level, as reported in Table 3.

Profile variable	p value	Computed χ^2	Critical χ^2	Thesis-reported result
Highest educational attainment	0.01	6.85	5.99	Significant
Length of teaching experience	0.01	6.20	3.84	Significant
Number of relevant trainings attended	0.01	7.20	3.84	Significant

For educational attainment, the computed chi-square value of 6.85 exceeded the critical value of 5.99, with $p = 0.01$. For teaching experience, $\chi^2 = 6.20$ exceeded the critical value of 3.84, with $p = 0.01$. For relevant training attendance, $\chi^2 = 7.20$ exceeded the critical value of 3.84, with $p = 0.01$. The thesis therefore rejected the corresponding null hypotheses and reported significant relationships for all three variables. The reported results establish association, not causation.

Difference Between Teachers' and School Heads' Perceptions

The t-test comparing teachers' and school heads' perceptions yielded a p value of 0.00 at the .05 level of significance. The thesis classified the difference as significant and rejected the null hypothesis that the two groups' perceptions did not differ. The reported summary table does not include a t statistic, degrees of freedom, or confidence interval.

Proposed Professional Development Program

Based on the limited recent training participation and the difference between teachers' and school heads' ratings, the thesis proposed a school-based, three-session professional development program. Each session is designed to last one day. School heads are identified as the program implementers, SHS teachers as the target personnel, and school funds as the funding source. Delivery is intended to be interactive, collaborative, and participatory, with lecture-discussion activities comprising no more than 30% of each session.

Session	Focus	Key content reported in the thesis	Duration
1	Data collection	Selecting search terms and sources; downloading and synthesizing information; evaluating dataset quality; sampling and sample size; ethical considerations; formulating hypotheses.	1 day
2	Data analysis	Selecting and using statistical tools; testing statistical hypotheses; sorting data; labeling variables; choosing suitable analysis methods for different data sources.	1 day
3	Data visualization, interpretation, and representation	Creating tables and graphical representations; presenting information in tables, charts, bars, and graphs; interpreting results; developing findings and conclusions; discussing and reporting results professionally; using data ethically.	1 day

4. Discussion

The results show a consistent difference between teachers' self-assessments and school heads' assessments. Teachers perceived their overall data literacy as high (OWM = 4.00), while school heads assessed it as moderate (OWM = 2.84). This difference appeared in each dimension measured, not only in the overall score. The significant t-test result ($p = 0.00$, as reported in the thesis) supports the conclusion that the two groups'

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perceptions differed. Because the data were perception-based, the findings should be understood as ratings by the respondents rather than as a direct performance test of teachers' data literacy.

The profile findings also indicate a need to strengthen access to relevant professional learning. More than two-thirds of the teachers had not attended literacy-related training during the previous five years. The chi-square results show significant relationships between data literacy and educational attainment, teaching experience, and relevant training attendance. These findings support attention to professional development, although the correlational results do not demonstrate that any one profile characteristic directly caused a particular literacy level.

The three-session program directly addresses the study's three assessed areas: data collection; data analysis; and data visualization, interpretation, and representation. Its interactive and collaborative design is consistent with the thesis's emphasis on practical development rather than relying mainly on lecture-discussion. Implementation and evaluation would be necessary to determine whether the proposed program actually improves teachers' data literacy; the thesis proposes the program but does not report an evaluation of its effectiveness.

The study is limited to 128 SHS teachers and seven school heads from seven selected private schools in Las Piñas City during School Year 2025–2026. The literacy measures are based on survey perceptions. The findings should therefore not automatically be generalized to public schools, other cities, or all SHS teachers. The thesis does not report additional validation statistics, effect sizes, or confidence intervals for the main comparisons and relationships.

Conclusion and Recommendations

The study concluded that the typical respondent was a bachelor's degree holder, had 1–10 years of teaching experience, and had not attended literacy-related training in the previous five years. Teachers rated their data literacy as high, while school heads rated it as moderate. Significant relationships were reported between literacy level and all three profile variables, and a significant difference was found between teacher and school-head perceptions.

Consistent with the thesis, the proposed professional development program should be implemented in the selected private schools and its implementation monitored and evaluated. Similar studies may be conducted by other researchers to examine and validate the findings. As the program has not yet been evaluated in the thesis, its effectiveness should be established through implementation and subsequent assessment rather than assumed.

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Editorial note: This paper was condensed from the uploaded thesis. Numerical values and reported statistical results above follow the thesis. The thesis reports $p = 0.00$ for the t-test; this value is reproduced as reported rather than recalculated or converted. Full journal-style bibliographic details were not supplied for every source in the thesis, so the references above include only sources cited in this condensed paper and are limited to the bibliographic details available in the thesis.

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DIGITAL COMPETENCE OF THE KINDERGARTEN TEACHERS OF PUBLIC ELEMENTARY SCHOOLS IN THE SCHOOLS DIVISION OF THE CITY OF MANILA

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Abstract

This study sought to determine the extent of digital competence of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila during the School Year 2025-2026 through a descriptive-correlational-developmental research design. The data used in this study came from the 137 kindergarten teachers and ten school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, and the t-test. Results showed that: majority of the kindergarten teachers have no post-graduate degrees, have been teaching for more than ten years already, and have attended not more than three trainings/seminars related with digital competence; in general, kindergarten teachers perceived that their digital competence is to a great extent as evidenced by the computed overall weighted mean of 3.77 while the school heads that the digital competence of the kindergarten teachers is only to a moderate extent as evidenced by the computed overall weighted mean of 2.95; there is a significant relationship between the highest educational attainment, the length of teaching experience, and the number of relevant trainings attended of the kindergarten teachers and the extent of their digital competence; and, there is a significant difference between the perceptions of the kindergarten teachers and their school heads on the extent of digital competence of the kindergarten teachers. Given the findings, the following conclusions were drawn: a typical kindergarten teacher of a public elementary school in the Schools Division of the City of Manila has no post-graduate degree, has been teaching for more than ten years, and has attended not more than three trainings or seminars related with digital competence for the past five years; the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila perceived that their digital competence is to a great extent while the school heads perceived that the digital competence of the kindergarten teachers is only to a moderate extent; the extent of digital competence of the kindergarten teachers is influenced by their educational attainment, length of teaching experience, and the number of relevant trainings/seminars they attended; and, the perceptions of the kindergarten teachers and the school heads on the extent of digital competence of the kindergarten teachers are significantly different with each other.

Introduction

In the contemporary era, a swift shift from electronic to digital media has significantly changed the way information is accessed and processed. Information acquisition now commonly utilizes diverse media formats, emphasizing the importance of being able to use digital platforms efficiently and responsibly. As all digital media continue to rely on human interaction, virtual spaces remain dependent on people just as individuals are becoming increasingly integrated into these digital technologies (Cabero-Almenara, Romero-Tena, & Palacios-Rodríguez, 2020).

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Digital technologies are shaped by human influence, and their successful utilization depends on an individual's knowledge and competencies. In today's consumer-oriented society, media consumption continues to grow as media increasingly shapes and monitors social life. The emergence of new media has expanded the traditional understanding of media into an interconnected community where audiences are active, interactive, and participatory rather than merely passive consumers. Nevertheless, both traditional and multimedia forms of communication continue to strongly affect societal beliefs, behaviors, and values. Furthermore, patterns of media consumption are continuously changing as digital and communication technologies - often developed or customized by users - become more accessible and easier to use (Çebi & Reisoglu, 2020).

Meanwhile, human perception of the world has experienced significant changes, including the growing adoption of sustainability as a way of life. This transformation aligns with the worldwide utilization of digital technologies to promote innovative strategies that address challenges and support sustainability in ecological, economic, social, and educational dimensions. Digital technologies play a vital role in responding to global issues and crises. Hence, the integration of digital solutions across different sectors is necessary to maximize the potential of digitization in addressing these challenges and crises (Claro et al., 2024).

Furthermore, the extensive use of digital tools has significantly increased interest in digital technologies. As information continues to play an essential role in both society and individual lives, the ways people access and manage information have also changed. This development has given rise to a new type of competence that involves effectively utilizing digital technologies while identifying reliable information within digital platforms. According to Elsayary (2023), competence in the modern age has evolved beyond the basic abilities of reading and writing toward understanding and interpreting conveyed information. It also encompasses the multilingual characteristics of digital content. This broadened set of abilities is known as digital competence.

Gabarda-Méndez, Marín-Suelves, Vidal-Esteve, and Ramón-Llin (2023) described digital competence as the ability to understand and use information obtained from different sources and formats, especially those accessed through computers and the internet. It involves adjusting one's abilities to a constantly evolving environment and extends beyond simple operational or technical skills. In essence, digital competence is not merely about typing on a keyboard but about generating and communicating ideas effectively. It also includes the ability to interpret the subtle meanings of language alongside complex images and sounds. Furthermore, Gabarda-Méndez, Marín-Suelves, Vidal-Esteve, and Ramón-Llin (2023) emphasized that digitally competent individuals can move efficiently across various environments, presenting knowledge in ways that are easier for audiences to understand while ensuring that communication remains appropriate for each context.

Meanwhile, Kubrushko et al. (2020) described digital competence as the confident, critical, and responsible utilization of digital technologies for education, employment, and active participation in society. It includes a blend of knowledge, skills, and attitudes within five essential areas: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving.

Digital competence enables individuals to tailor the information they communicate according to the needs and expectations of their audience (López-Belmonte, Moreno-Guerrero, Pozo-Sánchez, & López-Nuñez, 2020). Morales, Rivoir, Lázaro-Cantabrana, and Gisbert-Cervena (2020)

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explained that it consists of four fundamental competencies: gathering information, evaluating the quality of content, performing internet searches, and navigating hypertext effectively.

According to Nóbile and Porlán (2022), digital competence is characterized by the ability to perform effective digital activities in work, education, leisure, and other aspects of everyday life. It contributes to improving an individual's quality of life and has a broader scope than ICT literacy, as it emphasizes not only the acquisition of information and techniques but also their practical application. Moreover, it includes attitudes, personal attributes, planning abilities, self-awareness as a digitally literate person, and the ability to reflect on one's own development in digital literacy. Essentially, digital competence refers to the awareness, mindset, and skills required to effectively use digital tools and resources in locating, accessing, managing, integrating, evaluating, analyzing, and synthesizing digital content, as well as in generating new information.

Without question, digital technologies have become widespread and now influence almost every aspect of human life, making it necessary to respond effectively to the rapid technological developments of the modern era. As technology continues to advance, digital competence has become integrated into nearly all areas of everyday living. The integration of digital competence in education provides numerous advantages. According to Reisoglu (2022), the digitization of different forms of media, together with the improved capabilities of computers and high-speed broadband internet, has promoted greater collaboration among learners. Since teachers serve as the primary facilitators in developing digital competence, they play a vital role in this process. Therefore, it is essential for teachers to develop strong digital competence.

In the Philippines, the Department of Education has introduced various initiatives aimed at improving the digital competence of educators. In 2020, through its partnership with Facebook's Digital Tayo, the department launched the Digital Literacy Online Training Series to provide teachers with essential digital skills (TeachersClick, 2020). Subsequently, it also implemented "Project Be Techie in School (B.T.S.) 2.0: A Balik Eskwela Digital Literacy Starter Pack," a program intended to further develop digital literacy among teachers and students by providing training on the latest productivity tools needed in digital learning environments (Malipot, 2021).

Despite these initiatives, the researcher observed that many teachers continue to exhibit limited digital competence. Hence, this study aimed to assess the extent of digital competence of kindergarten teachers in the Schools Division of the City of Manila with the primary goal of developing a tailored in-service training program that addresses their specific needs in digital competence.

METHODOLOGY

Research Design

This study employed the quantitative-descriptive method of research. It described the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determined the extent of their digital competence. The study also utilized the correlational research design for it determined if there is a significant relationship between the profile variables of the kindergarten teachers and the extent of their digital competence and if there is a significant difference between the perceptions of the kindergarten teachers and their school heads on the extent of digital competence of the kindergarten teachers.

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Moreover, the developmental method of research was also used for the study came up with a proposed in-service training program for the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila to enhance their digital competence.

Sources of Data

Research Setting. This study was conducted in ten public elementary schools in the Schools Division of the City of Manila during the School Year 2025-2026.

Sampling. The respondents of the present investigation were all the 137 kindergarten teachers and 10 school heads of the 10 public elementary schools in the Schools Division of the City of Manila. Accordingly, no sampling was done. The distribution of the kindergarten teachers per public elementary school is presented in Table 1.

Research Participants. As mentioned, all the 137 kindergarten teachers and 10 school heads of the 10 public elementary schools in the Schools Division of the City of Manila were made as respondents of the study. The kindergarten teachers provided their profile in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as the extent of their digital competence. Meanwhile, the school heads provided data relative to the extent of digital competence of the kindergarten teachers.

Research Instrument

Instrumentation. The data utilized in this study were gathered through two survey-questionnaire – one for the kindergarten teachers and one for the school heads.

The survey-questionnaire for the kindergarten teachers had two parts. The first part focused on the profile of the kindergarten teachers in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended. And, the second part looked into the extent of digital competence of the kindergarten teachers. On the other hand, the survey-questionnaire for the school heads only concentrated on the extent of digital competence of the kindergarten teachers.

Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the kindergarten teachers is common in researches. Hence, no validation is required.

With respect to the second part of the survey-questionnaire which is about the extent of digital competence of the kindergarten teachers, the items were based from the survey-questionnaire of Terrado (2025) in her study entitled "Digital Competence of the English Teachers in Bayambang I District." The items in this survey-questionnaire were validated by the researcher and, hence, are considered valid and reliable.

Ethical Considerations. So as not to violate the data privacy of the kindergarten teachers and the school heads, permission to conduct the study was first secured from the City Schools Division Superintendent of the City of Manila. Thereafter, informed consent was taken from the kindergarten teachers and school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

Data Management and Analysis

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To determine the profile of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila, the data gathered were subjected to frequency count and percentage employing the formula:

$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage
f = the observed frequency
N = total number of subject cases

To determine the extent of digital competence of the kindergarten teachers, the weighted mean was used employing the formula:

$$WM = \frac{\sum wX}{\sum w}$$

where:

WM = weighted mean
$\sum$ = summation
W = weighing factor
X = frequency.

Moreover, the weighted means computed were interpreted using this scale of interpretation:

very limited extent	=	1.00 – 1.49
limited extent	=	1.50 – 2.49
moderate extent	=	2.50 – 3.49
great extent	=	3.50 – 4.49
very great extent	=	4.50 – 5.00.

To determine if there is a significant relationship between the profile variables of the kindergarten teachers and the extent of their digital competence, the chi-square test of independence was used.

Lastly, to determine if there is a significant difference between the perceptions of the kindergarten teachers and the school heads on the extent of digital competence of the kindergarten teachers, the t-test was utilized.

RESULTS AND DISCUSSION

The Profile of the Intermediate Teachers

This chapter presents the data gathered and their analysis and interpretation to answer the sub-problems raised in the study.

The Profile of the Kindergarten Teachers

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This section presents the profile of the Kindergarten teachers of public elementary schools in the Schools Division of the City of Manila to answer the first sub-problem of the study.

On Highest Educational Attainment

With respect to the educational attainment, the kindergarten teachers were given five choices, namely, bachelor's degree, completed academic requirements in the master's degree, master's degree, completed academic requirements in the doctorate degree, and doctorate degree. Table 2 indicates the results.

TABLE 2
Distribution of the Kindergarten Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's Degree	75	55%
Completed academic requirements in the Master's Degree	37	27%
Master's Degree	23	17%
Completed academic requirements in the Doctorate Degree	2	1%
Doctorate Degree	0	0%
Total	137	100%

As presented by Table 2, 75 or 55% of the kindergarten teachers are bachelor's degree holders, 37 or 27% have completed the academic requirements for the master's degree, 23 or 17% are master's degree holders, and two or 1% have completed the academic requirements for the doctorate degree. It can be noted that majority of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila have no post-graduate degree.

On Length of Teaching Experience

In relation to the length of teaching experience, the kindergarten teachers were provided with five choices to choose from, viz., five years and below, six to ten years, 11 to 15 years, 16 to 20 years, and more than 20 years. Table 3 shows the results.

TABLE 3
Distribution of the Kindergarten Teachers in terms of Length of Teaching Experience

Length of Experience	Frequency	Percentage
1 to 5 years	17	12%
6 to 10 years	39	29%
11 to 15 years	46	34%
16 to 20 years	28	20%
More than 20 years	7	5%
Total	137	100%

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As disclosed by Table 3, 17 or 12% of the kindergarten teachers have been teaching for one to five years, 39 or 29% have been teaching for six to ten years already, 46 or 34% have been teaching for 11 to 15 years already, 28 or 20% have been teaching for 16 to 20 years already, and seven or 5% have been teaching for more than 20 years already. It can be noted here that majority of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila have been teaching for more than ten years already.

On Number of Trainings/Seminars Attended

In relation to the number of trainings/seminars related with digital competence attended for the past five years, the kindergarten teachers were given three choices, to wit: have not attended any training/seminar on digital competence for the past five years, have attended not more than three trainings/seminars on digital competence for the past five years, and have attended more than three trainings/seminars on digital competence for the past five years. Table 4 presents the results.

Table 4
Distribution of the Kindergarten Teachers in terms of Number of Relevant Trainings Attended

Number of Trainings or Seminars Attended	Frequency	Percentage
Have not attended any relevant training	0	0%
Have attended not more than three relevant trainings	104	76%
Have attended more than three relevant trainings	33	24%
Total	137	100%

As disclosed by Table 4, 104 or 76% of the kindergarten teachers have attended not more than three trainings/seminars related to digital competence for the past five years and 33 or 24% have attended more than three trainings/seminars. It can be noted that majority of the kindergarten teachers of the public elementary schools in the Schools Division of the City of Manila have attended not more than three trainings/seminars related with digital competence for the past five years. This implies that a training or seminar on the same will greatly benefit them.

Extent of Digital Competence of the Kindergarten Teachers of Public Elementary Schools

This section provides answers to the second sub-problem of the study, which is about the extent of digital competence of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila.

To provide answers to the sub-problem, the kindergarten teachers were asked to rate the extent of their digital competence. In the same way, the school heads were asked to rate the extent of digital competence of the kindergarten teachers.

On Professional Engagement

The kindergarten teachers and the school heads assessed the extent of digital competence along professional engagement of the kindergarten teachers.

Assessment of the Kindergarten Teachers. The assessment of the kindergarten teachers on the extent of their digital competence along professional engagement is presented in Table 5.

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TABLE 5
The Extent of Digital Competence along Professional Engagement of the Kindergarten Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
Professional Engagement	VL	LE	ME	GE	VG		
1. Using various digital channels to communicate with parents and peers (such as emails, blogs, school's website, WhatsApp, etc.).							
a. I use basic digital communication channels (e.g. email or instant messaging system).	0	0	55	57	25	3.78	GE
b. I can identify different digital solutions to communicate effectively.	0	0	39	70	28	3.92	GE
c. I combine different communication channels (e.g. email, instant messaging or the organization's website).	0	0	38	80	19	3.86	GE
d. I analyze and evaluate communication channels to choose the ones I consider most effective for my communicative purpose.	0	0	62	56	19	3.69	GE
e. I reflect, plan and adapt my communication strategies according to needs.	0	0	69	49	19	3.64	GE
f. I confidently plan and adapt my digital communication strategy using a variety of digital technologies to meet my communication needs in the context of my stakeholders.	0	0	63	45	29	3.75	GE
2. Using digital technologies to work with peers (teachers) at and out of school.							
a. My colleagues and I share information in shared units or via email.	0	0	55	53	29	3.81	GE
b. In addition to email and shared units, I exchange materials and ideas with my peers in networked collaborative environments (e.g. via video conferencing or through virtual learning environments and other online tools).	0	0	51	57	29	3.84	GE

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c. I exchange ideas, experiences and materials with colleagues both within and outside my institution (e.g. in an online professional network)	0	0	72	36	29	3.69	GE
d. I experiment with innovative tools for online collaboration with colleagues inside and outside my institution.	0	0	58	60	19	3.72	GE
e. I co-create materials with other academics in an online network.	0	0	53	65	19	3.75	GE
f. I co-create, re-use and share materials with other academics and students in an online network.	0	0	55	57	25	3.78	GE
3. Actively working on developing digital teaching skills.							
a. I improve my digital competence for teaching through reflection and experimentation.	0	0	39	70	28	3.92	GE
b. I use different resources to develop my digital competence for teaching.	0	0	38	80	19	3.86	GE
c. I use the peer network to inspire me in my application of different digital teaching practices.	0	0	45	63	29	3.88	GE
d. I validate my digital teaching practices by discussing with my peers how best to use technologies to innovate and improve my teaching practice.	0	0	41	67	29	3.91	GE
e. I take advantage of my peer network to get ideas and validation of my practices, as well as to attend different digital competence development courses, online or face-to-face, to improve and certify my teaching practices.	0	0	59	49	29	3.78	GE
f. I lead teaching innovation using digital technologies in my institution.	0	0	60	48	29	3.77	GE
4. Participating in remote training opportunities (such as training courses, workshops, virtual conferences, and courses through open platforms such as MOOCs).							
a. I have participated in online training.	0	0	59	59	19	3.71	GE
b. I have tried different online training courses when the opportunity has arisen.	0	0	48	70	19	3.79	GE
c. I participate in different types of online training that can help me improve my	0	0	53	65	19	3.75	

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teaching skills.							GE
d. I design and deliver online training for my colleagues in my institution.	0	0	50	63	24	3.81	GE
e. I am professionally accredited in the use of different technologies for teaching and learning.	0	0	46	66	25	3.85	GE
					AWM	3.70	GE

Legend:

WM	=	weighted mean		
DE	=	descriptive equivalent		
AWM	=	area weighted mean		

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

As shown in Table 5, along using various digital channels to communicate with parents and peers (such as emails, blogs, school's website, WhatsApp, etc.), when questioned as to the extent to which they use basic digital communication channels (e.g. email or instant messaging system), 55 of the kindergarten teachers said "moderate extent," 57 said "great extent," and 25 said "very great extent." The weighted mean computed here is 3.78 which is leading to "great extent" in the scale.

When asked as to the extent to which they identify different digital solutions to communicate effectively, 39 of the kindergarten teachers replied "moderate extent," 70 replied "great extent," and 28 replied "very great extent." The weighted mean computed in this item is 3.92 which is leading to "great extent" in the scale.

When inquired as to the extent to which they combine different communication channels (e.g. email, instant messaging or the organization's website), 38 of the kindergarten teachers responded "moderate extent," 80 responded "great extent," and 19 responded "very great extent." Here, the weighted mean computed is 3.86 which is indicative of "great extent" in the scale.

When queried as to the extent to which they analyze and evaluate communication channels to choose the ones they consider most effective for their communicative purpose, 62 of the kindergarten teachers responded "moderate extent," 56 responded "great extent," and 19 responded "very great extent." The weighted mean computed in this item is 3.69 which is pointing to "great extent" in the scale of interpretation.

When questioned as to the extent to which they reflect, plan and adapt their communication strategies according to needs, 69 of the kindergarten teachers checked "moderate extent," 49 checked "great extent," and 19 checked "very great extent." Here, the weighted mean computed is 3.64 which is "great extent" in the scale.

When asked as to the extent to which they confidently plan and adapt their digital communication strategy using a variety of digital technologies to meet their communication needs in the context of their stakeholders, 63 of the kindergarten teachers mentioned "moderate extent," 45 mentioned "great extent," and 29 mentioned "very great extent." In this item, the weighted mean computed is 3.75 which is pointing to "great extent" in the scale.

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Along using digital technologies to work with peers (teachers) at and out of school, when questioned as to the extent to which they and their colleagues share information in shared units or via email, 55 of the kindergarten teachers claimed “moderate extent,” 53 claimed “great extent,” and 29 claimed “very great extent.” The weighted mean computed here is 3.81 which is pointing to “great extent” in the scale.

When asked as to the extent to which they exchange materials and ideas with their peers in networked collaborative environments (e.g. via video conferencing or through virtual learning environments and other online tools) in addition to email and shared units, 51 of the kindergarten teachers replied “moderate extent,” 57 replied “great extent,” and 29 replied “very great extent.” The weighted mean computed in this item is 3.84 which is leading to “great extent” in the scale.

When asked as to the extent to which they exchange ideas, experiences and materials with colleagues both within and outside their institution (e.g. in an online professional network), 72 of the kindergarten teachers replied “moderate extent,” 36 replied “great extent,” and 29 replied “very great extent.” The weighted mean computed in this item is 3.69 which is leading to “great extent” in the scale.

When asked as to the extent to which they experiment with innovative tools for online collaboration with colleagues inside and outside their institution, 58 of the kindergarten teachers replied “moderate extent,” 60 replied “great extent,” and 19 replied “very great extent.” The weighted mean computed in this item is 3.72 which is leading to “great extent” in the scale.

When inquired as to the extent to which they co-create materials with other academics in an online network, 53 of the kindergarten teachers responded “moderate extent,” 65 responded “great extent,” and 19 responded “very great extent.” Here, the weighted mean computed is 3.75 which is indicative of “great extent” in the scale.

When queried as to the extent to which they co-create, re-use and share materials with other academics and students in an online network, 55 of the kindergarten teachers responded “moderate extent,” 57 responded “great extent”, and 25 responded “very great extent.” The weighted mean computed in this item is 3.78 which is pointing to “great extent” in the scale of interpretation.

Along actively working on developing digital teaching skills, when questioned as to the extent to which they improve their digital competence for teaching through reflection and experimentation, 39 of the kindergarten teachers checked “moderate extent,” 70 checked “great extent,” and 28 checked “very great extent.” Here, the weighted mean computed is 3.92 which is “great extent” in the scale.

When asked as to the extent to which they use different resources to develop their digital competence for teaching, 38 of the kindergarten teachers mentioned “moderate extent,” 80 mentioned “great extent,” and 19 mentioned “very great extent.” In this item, the weighted mean computed is 3.86 which is pointing to “great extent” in the scale.

When questioned as to the extent to which they use the peer network to inspire them in their application of different digital teaching practices, 45 of the kindergarten teachers claimed “moderate extent,” 63 claimed “great extent,” and 29 claimed “very great extent.” The weighted mean computed here is 3.88 which is pointing to “great extent” in the scale.

When asked as to the extent to which they validate their digital teaching practices by discussing with their peers how best to use technologies to innovate and improve their teaching practice, 41 of the kindergarten teachers replied “moderate extent,” 67 replied “great extent,” and 29 replied “very great extent.” The weighted mean computed in this item is 3.91 which is leading to “great extent” in the scale.

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When asked as to the extent to which they take advantage of their peer network to get ideas and validation of their practices as well as to attend different digital competence development courses, online or face-to-face, to improve and certify their teaching practice, 59 of the kindergarten teachers replied "moderate extent," 49 replied "great extent," and 29 replied "very great extent." The weighted mean computed in this item is 3.78 which is leading to "great extent" in the scale.

When asked as to the extent to which they lead teaching innovation using digital technologies in their institution, 60 of the kindergarten teachers mentioned "moderate extent," 48 mentioned "great extent," and 29 mentioned "very great extent." In this item, the weighted mean computed is 3.77 which is pointing to "great extent" in the scale.

Along participating in remote training opportunities (such as training courses, workshops, virtual conferences, and courses through open platforms such as MOOCs), when questioned as to the extent to which they have participated in online training, 59 of the kindergarten teachers claimed "moderate extent," 59 also claimed "great extent," and 19 claimed "very great extent." The weighted mean computed here is 3.71 which is pointing to "great extent" in the scale.

When asked as to the extent to which they have tried different online training courses when the opportunity has arisen, 48 of the kindergarten teachers replied "moderate extent," 70 replied "great extent," and 19 replied "very great extent". The weighted mean computed in this item is 3.79 which is leading to "great extent" in the scale.

When asked as to the extent to which they have participated in different types of online training that can help them improve their teaching skills, 53 of the kindergarten teachers replied "moderate extent," 65 replied "great extent," and 19 replied "very great extent." The weighted mean computed in this item is 3.75 which is leading to "great extent" in the scale.

When asked as to the extent to which they design and deliver online training for their colleagues in their institution, 50 of the kindergarten teachers replied "moderate extent," 63 replied "great extent," and 24 replied "very great extent." The weighted mean computed in this item is 3.81 which is leading to "great extent" in the scale.

And, when inquired as to the extent to which they are professionally accredited in the use of different technologies for teaching and learning, 46 of the kindergarten teachers responded "moderate extent," 66 responded "great extent," and 25 replied "very great extent." Here, the weighted mean computed is 3.85 which is indicative of "great extent" in the scale.

Meanwhile, the computed area weighted mean is 3.70. This implies that the kindergarten teachers perceived that their digital competence along professional engagement is to a great extent.

Assessment of the School Heads. The assessment of the school heads on the extent of digital competence along professional engagement of the kindergarten teachers is presented in Table 6.

As shown in Table 6, along using various digital channels to communicate with parents and peers (such as emails, blogs, school's website, WhatsApp, etc.), when questioned as to the extent to which their kindergarten teachers use basic digital communication channels (e.g. email or instant messaging system), two of the school heads said "limited extent," seven said "moderate extent," and one said "great extent." The weighted mean computed here is 2.90 which is leading to "moderate extent" in the scale.

TABLE 6

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The Extent of Digital Competence along Professional Engagement of the Kindergarten Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
Professional Engagement	VL	LE	ME	GE	VG		
1. Using various digital channels to communicate with parents and peers (such as emails, blogs, school's website, WhatsApp, etc.). My kindergarten teachers:							
a. Use basic digital communication channels (e.g. email or instant messaging system).	0	2	7	1	0	2.90	ME
b. Identify different digital solutions to communicate effectively.	0	1	8	1	0	3.00	ME
c. Combine different communication channels (e.g. email, instant messaging or the organization's website).	0	1	8	1	0	3.00	ME
d. Analyze and evaluate communication channels to choose the ones they consider most effective for their communicative purpose.	0	3	6	1	0	2.80	ME
e. Reflect, plan and adapt their communication strategies according to needs.	0	2	7	1	0	2.90	ME
f. Confidently plan and adapt their digital communication strategy using a variety of digital technologies to meet their communication needs in the context of their stakeholders.	0	2	7	1	0	2.90	ME
2. Using digital technologies to work with peers (teachers) at and out of school. My kindergarten teachers:							
a. And their colleagues share information in shared units or via email.	0	2	6	2	0	3.00	ME
b. Exchange materials and ideas with their peers in networked collaborative environments (e.g. via video conferencing or through virtual learning environments and other online tools) In addition to email and shared units.	0	2	6	2	0	3.00	ME
c. Exchange ideas, experiences and materials with colleagues both within and outside their institution (e.g. in an online professional network)	0	2	7	1	0	2.90	ME
d. Experiment with innovative tools for online collaboration with colleagues inside	0	2	7	1	0	2.90	

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and outside their institution.							ME
e. Co-create materials with other academics in an online network.	0	2	7	1	0	2.90	ME
f. Co-create, re-use and share materials with other academics and students in an online network.	0	3	6	1	0	2.80	ME
3. Actively working on developing digital teaching skills. My kindergarten teachers:							
a. Improve their digital competence for teaching through reflection and experimentation.	0	3	6	1	0	2.80	ME
b. Use different resources to develop their digital competence for teaching.	0	3	6	1	0	2.80	ME
c. Use the peer network to inspire them in their application of different digital teaching practices.	0	1	8	1	0	3.00	ME
d. Validate their digital teaching practices by discussing with their peers how best to use technologies to innovate and improve their teaching practice.	0	1	8	1	0	3.00	ME
e. Take advantage of their peer network to get ideas and validation of their practices, as well as to attend different digital competence development courses, online or face-to-face, to improve and certify their teaching practices.	0	1	9	0	0	2.90	ME
f. Lead teaching innovation using digital technologies in their institution.	0	1	9	0	0	2.90	ME
4. Participating in remote training opportunities (such as training courses, workshops, virtual conferences, and courses through open platforms such as MOOCs). My kindergarten teachers:							
a. Have participated in online training.	0	1	8	1	0	3.00	ME
b. Have tried different online training courses when the opportunity has arisen.	0	2	8	0	0	2.80	ME
c. Participate in different types of online training that can help them improve their teaching skills.	0	1	8	1	0	3.00	ME
d. Design and deliver online training for their colleagues in their institution.	0	1	8	1	0	3.00	ME
e. Are professionally accredited in the use of different technologies for teaching and	0	2	6	2	0	3.00	

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learning.							ME
					AWM	2.92	ME

Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
AWM	=	area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When asked as to the extent to which their kindergarten teachers identify different digital solutions to communicate effectively, one of the school heads replied “limited extent,” eight replied “moderate extent,” and one replied “great extent.” The weighted mean computed in this item is 3.00 which is leading to “moderate extent” in the scale.

When inquired as to the extent to which their kindergarten teachers combine different communication channels (e.g. email, instant messaging or the organization’s website), one of the school heads responded “limited extent,” eight responded “moderate extent,” and one responded “great extent.” Here, the weighted mean computed is 3.00 which is indicative of “moderate extent” in the scale.

When queried as to the extent to which their kindergarten teachers analyze and evaluate communication channels to choose the ones they consider most effective for their communicative purpose, three of the school heads responded “limited extent,” six responded “moderate extent,” and one responded “great extent.” The weighted mean computed in this item is 2.80 which is pointing to “moderate extent” in the scale of interpretation.

When questioned as to the extent to which their kindergarten teachers reflect, plan and adapt their communication strategies according to needs, two of the school heads checked “limited extent,” seven checked “moderate extent,” and one checked “great extent.” Here, the weighted mean computed is 2.90 which is “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers confidently plan and adapt their digital communication strategy using a variety of digital technologies to meet their communication needs in the context of their stakeholders, two of the school heads mentioned “limited extent,” seven mentioned “moderate extent,” and one mentioned “great extent.” In this item, the weighted mean computed is 2.90 which is pointing to “moderate extent” in the scale.

Along using digital technologies to work with peers (teachers) at and out of school, when questioned as to the extent to which their kindergarten teachers and their colleagues share information in shared units or via email, two of the school heads claimed “limited extent,” six claimed “moderate extent,” and two claimed “great extent.” The weighted mean computed here is 3.00 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers exchange materials and ideas with their peers in networked collaborative environments (e.g. via video conferencing or through virtual learning environments and other online tools) in addition to email and shared units, two of the school heads replied “limited extent,” six replied “moderate extent,” and two replied

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"great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers exchange ideas, experiences and materials with colleagues both within and outside their institution (e.g. in an online professional network), two of the school heads replied "limited extent," seven replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 2.90 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers experiment with innovative tools for online collaboration with colleagues inside and outside their institution, two of the school heads replied "limited extent," seven replied "immoderate extent," and one replied "great extent.". The weighted mean computed in this item is 2.90 which is leading to "moderate extent" in the scale.

When inquired as to the extent to which their kindergarten teachers co-create materials with other academics in an online network, two of the school heads responded "limited extent," seven responded "moderate extent," and one responded "great extent." Here, the weighted mean computed is 2.90 which is indicative of "moderate extent" in the scale.

When queried as to the extent to which their kindergarten teachers co-create, re-use and share materials with other academics and students in an online network, three of the school heads responded "limited extent," six responded "moderate extent," and one responded "great extent.". The weighted mean computed in this item is 2.80 which is pointing to "moderate extent" in the scale of interpretation.

Along actively working on developing digital teaching skills, when questioned as to the extent to which their kindergarten teachers improve their digital competence for teaching through reflection and experimentation, three of the school heads checked "limited extent," six checked "moderate extent," and one checked "great extent." Here, the weighted mean computed is 2.80 which is "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers use different resources to develop their digital competence for teaching, three of the school heads mentioned "limited extent," six mentioned "moderate extent," and one mentioned "great extent." In this item, the weighted mean computed is 2.80 which is pointing to "moderate extent" in the scale.

When questioned as to the extent to which their kindergarten teachers use the peer network to inspire them in their application of different digital teaching practices, one of the school heads claimed "limited extent," eight claimed "moderate extent," and one claimed "great expert.". The weighted mean computed here is 3.00 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers validate their digital teaching practices by discussing with their peers how best to use technologies to innovate and improve their teaching practice, one of the school heads replied "limited extent," eight replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers take advantage of their peer network to get ideas and validation of their practices as well as to attend different digital competence development courses, online or face-to-face, to improve and certify their teaching practice, one of the school heads replied "limited extent" and nine replied "moderate extent." The weighted mean computed in this item is 2.90 which is leading to "moderate extent" in the scale.

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When asked as to the extent to which their kindergarten teachers lead teaching innovation using digital technologies in their institution, one of the school heads mentioned "limited extent" and nine mentioned "moderate extent." In this item, the weighted mean computed is 2.90 which is pointing to "moderate extent" in the scale.

Along participating in remote training opportunities (such as training courses, workshops, virtual conferences, and courses through open platforms such as MOOCs), when questioned as to the extent to which their kindergarten teachers have participated in online training, one of the school heads claimed "limited extent," eight claimed "moderate extent," and one claimed "great extent." The weighted mean computed here is 3.00 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers have tried different online training courses when the opportunity has arisen, two of the school heads replied "limited extent" and eight replied "moderate extent." The weighted mean computed in this item is 2.80 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers have participated in different types of online training that can help them improve their teaching skills, one of the school heads replied "limited extent," eight replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers design and deliver online training for their colleagues in their institution, one of the school heads replied "limited extent," eight replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

And, when inquired as to the extent to which their kindergarten teachers are professionally accredited in the use of different technologies for teaching and learning, two of the school heads responded "limited extent," six responded "moderate extent," and two responded "great extent." Here, the weighted mean computed is 3.00 which is indicative of "moderate extent" in the scale.

Meanwhile, the computed area weighted mean is 2.92. This implies that the school heads perceived that the digital competence along professional engagement of the kindergarten teachers is only to a moderate extent.

On Digital Resources

The kindergarten teachers and the school heads assessed the extent of digital competence along digital resources of the kindergarten teachers.

Assessment of the Kindergarten Teachers. The assessment of the kindergarten teachers on the extent of their digital competence along digital resources is presented in Table 7.

As shown in Table 7, along using different websites and search strategies to find and select different digital resources, when questioned as to the extent to which they use the Internet to find useful resources for teaching, 45 of the kindergarten teachers said "moderate extent," 67 said "great extent," and 25 said "very great extent." The weighted mean computed here is 3.85 which is leading to "great extent" in the scale.

TABLE 7
The Extent of Digital Competence along Digital Resources of the Kindergarten Teachers as Perceived by Themselves

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Assessment Items	Responses					WM	DE
Digital Resources	VL	LE	ME	GE	VG		
1. Using different websites and search strategies to find and select different digital resources							
a. I can use the Internet to find useful resources for teaching.	0	0	45	67	25	3.85	GE
b. I use search engines and educational resource platforms to find relevant resources.	0	0	57	55	25	3.77	GE
c. I evaluate and select resources according to their suitability for my learners.	0	0	59	52	26	3.76	GE
d. In addition to checking the suitability of resources to meet the needs of my learners, I compare them against other relevant criteria (e.g. reliability, quality, fit, design, interactivity, etc.).	0	0	60	51	26	3.75	GE
e. I compare resources by applying different criteria and collaborate with peers in sharing appropriate resources and search strategies.	0	0	64	54	19	3.67	GE
f. I do not only search for and select different digital resources, but also take the lead in promoting their use in my institution.	0	0	72	36	29	3.69	GE
2. Creating one's own digital resources and modify existing ones to suit one's needs.							
a. I search the Internet and use different kinds of educational resources.	0	0	38	80	19	3.86	GE
b. I create digital presentations and I know how to do much more than that.	0	0	62	56	19	3.69	GE
c. I test and validate different types of resources.	0	0	55	57	25	3.78	GE
d. I create different types of digital resources.	0	0	39	70	28	3.92	GE
e. I create and adapt digital resources and share them with others using content distribution platforms.	0	0	63	45	29	3.75	GE
f. I adapt, use, share and even create more complex interactive resources such as videos, online multiple-choice tests, virtual reality applications, etc.	0	0	55	53	29	3.81	GE
3. Effectively protecting personal data, such as exams, grades or personal data.							

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a. I protect personal data by combining hard-to-guess passwords with frequent password changes and software updates.	0	0	51	57	29	3.84	GE
b. I review my personal data protection practices from time to time, checking their effectiveness and replacing them when necessary.	0	0	72	36	29	3.69	GE
c. I protect digital data and apply the general data protection regulation) when dealing with identifiable subjects, such as data related to my students	0	0	38	80	19	3.86	GE
					AWM	3.78	GE

Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
AWM	=	area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When asked as to the extent to which they use search engines and educational resource platforms to find relevant resources, 57 of the kindergarten teachers replied “moderate extent,” 55 replied “great extent,” and 25 replied “very great extent.” The weighted mean computed in this item is 3.77 which is leading to “great extent” in the scale.

When inquired as to the extent to which they evaluate and select resources according to their suitability for their learners, 59 of the kindergarten teachers responded “moderate extent,” 52 responded “great extent,” and 26 responded “very great extent.” Here, the weighted mean computed is 3.76 which is indicative of “great extent” in the scale.

When queried as to the extent to which they compare them against other relevant criteria (e.g. reliability, quality, fit, design, interactivity, etc.) in addition to checking the suitability of resources to meet the needs of their learners, 60 of the kindergarten teachers responded “moderate extent,” 51 responded “great extent,” and 26 responded “very great extent.” The weighted mean computed in this item is 3.75 which is pointing to “great extent” in the scale of interpretation.

When questioned as to the extent to which they compare resources by applying different criteria and collaborate with peers in sharing appropriate resources and search strategies, 64 of the kindergarten teachers checked “moderate extent,” 54 checked “great extent,” and 19 checked “very great extent.” Here, the weighted mean computed is 3.67 which is “great extent” in the scale.

When asked as to the extent to which they do not only search for and select different digital resources, but also take the lead in promoting their use in their institution, 72 of the kindergarten teachers mentioned “moderate extent,” 36 mentioned “great extent,” and 29 mentioned “very great extent.” In this item, the weighted mean computed is 3.69 which is pointing to “great extent” in the scale.

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Along creating one's own digital resources and modify existing ones to suit one's needs, when questioned as to the extent to which they search the Internet and use different kinds of educational resources, 38 of the kindergarten teachers claimed "moderate extent," 80 claimed "great extent," and 19 claimed "very great extent." The weighted mean computed here is 3.86 which is pointing to "great extent" in the scale.

When asked as to the extent to which they create digital presentations and they know how to do much more than that, 62 of the kindergarten teachers replied "moderate extent," 56 replied "great extent," and 19 replied "very great extent." The weighted mean computed in this item is 3.69 which is leading to "great extent" in the scale.

When asked as to the extent to which they test and validate different types of resources, 55 of the kindergarten teachers replied "moderate extent" 57 replied "great extent," and 25 replied "very great extent." The weighted mean computed in this item is 3.78 which is leading to "great extent" in the scale.

When asked as to the extent to which they create different types of digital resources, 39 of the kindergarten teachers replied "moderate extent," 70 replied "great extent," and 28 replied "very great extent." The weighted mean computed in this item is 3.92 which is leading to "great extent" in the scale.

When inquired as to the extent to which they create and adapt digital resources and share them with others using content distribution platforms, 63 of the kindergarten teachers responded "moderate extent," 45 responded "great extent," and 29 responded "very great extent." Here, the weighted mean computed is 3.75 which is indicative of "great extent" in the scale.

When queried as to the extent to which they adapt, use, share and even create more complex interactive resources such as videos, online multiple-choice tests, virtual reality applications, and others, 55 of the kindergarten teachers responded "moderate extent," 53 responded "great extent," and 29 responded "very great extent." The weighted mean computed in this item is 3.81 which is pointing to "great extent" in the scale of interpretation.

Along effectively protecting personal data, such as exams, grades or personal data, when questioned as to the extent to which they protect personal data by combining hard-to-guess passwords with frequent password changes and software updates, 51 of the kindergarten teachers checked "moderate extent," 57 checked "great extent," and 29 checked "very great extent." Here, the weighted mean computed is 3.84 which is "great extent" in the scale.

When asked as to the extent to which they review their personal data protection practices from time to time, checking their effectiveness and replacing them when necessary, 72 of the kindergarten teachers mentioned "moderate extent," 36 mentioned "great extent," and 29 mentioned "very great extent." In this item, the weighted mean computed is 3.69 which is pointing to "great extent" in the scale.

And, when inquired as to the extent to which they protect digital data and apply the general data protection regulation) when dealing with identifiable subjects, such as data related to their students, 38 of the kindergarten teachers responded "moderate extent," 80 responded "great extent," and 19 replied "very great extent." Here, the weighted mean computed is 3.86 which is indicative of "great extent" in the scale.

Meanwhile, the computed area weighted mean is 3.78. This implies that the kindergarten teachers perceived that their digital competence along digital resources is to a great extent.

Assessment of the School Heads. The assessment of the school heads on the extent of digital competence along digital resources of the kindergarten teachers is presented in Table 8.

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As shown in Table 8, along using different websites and search strategies to find and select different digital resources, when questioned as to the extent to which their kindergarten teachers use the Internet to find useful resources for teaching, two of the school heads said “limited extent,” six said “moderate extent,” and two said “great extent.” The weighted mean computed here is 3.00 which is leading to “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers use search engines and educational resource platforms to find relevant resources, three of the school heads replied “limited extent,” six replied “moderate extent,” and one replied “great extent.” The weighted mean computed in this item is 2.80 which is leading to “moderate extent” in the scale.

TABLE 8
The Extent of Digital Competence along Digital Resources of the Kindergarten Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
Digital Resources	VL	LE	ME	GE	VG		
1. Using different websites and search strategies to find and select different digital resources. My kindergarten teachers:							
a. Use the Internet to find useful resources for teaching.	0	2	6	2	0	3.00	ME
b. Use search engines and educational resource platforms to find relevant resources.	0	3	6	1	0	2.80	ME
c. Evaluate and select resources according to their suitability for their learners.	0	3	6	1	0	2.80	ME
d. In addition to checking the suitability of resources to meet the needs of their learners, can compare them against other relevant criteria (e.g. reliability, quality, fit, design, interactivity, etc.).	0	1	8	1	0	3.00	ME
e. Compare resources by applying different criteria and collaborate with peers in sharing appropriate resources and search strategies.	0	1	8	1	0	3.00	ME
f. Do not only search for and select different digital resources, but also take the lead in promoting their use in their institution.	0	1	8	1	0	3.00	ME
2. Creating one’s own digital resources and modify existing ones to suit one’s needs. My kindergarten teachers:							
a. Search the Internet and use different kinds of educational resources.	0	1	8	1	0	3.00	ME
b. Create digital presentations and know	0	2	7	1	0	2.90	

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how to do much more than that.							ME
c. Test and validate different types of resources.	0	2	7	1	0	2.90	ME
d. Create different types of digital resources.	0	2	6	2	0	3.00	ME
e. Create and adapt digital resources and share them with others using content distribution platforms.	0	2	6	2	0	3.00	ME
f. Adapt, use, share and even create more complex interactive resources such as videos, online multiple-choice tests, virtual reality applications, etc.	0	1	8	1	0	3.00	ME
3. Effectively protecting personal data, such as exams, grades or personal data. My kindergarten teachers:							
a. Protect personal data by combining hard-to-guess passwords with frequent password changes and software updates.	0	1	8	1	0	3.00	ME
b. Review their personal data protection practices from time to time, checking their effectiveness and replacing them when necessary.	0	2	6	2	0	3.00	ME
c. Protect digital data and apply the general data protection regulation) when dealing with identifiable subjects, such as data related to their students	0	2	6	2	0	3.00	ME
					AWM	2.96	ME

Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
AWM	=	area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When inquired as to the extent to which their kindergarten teachers evaluate and select resources according to their suitability for their learners, three of the school heads responded “limited extent,” six responded “moderate extent,” and one responded “great extent.” Here, the weighted mean computed is 2.80 which is indicative of “moderate extent” in the scale.

When queried as to the extent to which their kindergarten teachers compare them against other relevant criteria (e.g. reliability, quality, fit, design, interactivity, etc.) in addition to checking the suitability of resources to meet the needs of their learners, one of the school heads responded

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"limited extent," eight responded "moderate extent," and one responded "great extent." The weighted mean computed in this item is 3.00 which is pointing to "moderate extent" in the scale of interpretation.

When questioned as to the extent to which their kindergarten teachers compare resources by applying different criteria and collaborate with peers in sharing appropriate resources and search strategies, one of the school heads checked "limited extent," eight checked "moderate extent," and one checked "great extent." Here, the weighted mean computed is 3.00 which is "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers do not only search for and select different digital resources, but also take the lead in promoting their use in their institution, one of the school heads mentioned "limited extent," eight mentioned "moderate extent," and one mentioned "great extent." In this item, the weighted mean computed is 3.00 which is pointing to "moderate extent" in the scale.

Along creating one's own digital resources and modify existing ones to suit one's needs, when questioned as to the extent to which their kindergarten teachers search the Internet and use different kinds of educational resources, one of the school heads claimed "limited extent," eight claimed "moderate extent," and one claimed "great extent." The weighted mean computed here is 3.00 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers create digital presentations and they know how to do much more than that, two of the school heads replied "limited extent," seven replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 2.90 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers test and validate different types of resources, two of the school heads replied "limited extent", seven replied "moderate extent," and one replied "great extent. The weighted mean computed in this item is 2.90 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers create different types of digital resources, two of the school heads replied "limited extent," six replied "moderate extent," and two replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

When inquired as to the extent to which their kindergarten teachers create and adapt digital resources and share them with others using content distribution platforms, two of the school heads responded "limited extent," six responded "moderate extent," and two responded "great extent." Here, the weighted mean computed is 3.00 which is indicative of "moderate extent" in the scale.

When queried as to the extent to which their kindergarten teachers adapt, use, share and even create more complex interactive resources such as videos, online multiple-choice tests, virtual reality applications, and others, one of the school heads responded "limited extent," eight responded "moderate extent," and one responded "great extent.: The weighted mean computed in this item is 3.00 which is pointing to "moderate extent" in the scale of interpretation.

Along effectively protecting personal data, such as exams, grades or personal data, when questioned as to the extent to which their kindergarten teachers protect personal data by combining hard-to-guess passwords with frequent password changes and software updates, one of the school heads checked "limited extent," eight checked "moderate extent," and one checked "great extent." Here, the weighted mean computed is 3.00 which is "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers review their personal data protection practices from time to time, checking their effectiveness and replacing them when

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necessary, two of the school heads mentioned “limited extent,” six mentioned “moderate extent,” and two mentioned “great extent.” In this item, the weighted mean computed is 3.00 which is pointing to “moderate extent” in the scale.

Lastly, when inquired as to the extent to which their kindergarten teachers protect digital data and apply the general data protection regulation) when dealing with identifiable subjects, such as data related to their students, two of the school heads responded “limited extent,” six responded “moderate extent,” and two replied “great extent.” Here, the weighted mean computed is 3.000 which is indicative of “moderate extent” in the scale.

Meanwhile, the computed area weighted mean is 2.96. This implies that the school heads perceived that the digital competence along digital resources of the kindergarten teachers is is only to a moderate extent.

On Teaching and Learning

The kindergarten teachers and the school heads assessed the extent of digital competence along teaching and learning of the kindergarten teachers.

Assessment of the Kindergarten Teachers. The assessment of the kindergarten teachers on the extent of their digital competence level along teaching and learning is presented in Table 9.

As shown in Table 9, along carefully assessing how, when and why to use digital technologies in the classroom with students to ensure that they add value, when questioned as to the extent to which they make use of available equipment (e.g. digital whiteboards, projectors or virtual teaching environments when teaching online), 62 of the kindergarten teachers said “moderate extent,” 56 said “great extent,” and 19 said “very great extent.” The weighted mean computed here is 3.69 which is leading to “great extent” in the scale.

TABLE 9
The Extent of Digital Competence Level along Teaching and Learning of the Kindergarten Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
Teaching and Learning	VL	LE	ME	GE	VG		
1. Carefully assessing how, when and why to use digital technologies in the classroom with students to ensure that they add value.							
a. I make use of available equipment (e.g. digital whiteboards, projectors or virtual teaching environments when teaching online).	0	0	62	56	19	3.69	GE
b. I use a wide variety of digital resources and tools in my classes.	0	0	55	57	25	3.78	GE
c. I try out different teaching methods according to the digital technologies I choose.	0	0	49	63	25	3.82	GE

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d. I select and try different teaching approaches to find the ones that work best for me.	0	0	45	67	25	3.85	GE
e. I develop my own portfolio of activities, technologies and teaching methods.	0	0	42	59	36	3.96	GE
f. I use digital tools to implement innovative teaching methodologies and share them with my networks, so that they can also benefit.	0	0	41	67	29	3.91	GE
2. Monitoring the activities and interactions of students in the online collaborative environments.							
a. I analyze and intervene in my learners' online activities (e.g. discussions) with motivating or corrective comments.	0	0	66	45	26	3.71	GE
b. I encourage learners to participate in online activities by asking questions.	0	0	47	68	22	3.82	GE
c. I redirect students' online activity when I see that it is not working or foresee problems.	0	0	71	37	29	3.69	GE
3. Students using digital technologies to acquire and reflect knowledge when they work in groups.							
a. I integrate digital technologies into collaborative learning activities.	0	0	59	59	19	3.71	GE
b. I identify opportunities and implement assignments for learners to work collaboratively by searching for information online or presenting their results in digital formats.	0	0	48	70	19	3.79	GE
c. I structure course activities that require learners to work collaboratively in groups, using the Internet to find information and presenting their results in digital formats.	0	0	53	65	19	3.75	GE
d. I design course assignments that require students to use online collaborative environments to exchange knowledge and discuss.	0	0	50	63	24	3.81	GE
e. I design course assignments that require students to use online collaborative environments to create and share knowledge.	0	0	63	45	29	3.75	GE
f. I design curricular activities that require	0	0	55	53	29	3.81	

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the use of digital technologies to enhance collaborative learning and the co-creation and sharing of knowledge							GE
4. Using digital technologies to enable my students to plan, document and monitor their own learning process.							
a. I use, for example, tests for self-assessment or a subject blog.	0	0	66	45	26	3.71	GE
b. I use various digital tools for students to plan, document or reflect on their learning.	0	0	47	68	22	3.82	GE
c. I integrate different digital tools for learners to plan, document or reflect on their progress.	0	0	55	57	25	3.78	GE
d. I am selective in my choice of the best digital tools to integrate into my teaching, after testing them with different learning tasks and groups of learners.	0	0	49	63	25	3.82	GE
e. I develop apps or digital games to engage students in their own learning.	0	0	45	67	25	3.85	GE
					AWM	3.79	GE

Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
AWM	=	area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When asked as to the extent to which they use a wide variety of digital resources and tools in their classes, 55 of the kindergarten teachers replied “moderate extent,” 57 replied “great extent,” and 25 replied “very great extent.” The weighted mean computed in this item is 3.78 which is leading to “great extent” in the scale.

When inquired as to the extent to which they try out different teaching methods according to the digital technologies they choose, 49 of the kindergarten teachers responded “moderate extent,” 63 responded “great extent,” and 25 responded “very great extent.” Here, the weighted mean computed is 3.82 which is indicative of “great extent” in the scale.

When asked as to the extent to which they select and try different teaching approaches to find the ones that work best for them, 45 of the kindergarten teachers replied “moderate extent,” 67 replied “great extent,” and 25 replied “very great extent.” The weighted mean computed in this item is 3.85 which is leading to “great extent” in the scale.

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When inquired as to the extent to which they develop their own portfolio of activities, technologies and teaching methods, 42 of the kindergarten teachers responded “moderate extent,” 59 responded “great extent,” and 36 responded “very great extent.” Here, the weighted mean computed is 3.96 which is indicative of “great extent” in the scale.

When queried as to the extent to which they use digital tools to implement innovative teaching methodologies and share them with their networks, so that they can also benefit, 41 of the kindergarten teachers responded “moderate extent,” 67 responded “great extent,” and 29 responded “very great extent.” The weighted mean computed in this item is 3.91 which is pointing to “great extent” in the scale of interpretation.

Along monitoring the activities and interactions of students in the online collaborative environments, when questioned as to the extent to which they analyze and intervene in their learners’ online activities (e.g. discussions) with motivating or corrective comments, 66 of the kindergarten teachers claimed “moderate extent,” 45 claimed “great extent,” and 26 claimed “very great extent.” The weighted mean computed here is 3.71 which is pointing to “great extent” in the scale.

When asked as to the extent to which they encourage learners to participate in online activities by asking questions, 47 of the kindergarten teachers replied “moderate extent,” 68 replied “great extent,” and 22 replied “very great extent.” The weighted mean computed in this item is 3.82 which is leading to “great extent” in the scale.

When asked as to the extent to which they redirect students’ online activity when they see that it is not working or foresee problems, 71 of the kindergarten teachers replied “moderate extent,” 37 replied “great extent,” and 29 replied “very great extent.” The weighted mean computed in this item is 3.69 which is leading to “great extent” in the scale.

Along students using digital technologies to acquire and reflect knowledge when they work in groups, when questioned as to the extent to which they integrate digital technologies into collaborative learning activities, 59 of the kindergarten teachers checked “moderate extent,” 59 checked “great extent,” and 19 checked “very great extent.” Here, the weighted mean computed is 3.71 which is “great extent” in the scale.

When asked as to the extent to which they identify opportunities and implement assignments for learners to work collaboratively by searching for information online or presenting their results in digital formats, 48 of the kindergarten teachers mentioned “moderate extent,” 70 mentioned “great extent,” and 19 mentioned “very great extent.” In this item, the weighted mean computed is 3.79 which is pointing to “great extent” in the scale.

When questioned as to the extent to which they structure course activities that require learners to work collaboratively in groups using the Internet to find information and presenting their results in digital formats, 53 of the kindergarten teachers claimed “moderate extent,” 65 claimed “great extent,” and 19 claimed “very great extent.” The weighted mean computed here is 3.75 which is pointing to “great extent” in the scale.

When asked as to the extent to which they design course assignments that require students to use online collaborative environments to exchange knowledge and discuss, 50 of the kindergarten teachers replied “moderate extent,” 63 replied “great extent,” and 24 replied “very great extent.” The weighted mean computed in this item is 3.81 which is leading to “great extent” in the scale.

When asked as to the extent to which they design course assignments that require students to use online collaborative environments to create and share knowledge, 63 of the kindergarten

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teachers replied “moderate extent,” 45 replied “great extent,” and 29 replied “very great extent.” The weighted mean computed in this item is 3.75 which is leading to “great extent” in the scale.

When asked as to the extent to which they design curricular activities that require the use of digital technologies to enhance collaborative learning and the co-creation and sharing of knowledge, 55 of the kindergarten teachers mentioned “moderate extent,” 53 mentioned “great extent,” and 29 mentioned “very great extent.” In this item, the weighted mean computed is 3.81 which is pointing to “great extent” in the scale.

Along using digital technologies to enable their students to plan, document and monitor their own learning process, when questioned as to the extent to which they use, for example, tests for self-assessment or a subject blog, 66 of the kindergarten teachers claimed “moderate extent,” 45 claimed “great extent,” and 26 claimed “very great extent.” The weighted mean computed here is 3.71 which is pointing to “great extent” in the scale.

When asked as to the extent to which they use various digital tools for students to plan, document or reflect on their learning, 47 of the kindergarten teachers replied “moderate extent,” 68 replied “great extent,” and 22 replied “very great extent.” The weighted mean computed in this item is 3.82 which is leading to “great extent” in the scale.

When asked as to the extent to which they integrate different digital tools for learners to plan, document or reflect on their progress, 55 of the kindergarten teachers replied “moderate extent,” 57 replied “great extent,” and 25 replied “very great extent.” The weighted mean computed in this item is 3.78 which is leading to “great extent” in the scale.

When asked as to the extent to which they are selective in their choice of the best digital tools to integrate into their teaching, after testing them with different learning tasks and groups of learners, 49 of the kindergarten teachers replied “moderate extent,” 63 replied “great extent,” and 25 replied “very great extent.” The weighted mean computed in this item is 3.82 which is leading to “great extent” in the scale.

And, when inquired as to the extent to which they develop apps or digital games to engage students in their own learning, 45 of the kindergarten teachers responded “moderate extent,” 67 responded “great extent,” and 25 replied “very great extent.” Here, the weighted mean computed is 3.85 which is indicative of “great extent” in the scale.

Meanwhile, the computed area weighted mean is 3.79. This implies that the kindergarten teachers perceived that their digital competence along teaching and learning is to a great extent.

Assessment of the School Heads. The assessment of the school heads on the extent of digital competence along teaching and learning of the kindergarten teachers is presented in Table 10.

As shown in Table 10, along carefully assessing how, when and why to use digital technologies in the classroom with students to ensure that they add value, when questioned as to the extent to which their kindergarten teachers make use of available equipment (e.g. digital whiteboards, projectors or virtual teaching environments when teaching online), two of the school heads said “limited extent,” seven said “moderate extent,” and one said “great extent.” The weighted mean computed here is 2.90 which is leading to “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers use a wide variety of digital resources and tools in their classes, two of the school heads replied “limited extent,” seven replied “moderate extent,” and one replied “great extent.” The weighted mean computed in this item is 2.90 which is leading to “moderate extent” in the scale.

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TABLE 10
The Extent of Digital Competence Level along Teaching and Learning of the Kindergarten Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
Teaching and Learning	VL	LE	ME	GE	VG		
1. Carefully assessing how, when and why to use digital technologies in the classroom with students to ensure that they add value. My kindergarten teachers:							
a. Make use of available equipment (e.g. digital whiteboards, projectors or virtual teaching environments when teaching online).	0	2	7	1	0	2.90	ME
b. Use a wide variety of digital resources and tools in their classes.	0	2	7	1	0	2.90	ME
c. Try out different teaching methods according to the digital technologies they choose.	0	1	8	1	0	3.00	ME
d. Select and try different teaching approaches to find the ones that work best for them.	0	2	6	2	0	3.00	ME
e. Develop their own portfolio of activities, technologies and teaching methods.	0	2	7	1	0	2.90	ME
f. Use digital tools to implement innovative teaching methodologies and share them with their networks, so that they can also benefit.	0	2	7	1	0	2.90	ME
2. Monitoring the activities and interactions of students in the online collaborative environments. My kindergarten teachers:							
a. Analyze and intervene in their learners' online activities (e.g. discussions) with motivating or corrective comments.	0	1	8	1	0	3.00	ME
b. Encourage learners to participate in online activities by asking questions.	0	1	8	1	0	3.00	ME
c. Redirect students' online activity when they see that it is not working or foresee problems.	0	2	6	2	0	3.00	ME
3. Students using digital technologies to acquire and reflect knowledge when they work in groups. My kindergarten teachers:							
a. Integrate digital technologies into	0	2	6	2	0	3.00	

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collaborative learning activities.							ME
b. Identify opportunities and implement assignments for learners to work collaboratively by searching for information online or presenting their results in digital formats.	0	1	8	1	0	3.00	ME
c. Structure course activities that require learners to work collaboratively in groups, using the Internet to find information and presenting their results in digital formats.	0	1	8	1	0	3.00	ME
d. Design course assignments that require students to use online collaborative environments to exchange knowledge and discuss.	0	2	7	1	0	2.90	ME
e. Design course assignments that require students to use online collaborative environments to create and share knowledge.	0	2	7	1	0	2.90	ME
f. Design curricular activities that require the use of digital technologies to enhance collaborative learning and the co-creation and sharing of knowledge	0	2	7	1	0	2.90	ME
4. Using digital technologies to enable students to plan, document and monitor their own learning process. My kindergarten teachers:							
a. Use, for example, tests for self-assessment or a subject blog.	0	1	8	1	0	3.00	ME
b. Use various digital tools for students to plan, document or reflect on their learning.	0	1	8	1	0	3.00	ME
c. Integrate different digital tools for learners to plan, document or reflect on their progress.	0	2	6	2	0	3.00	ME
d. Are selective in their choice of the best digital tools to integrate into their teaching, after testing them with different learning tasks and groups of learners.	0	2	6	2	0	3.00	ME
e. Develop apps or digital games to engage students in their own learning.	0	2	7	1	0	2.90	ME
					AWM	2.96	ME

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

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Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When inquired as to the extent to which their kindergarten teachers try out different teaching methods according to the digital technologies they choose, one of the school heads responded "limited extent," eight responded "moderate extent," and one responded "great extent." Here, the weighted mean computed is 3.00 which is indicative of "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers select and try different teaching approaches to find the ones that work best for them, two of the school heads replied "limited extent," six replied "moderate extent," and two replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

When inquired as to the extent to which their kindergarten teachers develop their own portfolio of activities, technologies and teaching methods, two of the school heads responded "limited extent," seven responded "moderate extent," and one responded "great extent." Here, the weighted mean computed is 2.90 which is indicative of "moderate extent" in the scale.

When queried as to the extent to which their kindergarten teachers use digital tools to implement innovative teaching methodologies and share them with their networks, so that they can also benefit, two of the school heads responded "limited extent," seven responded "moderate extent," and one responded "great extent." The weighted mean computed in this item is 2.90 which is pointing to "moderate extent" in the scale of interpretation.

Along monitoring the activities and interactions of students in the online collaborative environments, when questioned as to the extent to which their kindergarten teachers analyze and intervene in their learners' online activities (e.g. discussions) with motivating or corrective comments, one of the school heads claimed "limited extent," eight claimed "moderate extent," and one claimed "great extent." The weighted mean computed here is 3.00 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers encourage learners to participate in online activities by asking questions, one of the school heads replied "limited extent," eight replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers redirect students' online activity when they see that it is not working or foresee problems, two of the school heads replied "limited extent," six replied "moderate extent," and two replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

Along students using digital technologies to acquire and reflect knowledge when they work in groups, when questioned as to the extent to which their kindergarten teachers integrate digital technologies into collaborative learning activities, two of the school heads checked "limited extent," six checked "moderate extent," and two checked "great extent." Here, the weighted mean computed is 3.00 which is "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers identify opportunities and implement assignments for learners to work collaboratively by searching for information online or presenting their results in digital formats, one of the school heads mentioned "limited extent,"

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eight mentioned “moderate extent,” and one mentioned “great extent”. In this item, the weighted mean computed is 3.00 which is pointing to “moderate extent” in the scale.

When questioned as to the extent to which their kindergarten teachers structure course activities that require learners to work collaboratively in groups using the Internet to find information and presenting their results in digital formats, one of the school heads claimed “limited extent,” eight claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 3.00 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers design course assignments that require students to use online collaborative environments to exchange knowledge and discuss, two of the school heads replied “limited extent,” seven replied “moderate extent,” and one replied “great extent.” The weighted mean computed in this item is 2.90 which is leading to “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers design course assignments that require students to use online collaborative environments to create and share knowledge, two of the school heads replied “limited extent,” seven replied “moderate extent,” and one replied “great extent.” The weighted mean computed in this item is 2.90 which is leading to “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers design curricular activities that require the use of digital technologies to enhance collaborative learning and the co-creation and sharing of knowledge, two of the school heads mentioned “limited extent,” seven mentioned “moderate extent,” and one mentioned “great extent.” In this item, the weighted mean computed is 2.90 which is pointing to “moderate extent” in the scale.

Along using digital technologies to enable their students to plan, document and monitor their own learning process, when questioned as to the extent to which their kindergarten teachers use, for example, tests for self-assessment or a subject blog, one of the school heads claimed “limited extent,” eight claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 3.00 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers use various digital tools for students to plan, document or reflect on their learning, one of the school heads replied “limited extent,” eight replied “moderate extent,” and one replied “great extent.” The weighted mean computed in this item is 3.00 which is leading to “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers integrate different digital tools for learners to plan, document or reflect on their progress, two of the school heads replied “limited extent,” six replied “moderate extent,” and two replied “great extent.” The weighted mean computed in this item is 3.00 which is leading to “moderate extent” in the scale.

When asked as to the extent to which their kindergarten teachers are selective in their choice of the best digital tools to integrate into their teaching, after testing them with different learning tasks and groups of learners, two of the school heads replied “limited extent,” six replied “moderate extent,” and two replied “great extent.” The weighted mean computed in this item is 3.00 which is leading to “moderate extent” in the scale.

And, when inquired as to the extent to which their kindergarten teachers develop apps or digital games to engage students in their own learning, two of the school heads responded “limited extent,” seven responded “moderate extent,” and one responded “great extent.” Here, the weighted mean computed is 2.90 which is indicative of “moderate extent” in the scale.

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Meanwhile, the computed area weighted mean is 2.96. This implies that the school heads perceived that the digital competence along teaching and learning of the kindergarten teachers is only to a moderate extent.

On Evaluation and Feedback

The kindergarten teachers and the school heads assessed the extent of digital competence along evaluation and feedback of the kindergarten teachers.

Assessment of the Kindergarten Teachers. The assessment of the kindergarten teachers on the extent of their digital competence along evaluation and feedback is presented in Table 11.

As shown in Table 11, along using digital assessment tools to monitor student progress, when questioned as to the extent to which they use several digital tools to monitor learners' progress, 39 of the kindergarten teachers said "moderate extent," 70 said "great extent," and 28 said "very great extent." The weighted mean computed here is 3.92 which is leading to "great extent" in the scale.

When asked as to the extent to which they integrate the use of various digital tools to monitor learners' progress, 63 of the kindergarten teachers replied "moderate extent," 45 replied "great extent," and 29 replied "very great extent." The

TABLE 11
The Extent of Digital Competence along Evaluation and Feedback of the Kindergarten Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
Evaluation and feedback	VL	LE	ME	GE	VG		
1. Using digital assessment tools to monitor student progress							
a. I use several digital tools to monitor learners' progress.	0	0	39	70	28	3.92	GE
b. I integrate the use of various digital tools to monitor learners' progress.	0	0	63	45	29	3.75	GE
c. I selectively choose the best digital tools and try them out for use with learners to assess and check progress.	0	0	55	53	29	3.81	GE
d. I develop my own apps and digital tools to track progress and/or conduct assessments.	0	0	49	63	25	3.82	GE
2. I analyze all available data to effectively identify students in need of additional support.							
a. I analyze academically relevant data, e.g. grades.	0	0	45	67	25	3.85	GE
b. I consider data on student activity and behavior to identify students who need additional support.	0	0	42	59	36	3.96	GE
c. I examine all available evidence to	0	0	41	67	29	3.91	

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identify students who need additional support, to include their emotions and individual circumstances.							GE
d. I analyze student data to intervene in a timely manner.	0	0	57	55	25	3.77	GE
e. I help students analyze their performance and other data to seek help when they feel they need it.	0	0	59	52	26	3.76	GE
f. I encourage students to not only analyze their performance data, but also to set their own learning goals.	0	0	60	51	26	3.75	GE
3. I use digital technologies to provide feedback to students.							
a. I evaluate the advantages of using digital methods to provide constructive feedback, e.g. automatic scores in online questionnaires, comments or "likes" in digital environment.	0	0	51	57	29	3.84	GE
b. I use different digital methods to provide feedback and improve my practices regarding non-digital feedback.	0	0	72	36	29	3.69	GE
c. I combine different digital approaches to provide feedback.	0	0	58	60	19	3.72	GE
d. I choose the best digital tools for feedback after testing them with different groups of learners.	0	0	51	57	29	3.84	GE
e. I develop my own apps or digital tools to provide feedback to learner	0	0	72	36	29	3.69	GE
					AWM	3.80	GE

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

weighted mean computed in this item is 3.75 which is leading to "great extent" in the scale.

When inquired as to the extent to which they selectively choose the best digital tools and try them out for use with learners to assess and check progress, 55 of the kindergarten teachers responded "moderate extent," 53 responded "great extent," and 29 responded "very great extent." Here, the weighted mean computed is 3.81 which is indicative of "great extent" in the scale.

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When queried as to the extent to which they develop their own apps and digital tools to track progress and/or conduct assessments, 49 of the kindergarten teachers responded “moderate extent”, 63 responded “great extent,” and 25 responded “very great extent.” The weighted mean computed in this item is 3.82 which is pointing to “great extent” in the scale of interpretation.

Along analyzing all available data to effectively identify students in need of additional support, when questioned as to the extent to which they analyze academically relevant data, e.g. grades, 45 of the kindergarten teachers claimed “moderate extent,” 67 claimed “great extent,” and 25 claimed “very great extent.” The weighted mean computed here is 3.85 which is pointing to “great extent” in the scale.

When asked as to the extent to which they consider data on student activity and behavior to identify students who need additional support, 42 of the kindergarten teachers replied “moderate extent,” 59 replied “great extent,” and 36 replied “very great extent.” The weighted mean computed in this item is 3.96 which is leading to “great extent” in the scale.

When asked as to the extent to which they examine all available evidence to identify students who need additional support, to include their emotions and individual circumstances, 41 of the kindergarten teachers replied “moderate extent,” 67 replied “great extent,” and 29 replied “very great extent.” The weighted mean computed in this item is 3.91 which is leading to “great extent” in the scale.

When asked as to the extent to which they analyze student data to intervene in a timely manner, 57 of the kindergarten teachers replied “moderate extent,” 55 replied “great extent,” and 25 replied “very great extent.” The weighted mean computed in this item is 3.77 which is leading to “great extent” in the scale.

When inquired as to the extent to which they help students analyze their performance and other data to seek help when they feel they need it, 59 of the kindergarten teachers responded “moderate extent”, 52 responded “great extent,” and 26 responded “very great extent.” Here, the weighted mean computed is 3.76 which is indicative of “great extent” in the scale.

When queried as to the extent to which they encourage students to not only analyze their performance data, but also to set their own learning goals, 60 of the kindergarten teachers responded “moderate extent,” 51 responded “great extent,” and 26 responded “very great extent.” The weighted mean computed in this item is 3.75 which is pointing to “great extent” in the scale of interpretation.

Along using digital technologies to provide feedback to students, when questioned as to the extent to which they evaluate the advantages of using digital methods to provide constructive feedback, e.g. automatic scores in online questionnaires, comments or “likes” in digital environment, 51 of the kindergarten teachers checked “moderate extent,” 57 checked “great extent,” and 29 checked “very great extent.” Here, the weighted mean computed is 3.84 which is “great extent” in the scale.

When questioned as to the extent to which they use different digital methods to provide feedback and improve their practices regarding non-digital feedback, 72 of the kindergarten teachers claimed “moderate extent,” 36 claimed “great extent,” and 29 claimed “very great extent.” The weighted mean computed here is 3.69 which is pointing to “great extent” in the scale.

When asked as to the extent to which they combine different digital approaches to provide feedback, 58 of the kindergarten teachers replied “moderate extent,” 60 replied “great extent,” and 19 replied “very great extent.” The weighted mean computed in this item is 3.72 which is leading to “great extent” in the scale.

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When asked as to the extent to which they choose the best digital tools for feedback after testing them with different groups of learners, 51 of the kindergarten teachers replied "moderate extent," 57 replied "great extent," and 29 replied "very great extent." The weighted mean computed in this item is 3.84 which is leading to "great extent" in the scale.

Lastly, when inquired as to the extent to which they develop their own apps or digital tools to provide feedback to learner, 72 of the kindergarten teachers responded "moderate extent," 36 responded "great extent," and 29 replied "very great extent." Here, the weighted mean computed is 3.69 which is indicative of "great extent" in the scale.

Meanwhile, the computed area weighted mean is 3.80. This implies that the kindergarten teachers perceived that their digital competence along evaluation and feedback is to a great extent.

Assessment of the School Heads. The assessment of the school heads on the extent of digital competence along evaluation and feedback of the kindergarten teachers is presented in Table 12.

As shown in Table 12, along using digital assessment tools to monitor student progress, when questioned as to the extent to which their kindergarten teachers use several digital tools to monitor learners' progress, two of the school heads said "limited extent," seven said "moderate extent," and one said "great extent." The weighted mean computed here is 2.90 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers integrate the use of various digital tools to monitor learners' progress, two of the school heads replied "limited extent," seven replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 2.90 which is leading to "moderate extent" in the scale.

When inquired as to the extent to which their kindergarten teachers selectively choose the best digital tools and try them out for use with learners to assess and check progress, two of the school heads responded "limited extent," six responded "moderate extent," and two responded "great extent." Here, the weighted mean computed is 3.00 which is indicative of "moderate extent" in the scale.

TABLE 12
The Extent of the Digital Competence along Evaluation and Feedback of the Kindergarten Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
Evaluation and feedback	VL	LE	ME	GE	VG		
1. Using digital assessment tools to monitor student progress. My kindergarten teachers:							
a. Use several digital tools to monitor learners' progress.	0	2	7	1	0	2.90	ME
b. Integrate the use of various digital tools to monitor learners' progress.	0	2	7	1	0	2.90	ME
c. Selectively choose the best digital tools and try them out for use with learners to assess and check progress.	0	2	6	2	0	3.00	ME

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c. Selectively choose the best digital tools and try them out for use with learners to assess and check progress.	0	2	6	2	0	3.00	ME
d. Develop their own apps and digital tools to track progress and/or conduct assessments.	0	2	6	2	0	3.00	ME
2. Analyzing all available data to effectively identify students in need of additional support. My kindergarten teachers:							
a. Analyze academically relevant data, e.g. grades.	0	1	8	1	0	3.00	ME
b. Consider data on student activity and behavior to identify students who need additional support.	0	1	8	1	0	3.00	ME
c. Examine all available evidence to identify students who need additional support, to include their emotions and individual circumstances.	0	2	7	1	0	2.90	ME
d. Analyze student data to intervene in a timely manner.	0	2	7	1	0	2.90	ME
e. Help students analyze their performance and other data to seek help when they feel they need it.	0	2	7	1	0	2.90	ME
f. Encourage students to not only analyze their performance data, but also to set their own learning goals.	0	2	6	2	0	3.00	ME
3. Using digital technologies to provide feedback to students. My kindergarten teachers:							
a. Evaluate the advantages of using digital methods to provide constructive feedback, e.g. automatic scores in online questionnaires, comments or “likes” in digital environment.	0	2	7	1	0	2.90	ME
b. Use different digital methods to provide feedback and improve their practices regarding non-digital feedback.	0	2	7	1	0	2.90	ME
c. Combine different digital approaches to provide feedback.	0	1	8	1	0	3.00	ME
d. Choose the best digital tools for feedback after testing them with different groups of learners.	0	1	8	1	0	3.00	ME
e. Develop their own apps or digital tools to provide feedback to learner	0	2	7	1	0	2.90	ME
					AWM	2.95	ME

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Legend:

WM	=	weighted mean		
DE	=	descriptive equivalent		
AWM	=	area weighted mean		

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When queried as to the extent to which their kindergarten teachers develop their own apps and digital tools to track progress and/or conduct assessments, two of the school heads responded "limited extent," six responded "moderate extent," and two responded "great extent." The weighted mean computed in this item is 3.00 which is pointing to "moderate extent" in the scale of interpretation.

Along analyzing all available data to effectively identify students in need of additional support, when questioned as to the extent to which their kindergarten teachers analyze academically relevant data, e.g. grades, one of the school heads claimed "limited extent," eight claimed "moderate extent," and one claimed "great extent." The weighted mean computed here is 3.00 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers consider data on student activity and behavior to identify students who need additional support, one of the school heads replied "limited extent," eight replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers examine all available evidence to identify students who need additional support, to include their emotions and individual circumstances, two of the school heads replied "limited extent," seven replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 2.90 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers analyze student data to intervene in a timely manner, two of the school heads replied "limited extent," seven replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 2.90 which is leading to "moderate extent" in the scale.

When inquired as to the extent to which their kindergarten teachers help students analyze their performance and other data to seek help when they feel they need it, two of the school heads responded "limited extent," seven responded "moderate extent," and one responded "great extent." Here, the weighted mean computed is 2.90 which is indicative of "moderate extent" in the scale.

When queried as to the extent to which their kindergarten teachers encourage students to not only analyze their performance data, but also to set their own learning goals, two of the school heads responded "limited extent," six responded "moderate extent," and two responded "great extent." The weighted mean computed in this item is 3.00 which is pointing to "moderate extent" in the scale of interpretation.

Along using digital technologies to provide feedback to students, when questioned as to the extent to which their kindergarten teachers evaluate the advantages of using digital methods to provide constructive feedback, e.g. automatic scores in online questionnaires, comments or "likes"

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in digital environment, two of the school heads checked "limited extent," seven checked "moderate extent," and one checked "great extent.". Here, the weighted mean computed is 2.90 which is "moderate extent" in the scale.

When questioned as to the extent to which their kindergarten teachers use different digital methods to provide feedback and improve their practices regarding non-digital feedback, two of the school heads claimed "limited extent," seven claimed "moderate extent," and one claimed "great extent." The weighted mean computed here is 2.90 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers combine different digital approaches to provide feedback, one of the school heads replied "limited extent," eight replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

When asked as to the extent to which their kindergarten teachers choose the best digital tools for feedback after testing them with different groups of learners, one of the school heads replied "limited extent," eight replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

Lastly, when inquired as to the extent to which their kindergarten teachers develop their own apps or digital tools to provide feedback to learner, two of the school heads responded "limited extent," seven responded "moderate extent," and one responded "great extent." Here, the weighted mean computed is 2.90 which is indicative of "moderate extent" in the scale.

Meanwhile, the computed area weighted mean is 2.95. This implies that the school heads perceived that the digital competence along evaluation and feedback of the kindergarten teachers is only to a moderate extent.

A Summary

The extent of digital competence of the kindergarten teachers is presented in Table 13.

TABLE 13
The Extent of Digital Competence of the Kindergarten Teachers

	Assessment of the Kindergarten Teachers		Assessment of the School Heads	
Areas of Digital Competence	AWM	DE	AWM	DE
1. Professional Engagement	3.70	GE	2.92	ME
2. Digital Resources	3.78	GE	2.96	ME
3. Teaching and Learning	3.79	GE	2.96	ME
4. Evaluation and Feedback	3.80	GE	2.95	ME
OWM	3.77	GE	2.95	ME

Legend:
AWM = area weighted mean
DE = descriptive equivalent
OWM = overall weighted mean

Scale:

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VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

As can be noted in Table 13, the kindergarten teachers perceived that their digital competence is to a great extent as evidenced by the computed overall weighted mean of 3.77. Meanwhile, the school heads perceived that the digital competence of the kindergarten teachers is only to a moderate extent as evidenced by the computed overall weighted mean of 2.95.

Relationship between the Profile Variables of the Kindergarten Teachers and the Extent of Their Digital Competence

This section provides answers to the fourth sub-problem of the study which is about the significant relationship between the profile variables of the kindergarten teachers of public elementary schools and the extent of their digital competence.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the profile variables of the kindergarten teachers and the extent of their digital competence. Thereafter, the researcher correlated the profile variables of the kindergarten teachers and the extent of their digital competence using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the p value, the chi square value, and the contingency coefficient at .05 level of significance. Table 14 provides the results.

As shown by Table 14, when the highest educational attainment of the kindergarten teachers and the extent of their digital competence are correlated, the p value computed is 0.02. This figure is lower than the .05 level of significance. In the same way, the chi square value computed is 5.47. This figure is higher than the computed chi square critical value of 3.84. This means that there is a significant relationship between the two. As such, the null hypothesis is rejected. Conformably, it can be said that the extent of digital competence of the kindergarten teachers influenced by their educational attainment.

Table 14
Relationship between the Profile Variables of the Kindergarten Teachers and the Extent of Their Digital Competence

Profile Variable	P Value .05 LS	Chi Square Value	Chi Square Critical Value	R M
Educational Attainment	0.02	5.47	3.84	S
Length of Teaching Experience	0.02	5.84	3.84	S
Number of Relevant Trainings Attended	0.02	5.45	3.84	S

Legend:

RM	=	remarks
S	=	significant
NS	=	not significant

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Secondly, when the length of teaching experience of the kindergarten teachers and the extent of their digital competence are correlated, the p value computed is 0.02. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 5.84. This figure is higher than the computed chi square critical value of 3.84. This means that there is a significant relationship between the two. As such, the null hypothesis is rejected. Thus, it can be said that the extent of digital competence of the kindergarten teachers is influenced by their length of teaching experience.

Lastly, when the number of related trainings/seminars attended by the kindergarten teachers and the extent of their digital competence are correlated, the p value computed is 0.02. This figure is lower than the .05 level of significance. In the same way, the chi square value computed is 5.45. This figure is higher than the computed chi square critical value of 3.84. This means that there is a significant relationship between the two. As such, the null hypothesis is rejected. Conformably, it can be said that the extent of digital competence of the kindergarten teachers is influenced by the number of relevant trainings/seminars they attended.

Difference between the Perceptions of the Kindergarten Teachers and the School Heads on the Extent of Digital Competence of the Kindergarten Teachers

This part of the chapter discusses answers to the third sub-problem of the study which is about the significant difference between the perceptions of the kindergarten teachers and the school heads on the extent of digital competence of the kindergarten teachers.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant difference between the perceptions of the kindergarten teachers and their school heads on the extent of digital competence of the kindergarten teachers. Thereafter, the researcher compared the perceptions of the kindergarten teachers and their school heads on the extent of digital competence of the kindergarten teachers using the t-test. Here, the researcher computed the p value at .05 level of significance. Table 15 presents the results.

As shown in Table 15, when the perceptions of the kindergarten teachers and their school heads on the extent of digital competence of the kindergarten teachers are compared, the p value computed is 0.00. This figure is lower than the .05 level of significance. As such, the null hypothesis is rejected. There is a significant difference between the perceptions of the kindergarten teachers and their school heads on the extent of digital competence of the kindergarten teachers.

TABLE 15
Difference between the Perceptions of the Kindergarten Teachers and the School Heads

	Computed p Value	Level of Significance	RM
Extent of Digital Competence	0.00	.05	S

Legend:
RM = remarks
S = significant
NS = not significant

The Proposed In-Service Training Program on Digital Competence

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This section provides answers to the last sub-problem of the study which is about the in-service training program on digital competence.

To provide answers to the sub-problem, the findings previously presented that majority of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila have attended not more than three trainings/seminars related with digital competence for the past five years, that the school heads perceived that the digital competence of the kindergarten teachers is only to a moderate extent, and that the extent of digital competence of the kindergarten teachers is influenced by the number of relevant trainings they attended.

What follows is the proposed in-service training program on digital competence for the kindergarten teachers.

AN IN-SERVICE TRAINING PROGRAM ON DIGITAL COMPETENCE FOR KINDERGARTEN TEACHERS OF PUBLIC ELEMENTARY SCHOOLS IN THE SCHOOLS DIVISION OF THE CITY OF MANILA

Program Title: An In-Service Training Program on Digital Competence for the Kindergarten Teachers of Public Elementary Schools in the Schools Division of the City of Manila

Prerequisite Program: None

Duration: This program shall run for four sessions with one day for each session

Management Level of the Program: This program is a division-based program for the Schools Division of the City of Manila

Delivery Mode: Depending on the specific activity, but preferably interactive-collaborative activities (one with mentoring, coaching, professional learning session, peer discussion, workshop, and others) and will focus on enhancing the extent of digital competence of the kindergarten teachers.

Target Personnel: Kindergarten teachers of public elementary school in the Schools Division of the City of Manila

Budget Requirement: The cost of the program shall come from the local fund.

Rationale:

Advancements in technology and the rapid growth of information have transformed the nature of learning. As societies shape their future directions, they prioritize goals such as becoming information-oriented communities, engaging in scientific endeavors, and developing technology. Achieving these objectives requires the enhancement of various skills, particularly competence.

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Competence pertains to an individual's capacity to manage life effectively, including the ability to read and write sufficiently for communication within society and to perform basic mathematical operations. It encompasses the skills to identify, comprehend, interpret, create, communicate, and calculate using printed and written materials across different contexts. Moreover, it represents a continuous learning process that enables individuals to accomplish their goals, enhance their knowledge and potential, and actively participate in both the community and society as a whole.

At the same time, the emergence of a new generation and the swift advancement of technology have transformed society and redefined the concept of competence. Today's generation must develop digital skills to function effectively and productively in an increasingly dynamic and multifaceted digital environment. As a result, the concept of digital competence has emerged.

Digital competence involves the ability to access information through digital technologies, organize data, analyze and interpret information, evaluate and transfer knowledge, and read and compose digital texts during the information production process. It goes beyond merely operating software or digital devices, as it encompasses complex cognitive, psychomotor, and affective skills necessary for effective functioning in digital environments. Moreover, digital competence includes the capacity to understand and utilize the influence of visuals and sounds, adapt them into digital formats, transform them into new forms, and publish them digitally. In this regard, activities such as sharing photos, writing posts, and reading content on social networking platforms are considered examples of digital competence.

Moreover, digital competence is vital in promoting the confident and critical use of information and communication technology in areas such as work, leisure, learning, and communication. In this context, it encompasses the technological knowledge and skills required for individuals to live productively, pursue continuous personal growth through lifelong learning, and make meaningful contributions to society.

Indeed, digital competence refers to the ability to carry out effective digital activities in areas such as business, education, leisure, and other aspects of everyday life. It enhances the quality of an individual's life by involving the acquisition and application of information and technological skills, together with attitudes, personal attributes, planning abilities, and self-awareness as a digitally competent individual. It also includes the capacity to reflect on and further develop one's digital literacy. In simple terms, digital competence is the awareness, attitude, and capability of individuals to appropriately use digital tools and technologies in identifying, accessing, managing, integrating, evaluating, analyzing, and synthesizing digital resources, as well as in creating new information.

Undeniably, digital competence plays a significant role in today's society; thus, this in-service training program on digital competence was conceptualized.

Objectives: This program aims to improve and enhance the extent of digital competence of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila.

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Expected Final Outcomes/Success Indicator: At the end of the program, the extent of digital competence of the kindergarten teachers of public elementary schools in the Schools Division of the City of Manila will be enhanced/improved.

Program Content Focus/Matrix

Program Title	Training Content	Duration
Seminar-Workshop on Professional Engagement	This session will focus on: 1. Using various digital channels to communicate with parents and peers (such as emails, blogs, school's website, WhatsApp, etc.) 2. Using digital technologies to work with peers (teachers) at and out of school 3. Actively working on developing digital teaching skills 4. Participating in remote training opportunities (such as training courses, workshops, virtual conferences, and courses through open platforms such as MOOCs)	1 day
Seminar-Workshop on Digital Resources	This session will focus on: 1. Using different websites and search strategies to find and select different digital resources 2. Creating one's own digital resources and modify existing ones to suit one's needs 3. Effectively protecting personal data, such as exams, grades or personal data	1 day
Seminar-Workshop on Teaching and Learning	This session will focus on: 1. Carefully assessing how, when and why to use digital technologies in the classroom with students to ensure that they add value 2. Monitoring the activities and interactions of students in the online collaborative environments 3. Using digital technologies to acquire and reflect knowledge when they work in groups 4. Using digital technologies to enable students to plan, document and monitor their own learning process	1 day
Seminar-Workshop on Evaluation and Feedback	This session will focus on: 1. Using digital assessment tools to monitor student progress	1 day

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	2. Analyzing all available data to effectively identify students in need of additional support 3. Using digital technologies to provide feedback to students	

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LEVEL OF KNOWLEDGE ON GLOBAL CITIZENSHIP EDUCATION OF TEACHERS OF PUBLIC ELEMENTARY SCHOOLS MALASIQUI II DISTRICT

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Abstract

This study sought to determine the level of knowledge on global citizenship education of the teachers of public elementary schools in Malasiqui II District during the School Year 2025-2026through a quantitative-descriptive-correlational research design.

The data used in this study came from the 183 teachers and 26 school heads which were subjected to frequency count, percentage, weighted mean, t-test and the chi-square test of independence. Results showed that: majority of the primary grade teachers have no post-graduate degrees, have been teaching for more than 15 years already, and have attended not more than three trainings/seminars related with global citizenship education for the past five years; in general, the teachers perceived that they have advanced level of knowledge on global citizenship education as evidenced by the computed overall weighted mean of 3.98 while their school heads perceived that they only have competent level of knowledge as evidenced by the computed area weighted mean of 3.17; there is a significant difference between the perceptions of the teachers and the school heads on the level of knowledge on global citizenship education of the teachers; and, there is a significant relationship between the length of teaching experience and the number of relevant trainings attended of the teachers and the level of their knowledge on global citizenship education. Given the findings, the following conclusions were drawn: a typical teacher of public elementary schools in Malasiqui II District has no post-graduate degree, has been teaching for more than 15 years already, and has attended not more than three trainings related with global citizenship education for the past five years; the teachers of public elementary schools in Malasiqui II District perceived that they have advanced level of knowledge on global citizenship education but their school heads perceived that they only competent level of knowledge on global citizenship; the perceptions of the teachers and the school heads on the level of knowledge on global citizenship education of the teachers significantly different from each other; and, the level of knowledge on global citizenship education of the teachers is influenced their length of teaching experience and the number of relevant trainings they attended.

Introduction

The rapid shifts within the global economy demand educational systems that equip students with 21st-century skills, critical for thriving in an era characterized by creativity and technological advancement. As educational institutions prepare students for the modern workforce, they are increasingly tasked with fostering skills like critical thinking, problem-solving, and digital literacy (Martinez, 2022). Education systems worldwide are aligning with frameworks such as the Sustainable Development Goals (SDGs), highlighting the need for sustainable, quality education (Tilbury, 2016). In the Philippines, the Enhanced Basic Education Act of 2013 is a significant legislative step in this direction, aiming to develop a comprehensive, globally competitive education system that prepares

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learners for future career opportunities and lifelong learning (Republic Act No. 10533, 2013). Teachers play a vital role in this mission, as they are responsible for integrating these essential skills within classroom environments through innovative pedagogical strategies.

However, several challenges persist in equipping educators with the necessary resources and training to teach 21st-century skills effectively. Studies suggest that many teachers struggle with the selection and integration of technology and innovative practices that foster these skills in students (Chen, 2021). Moreover, the pace of technological change and evolving career demands create uncertainties around the long-term effectiveness of traditional teaching methods. In the Philippines, issues such as limited professional development opportunities, insufficient resources, and varying levels of preparedness among teachers further complicate the implementation of 21st-century teaching skills (Balisacan, 2013). Additionally, while there is an increasing emphasis on education for sustainability and digital competency, many schools lack the framework to evaluate and enhance these skills among their educators systematically.

In response to these challenges, this study seeks to assess the 21st-century teaching skills of intermediate teachers in public elementary schools within the Calasiao I District. The aim is to provide a detailed understanding of the current competencies of these educators in integrating critical skills such as technology use, critical thinking, and problem-solving within their teaching practices. Based on the findings, the study intends to develop a capacity-building program tailored to enhance the 21st-century teaching skills of these teachers, thereby ensuring that they can meet both current educational standards and future demands.

METHODOLOGY

Research Design

This study will employ the quantitative-descriptive method of research. It will describe the teachers of public elementary schools in Malasiqui II District in terms of highest educational attainment, length of teaching experience, and the number of relevant trainings attended as well as will determine the extent of their knowledge on global citizenship education as perceived by themselves and their school heads. The study is also correlational for it will determine if there is a significant difference between the perceptions of the teachers and the school heads on the extent of knowledge on global citizenship education of the teachers as well as will determine if there is a significant relationship between the profile variables of the teachers and the extent of their knowledge on global citizenship education. Moreover, the developmental method of research will also be employed for the study will come up with a proposed enhancement training program to enhance the extent of knowledge on global citizenship education of the teachers of public elementary schools in Malasiqui II District.

Sources of Data

Research Setting. This study was conducted in the different public elementary schools in Malasiqui II District during the School Year 2025-2026.

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Sampling. There will be two groups of respondents in this study, namely, the teachers and the school heads of the public elementary schools in Malasiqui II District. All the teachers and school heads of the public elementary schools in the district will be made as respondents. Accordingly, no sampling will be done.

Research Participants. As mentioned, all the teachers and school heads of public elementary schools in Malasiqui II District will be made as respondents of the study. The teachers will provide data relative to their highest educational attainment, length of teaching experience, number of relevant trainings they attended, and the extent of their knowledge on global citizenship education.

Meanwhile, the school heads will provide data on the extent of knowledge of the teachers on global citizenship education.

Research Instrument

Instrumentation. The data that will be utilized in this study will be gathered through two survey-questionnaires, one for the teachers and one for the school heads.

The survey-questionnaire for the teachers will have two parts. The first part will focus on the profile of the teachers of public elementary schools in Malasiqui II District in terms of the highest educational attainment, length of teaching experience, and the number of relevant trainings attended; and, the second part will focus on the extent of knowledge on global citizenship education of the teachers.

On the other hand, the survey-questionnaire for the school heads will simply focus on the extent of knowledge on global citizenship education of the teachers.

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Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the teachers is common in researchers. Hence, no validation is required.

Meanwhile, the items in the second part of the survey-questionnaire which is about the extent of knowledge on global citizenship education will be based from the survey-questionnaire of Arenas (2022) in her study entitled "Knowledge and Integration of Global Citizenship Education in 'Edukasyon sa Pagpapakatao' by the Public Elementary School Teachers in Bugallon II District".

Ethical Considerations. So as not to violate the data privacy of the teachers and the school heads, permission to conduct the study will first be secured from the Schools Division Superintendent of Pangasinan I. Thereafter, informed consent will be taken from the teachers and the school heads.

Moreover, the researcher will treat the data that will be gathered with utmost confidentially and will be used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works that will be used in this study will be cited, properly acknowledged, and documented.

Data Management and Analysis

To determine the profile of the teachers of the public elementary schools in Malasiqui II District, the data that will be gathered will be subjected to frequency count employing the formula:

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$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage
f = the observed frequency
N = total number of subject cases

To determine the extent of knowledge on global citizenship education of the of the teachers, the weighted mean will be used employing the formula:

$$WM = \frac{\sum wX}{\sum w}$$

where:

WM = weighted mean
$\sum$ = summation
W = weighing factor
X = frequency.

Moreover, the weighted means that will be computed will be interpreted using this scale of interpretation:

very limited extent	=	1.00 – 1.49
limited extent	=	1.50 – 2.49
moderate extent	=	2.50 – 3.49
great extent	=	3.50 – 4.49
very great extent	=	4.50 – 5.00

To determine the difference between the perceptions of the teachers and the school heads on the extent of knowledge on global citizenship education of the teachers, the t-test will be utilized.

Lastly, to determine the relationship between the profile variables of the teachers and the extent of their knowledge on global citizenship education, the chi square test of independence will be used.

RESULTS AND DISCUSSION

The Profile of the Intermediate Teachers

This section presents the profile of the intermediate teachers of public elementary schools in Calasiao I District to answer the first problem of the study.

On Gender

The intermediate teachers were asked to provide their gender. Table 1 presents the results.

TABLE 1
Distribution of the Intermediate Teachers in terms of Gender

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Gender	Frequency	Percentage
Male	29	25%
Female	87	75%
Total	116	100%

As revealed in Table 1, 29 or 25% of the intermediate teachers are males and 87 or 75% are females. It can be noted that majority of the intermediate teachers of public elementary schools in Calasiao I District are females.

On Civil Status

As regards civil status, the intermediate teachers were provided three choices, namely, "single," "married," and "separated/widow/er." Table 2 presents the results.

TABLE 2
Distribution of the Intermediate Teachers in terms of Civil Status

Civil Status	Frequency	Percentage
Single	23	20%
Married	88	76%
Separated/widow/er	5	4%
Total	116	100%

As shown in Table 2, 23 or 20% of the intermediate teachers are single, 88 or 76% are married, and five or 4% are separated/widow/er. As can be noted, majority of the intermediate teachers of public elementary schools in Calasiao I District are married.

On Highest Educational Attainment

With respect to highest educational attainment, the intermediate teachers were provided with five choices, scilicet, "bachelor's degree holder," "finished academic requirements for the master's degree," "master's degree holders," "finished academic requirements for the doctoral degree," and "doctoral degree holder." Table 3 presents the results.

TABLE 3
Distribution of the Intermediate Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's degree holder	44	38%
Finished academic requirements for the master's degree	39	34%
Master's degree holder	19	16%
Finished academic requirements for the doctoral degree	9	8%
Doctoral degree holder	5	4%

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Total	116	100%

As presented in Table 3, 44 or 38% of the intermediate teachers are bachelor's degree holders, 39 or 34% have finished the academic requirements for the master's degree, 19 or 16% are master's degree holders, nine or 8% have finished the academic requirements for the doctoral degree, and five or 4% are doctoral degree holders. Explicitly, majority of the intermediate teachers of public elementary schools in Calasiao I District have no post-graduate degrees.

On Length of Teaching Experience

With regard to length of teaching experience, the intermediate teachers were provided with four choices: "1 to 5 years," "6 to 10 years," "11 to 15 years," "more than 15 years." Table 4 manifests the results.

TABLE 4
Distribution of the Intermediate Teachers in terms of Length of Teaching Experience

Length of Experience	Frequency	Percentage
1 - 5 years	15	13%
6 - 10 years	31	27%
11 - 15 years	53	46%
more than 15 years	17	14%
Total	116	100%

As revealed in Table 4, 15 or 13% of the intermediate teachers have been teaching for one to five years, 31 or 27% have been teaching for six to 10 years, 53 or 46% have been teaching for 11 to 15 years, and 17 or 14% have been teaching for more than 15 years. It can be surmised that majority of the intermediate teachers have been teaching for more than 10 years**.**

On Number of Trainings/Seminars Related with 21st Century Teaching Skills

In relation to the number of trainings/seminars related with 21st century teaching skills attended for the past five years, the intermediate teachers were provided with three choices, to wit, "have not attended any trainings/seminars related with 21st century teaching skills for the past five years," "have attended not more than three trainings/seminars related with 21st century teaching skills for the past five years," and "have attended more than three trainings/seminars related with 21st century teaching skills for the past five years." Table 5 presents the results.

As gleaned in Table 5, 88 or 76% of the intermediate teachers have attended not more than three trainings/seminars related with 21st century teaching skills for the past five years and 23 or 24% have attended more than three trainings/seminars. As can be noted, majority of the intermediate teachers of public elementary schools in Calasiao I District have attended not more than three trainings/seminars related with 21st century teaching skills for the past five years.

TABLE 5
Distribution of the Intermediate Teachers in terms of Number of Related Trainings Attended

Number of Trainings/Seminars Attended	Frequency	Percentage
Have not attended any training/seminar related with 21st	0	0%

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century teaching skills for the past five years		
Have attended not more than three trainings/seminars related with 21st century teaching skills for the past five years	88	76%
Have attended more than three trainings/seminars related with 21st century teaching skills for the past five years	28	24%
Total	116	100%

The Extent to which the Intermediate Teachers of Public Elementary Schools in Calasiao I District Master 21st Century Teaching Skills

This section presents answers to the second sub-problem of the study which is about the extent to which the intermediate teachers of public elementary schools in Calasiao I District master 21st century teaching skills.

To provide answers to the sub-problem, the intermediate teachers were asked to rate the extent to which they master 21st century teaching skills. Likewise, the school heads were asked to rate the extent to which their intermediate teachers master 21`st century teaching skills.

On Critical Thinking Skills

The intermediate teachers and their school heads assessed the extent to which the intermediate teachers master 21st century teaching skills along critical thinking skills.

Assessment of the Intermediate Teachers. The assessment of the intermediate teachers on the extent to which they master 21st century teaching skills along critical thinking skills is presented in Table 6.

As shown in Table 6, when questioned as to the extent to which they ask their pupils to compare information from different sources before completing a task or assignment, 23 of the intermediate teachers claimed “moderate extent,” 79 claimed “great extent,” and 14 claimed “very great extent.” The weighted mean computed here is 3.92 which is pointing to “great extent” in the scale.

When asked as to the extent to which they ask their pupils to draw their own conclusions based on analysis of numbers, facts, or relevant information, 26 of the intermediate teachers replied “moderate extent,” 76 replied “great extent,” and 14 replied “very great extent.” The weighted mean computed in this item is 3.90 which is leading to “great extent” in the scale.

When inquired as to the extent to which they ask their pupils to summarize or create their own interpretation of what they have read or been taught, 19 of the intermediate teachers responded “moderate extent,” 83 responded “great extent,” and 14 responded “very great extent.” Here, the weighted mean computed is 3.96 which is indicative of “great extent” in the scale.

When queried as to the extent to which they ask their pupils to analyze competing arguments, perspectives or solutions to a problem, 23 of the intermediate teachers responded “moderate extent,” 78 responded “great extent,” and 15 responded “very great extent.” The weighted mean computed in this item is 3.93 which is pointing to “great extent” in the scale of interpretation.

When questioned as to the extent to which they ask their pupils to develop a persuasive argument based on supporting evidence or reasoning, 20 of the intermediate teachers checked

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"moderate extent," 82 checked "great extent," and 14 checked "very great extent." Here, the weighted mean computed is 3.95 which is "great extent" in the scale.

When asked as to the extent to which they ask their pupils to try to solve complex problems or answer questions that have no single correct solution or answer, 17 of the intermediate teachers mentioned "moderate extent," 86 mentioned "great extent," and 13 mentioned "very great extent." In this item, the weighted mean computed is 3.97 which is pointing to "great extent" in the scale.

When questioned as to the extent to which they have tried to develop pupils' critical thinking skills, 23 of the intermediate teachers claimed "moderate extent," 77 claimed "great extent," and 16 claimed "very great extent." The weighted mean computed here is 3.94 which is pointing to "great extent" in the scale.

When asked as to the extent to which most of their pupils have learned critical thinking skills while in their class, 20 of the intermediate teachers replied "moderate extent," 82 replied "great extent," and 14 replied "very great extent." The weighted mean computed in this item is 3.95 which is leading to "great extent" in the scale.

TABLE 6
The Assessment of the Intermediate Teachers on the Extent to which They Master 21st Century Teaching Skills along Critical Thinking Skills

Assessment Items	Responses					WM	DE
A. Critical Thinking Skills	VL	LE	ME	GE	VG		
1. I ask my pupils to compare information from different sources before completing a task or assignment.	0	0	23	79	14	3.92	GE
2. I ask my pupils to draw their own conclusions based on analysis of numbers, facts, or relevant information.	0	0	26	76	14	3.90	GE
3. I ask my pupils to summarize or create their own interpretation of what they have read or been taught.	0	0	19	83	14	3.96	GE
4. I ask my pupils to analyze competing arguments, perspectives or solutions to a problem.	0	0	23	78	15	3.93	GE
5. I ask my pupils to develop a persuasive argument based on supporting evidence or reasoning.	0	0	20	82	14	3.95	GE
6. I ask my pupils to try to solve complex problems or answer questions that have no single correct solution or answer.	0	0	17	86	13	3.97	GE
7. I have tried to develop pupils' critical thinking skills.	0	0	23	77	16	3.94	GE
8. Most pupils have learned critical thinking skills while in my class.	0	0	20	82	14	3.95	GE
9. I have been able to effectively assess pupils' critical thinking skills.	0	0	19	81	16	3.97	GE
					AWM	3.94	GE

Legend:
WM = weighted mean
DE = descriptive equivalent

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AWM = area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

Lastly, when inquired as to the extent to which they have been able to effectively assess pupils' critical thinking skills, 19 of the intermediate teachers responded "moderate extent," 81 replied "great extent," and 16 replied "very great extent." Here, the weighted mean computed is 3.97 which is indicative of "great extent" in the scale.

Meanwhile, the computed area weighted mean is 3.94. This implies that the intermediate teachers perceived that they master 21st century teaching skills along critical thinking skills to a great extent.

Assessment of the School Heads. The assessment of the school heads on the extent to which the intermediate teachers master 21st century skills along critical thinking skills is presented in Table 7.

As shown in Table 7, when questioned as to the extent to which the intermediate teachers ask their pupils to compare information from different sources before completing a task or assignment, two of the school heads claimed "limited extent," 10 claimed "moderate extent," and one claimed "great extent." The weighted mean computed here is 2.92 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers ask their pupils to draw their own conclusions based on analysis of numbers, facts, or relevant information, three of the school heads replied "limited extent" and 10 replied "moderate extent." The weighted mean computed in this item is 2.77 which is leading to "moderate extent" in the scale.

TABLE 7
The Assessment of the School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills along Critical Thinking Skills

Assessment Items	Responses					WM	DE
A. Critical Thinking Skills: My intermediate teachers/Teachers'…	VL	LE	ME	GE	VG		
1. Ask their pupils to compare information from different sources before completing a task or assignment.	0	2	10	1	0	2.92	ME
2. Ask their pupils to draw their own conclusions based on analysis of numbers, facts, or relevant information.	0	3	10	0	0	2.77	ME
3. Ask their pupils to summarize or create their own interpretation of what they have read or been taught.	0	3	9	1	0	2.85	ME

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4. Ask their pupils to analyze competing arguments, perspectives or solutions to a problem.	0	2	9	2	0	3.00	ME
5. Ask their pupils to develop a persuasive argument based on supporting evidence or reasoning.	0	4	8	1	0	2.77	ME
6. Ask their pupils to try to solve complex problems or answer questions that have no single correct solution or answer.	0	1	10	2	0	3.08	ME
7. Have tried to develop pupils' critical thinking skills.	0	2	8	3	0	3.08	ME
8. Pupils have learned critical thinking skills while in their class.	0	2	9	2	0	3.00	ME
9. Have been able to effectively assess pupils' critical thinking skills.	0	1	10	2	0	3.08	ME
					AWM	2.95	ME

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When inquired as to the extent to which the intermediate teachers ask their pupils to summarize or create their own interpretation of what they have read or been taught, three of the school heads responded "limited extent," nine responded "moderate extent," and one responded "great extent." Here, the weighted mean computed is 2.85 which is indicative of "moderate extent" in the scale.

When queried as to the extent to which the intermediate teachers ask their pupils to analyze competing arguments, perspectives or solutions to a problem, two of the school heads responded "limited extent," nine responded "moderate extent," and two responded "great extent." The weighted mean computed in this item is 3.00 which is pointing to "moderate extent" in the scale of interpretation.

When questioned as to the extent to which the intermediate teachers ask their pupils to develop a persuasive argument based on supporting evidence or reasoning, four of the school heads checked "limited extent," eight checked "moderate extent," and one checked "great extent." Here, the weighted mean computed is 3.77 which is "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers ask their pupils to try to solve complex problems or answer questions that have no single correct solution or answer, one of the school heads mentioned "limited extent," 10 mentioned "moderate extent," and two mentioned "great extent." In this item, the weighted mean computed is 3.08 which is pointing to "moderate extent" in the scale.

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When questioned as to the extent to which the intermediate teachers have tried to develop pupils' critical thinking skills, two of the school heads claimed "limited extent," eight claimed "moderate extent," and three claimed "great extent." The weighted mean computed here is 3.08 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers' pupils have learned critical thinking skills while in their class, two of the school heads replied "limited extent," nine replied "moderate extent," and two replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

Lastly, when inquired as to the extent to which the intermediate teachers have been able to effectively assess pupils' critical thinking skills, one of the school heads responded "limited extent," 10 responded "moderate extent," and two replied "great extent." Here, the weighted mean computed is 3.08 which is indicative of "moderate extent" in the scale.

Meanwhile, the computed area weighted mean is 3.08. This implies that the school heads perceived that the intermediate teachers master 21st century teaching skills along critical thinking skills to a moderate extent only.

On Collaboration Skills

The intermediate teachers and their school heads assessed the extent to which the intermediate teachers master 21st century teaching skills along collaboration skills.

Assessment of the Intermediate Teachers. The assessment of the intermediate teachers on the extent to which they master 21st century teaching skills along collaboration skills is presented in Table 8.

As shown in Table 8, when questioned as to the extent to which they ask their pupils to work in pairs or small groups to complete a task together, 23 of the intermediate teachers claimed "moderate extent," 76 claimed "great extent," and 17 claimed "very great extent." The weighted mean computed here is 3.95 which is pointing to "great extent" in the scale.

When asked as to the extent to which they ask their pupils to work with other students to set goals and create a plan for their team, 23 of the intermediate teachers replied "moderate extent," 76 replied "great extent," and 17 replied "very great extent." The weighted mean computed in this item is 3.95 which is leading to "great extent" in the scale.

When inquired as to the extent to which they ask their pupils to create joint products using contributions from each pupil, 20 of the intermediate teachers responded "moderate extent," 82 responded "great extent," and 14 responded "very great extent." Here, the weighted mean computed is 3.95 which is indicative of "great extent" in the scale.

When queried as to the extent to which they ask their pupils to present their group work to the class, teacher or others, 20 of the intermediate teachers responded "moderate extent," 82 responded "great extent," and 14 responded"very great extent." The weighted mean computed in this item is 3.95 which is pointing to "great extent" in the scale of interpretation.

When questioned as to the extent to which they ask their pupils to work as a team to incorporate feedback on group tasks or products, 25 of the intermediate teachers checked

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"moderate extent," 75 checked "great extent," and 16 checked "very great extent." Here, the weighted mean computed is 3.92 which is "great extent" in the scale.

When asked as to the extent to which they ask their pupils to give feedback to peers or assess another pupils' work, 22 of the intermediate teachers mentioned "moderate extent," 76 mentioned "great extent," and 18 mentioned "very great extent." In this item, the weighted mean computed is 3.97 which is pointing to "great extent" in the scale.

When questioned as to the extent to which they have tried to develop pupils' collaboration skills, 17 of the intermediate teachers claimed "moderate extent," 86 claimed "great extent," and 13 claimed "very great extent." The weighted mean computed here is 3.97 which is pointing to "great extent" in the scale.

When asked as to the extent to which most of their pupils have learned collaboration skills while in their class, 22 of the intermediate teachers replied "moderate extent," 75 replied "great extent," and 19 replied "very great extent." The weighted mean computed in this item is 3.97 which is leading to "great extent" in the scale.

And, when inquired as to the extent to which they have been able to effectively assess pupils' collaboration skills, 26 of the intermediate teachers responded "moderate extent," 76 replied "great extent," and 14 replied "very great extent." Here, the weighted mean computed is 3.90 which is indicative of "great extent" in the scale.

Meanwhile, the computed area weighted mean is 3.95. This implies that the intermediate teachers perceived that they master 21st century teaching skills along collaboration skills to a great extent.

TABLE 8
The Assessment of the Intermediate Teachers on the Extent to which They Master 21st Century Teaching Skills along Collaboration Skills

Assessment Items	Responses					WM	DE
B. Collaboration Skills	VL	LE	ME	GE	VG		
1. I ask my pupils to work in pairs or small groups to complete a task together.	0	0	23	76	17	3.95	GE
2. I ask my pupils to work with other students to set goals and create a plan for their team.	0	0	23	76	17	3.95	GE
3. I ask my pupils to create joint products using contributions from each pupil.	0	0	20	82	14	3.95	GE
4. I ask my pupils to present their group work to the class, teacher or others.	0	0	20	82	14	3.95	GE
5. I ask my pupils to work as a team to incorporate feedback on group tasks or products.	0	0	25	75	16	3.92	GE
6. I ask my pupils to give feedback to peers or assess another pupils' work.	0	0	22	76	18	3.97	GE
7. I have tried to develop pupils' collaboration skills.	0	0	17	86	13	3.97	GE
8. Most pupils have learned collaboration skills	0	0	22	75	19	3.97	

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while in my class.							GE
9. I have been able to effectively assess pupils' collaboration skills	0	0	26	76	14	3.90	GE
					AWM	3.95	GE

Assessment of the School Heads. The assessment of the school heads on the extent to which the intermediate teachers master 21st century skills along collaboration skills is presented in Table 9.

As shown in Table 9, when questioned as to the extent to which the intermediate teachers ask their pupils to work in pairs or small groups to complete a task together, three of the school heads claimed "limited extent," nine claimed "moderate extent," and one claimed "great extent." The weighted mean computed here is 2.85 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers ask their pupils to work with other students to set goals and create a plan for their team, three of the school heads replied "limited extent," eight replied "moderate extent," and two replied "great extent." The weighted mean computed in this item is 2.92 which is leading to "moderate extent" in the scale.

TABLE 9
The Assessment of the School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills along Collaboration Skills

Assessment Items	Responses					WM	DE
B. Collaboration Skills: My intermediate teachers/teachers'…	VL	LE	ME	GE	VG		
1. Ask their pupils to work in pairs or small groups to complete a task together.	0	3	9	1	0	2.85	ME
2. Ask their pupils to work with other students to set goals and create a plan for their team.	0	3	8	2	0	2.92	ME
3. Ask their pupils to create joint products using contributions from each pupil.	0	2	9	2	0	3.00	ME
4. Ask their pupils to present their group work to the class, teacher or others.	0	2	10	1	0	2.92	ME
5. Ask their pupils to work as a team to incorporate feedback on group tasks or products.	0	1	10	2	0	3.08	ME
6. Ask their pupils to give feedback to peers or assess another pupils' work.	0	3	8	2	0	2.92	ME
7. Have tried to develop pupils' collaboration skills.	0	3	9	1	0	2.85	ME
8. Pupils have learned collaboration skills while in their class.	0	2	8	3	0	3.08	ME
9. Have been able to effectively assess pupils' collaboration skills.	0	3	8	2	0	2.92	ME
					AWM	2.95	ME

Legend:

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WM	=	weighted mean		
DE	=	descriptive equivalent		
AWM	=	area weighted mean		

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When inquired as to the extent to which the intermediate teachers ask their pupils to create joint products using contributions from each pupil, two of the school heads responded “limited extent,” nine responded “moderate extent,” and two responded “great extent.” Here, the weighted mean computed is 3.00 which is indicative of “moderate extent” in the scale.

When queried as to the extent to which the intermediate teachers ask their pupils to present their group work to the class, teacher or others, two of the school heads responded “limited extent,” 10 responded “moderate extent,” and one responded “great extent.” The weighted mean computed in this item is 2.92 which is pointing to “moderate extent” in the scale of interpretation.

When questioned as to the extent to which the intermediate teachers ask their pupils to work as a team to incorporate feedback on group tasks or products, one of the school heads checked “limited extent,” 10 checked “moderate extent,” and two checked “great extent.” Here, the weighted mean computed is 3.08 which is “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers ask their pupils to give feedback to peers or assess another pupils’ work, three of the school heads mentioned “limited extent,” eight mentioned “moderate extent,” and two mentioned “great extent.” In this item, the weighted mean computed is 2.92 which is pointing to “moderate extent” in the scale.

When questioned as to the extent to which the intermediate teachers have tried to develop pupils’ collaboration skills, three of the school heads claimed “limited extent,” nine claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 2.85 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which most of the pupils of the intermediate teachers have learned collaboration skills while in their class, two of the school heads replied “limited extent,” eight replied “moderate extent,” and three replied “great extent.” The weighted mean computed in this item is 3.08 which is leading to “moderate extent” in the scale.

And, when inquired as to the extent to which the intermediate teachers have been able to effectively assess pupils’ collaboration skills, three of the school heads replied “limited extent,” eight responded “moderate extent,” and two replied “great extent.” Here, the weighted mean computed is 2.92 which is indicative of “moderate extent” in the scale.

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Meanwhile, the computed area weighted mean is 2.95. This implies that the school heads perceived that the intermediate teachers master 21st century teaching skills along collaboration skills to a moderate extent.

On Communication Skills

The intermediate teachers and their school heads assessed the extent to which the intermediate teachers master 21st century teaching skills along communication skills.

Assessment of the Intermediate Teachers. The assessment of the intermediate teachers on the extent to which they master 21st century teaching skills along communication skills is presented in Table 10.

As shown in Table 10, when questioned as to the extent to which they make their pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs), 23 of the intermediate teachers claimed "moderate extent," 76 claimed "great extent," and 17 claimed "very great extent." The weighted mean computed here is 3.95 which is pointing to "great extent" in the scale.

When asked as to the extent to which they make their pupils convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.), 26 of the intermediate teachers replied "moderate extent," 76 replied "great extent," and 14 replied "very great extent." The weighted mean computed in this item is 3.90 which is leading to "great extent" in the scale.

When inquired as to the extent to which they make their pupils prepare and deliver an oral presentation to the teacher or others, 19 of the intermediate teachers responded "moderate extent," 83 responded "great extent," and 14 responded "very great extent." Here, the weighted mean computed is 3.96 which is indicative of "great extent" in the scale.

When queried as to the extent to which they make their pupils answer questions in front of an audience, 23 of the intermediate teachers responded "moderate extent," 76 responded "great extent," and 17 responded "very great extent." The weighted mean computed in this item is 3.95 which is pointing to "great extent" in the scale of interpretation.

When questioned as to the extent to which they make their pupils decide how they will present their work or demonstrate their learning, 23 of the intermediate teachers checked "moderate extent," 76 checked "great extent," and 17 checked "very great extent." Here, the weighted mean computed is 3.95 which is "great extent" in the scale.

When asked as to the extent to which they make their pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs), 17 of the intermediate teachers mentioned "moderate extent," 86 mentioned "great extent," and 13 mentioned "very great extent." In this item, the weighted mean computed is 3.97 which is pointing to "great extent" in the scale.

When questioned as to the extent to which they have tried to develop pupils' communication skills, 22 of the intermediate teachers claimed "moderate extent," 75 claimed

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"great extent," and 19 claimed "very great extent." The weighted mean computed here is 3.97 which is pointing to "great extent" in the scale.

When asked as to the extent to which most of their pupils have learned communication skills while in their class, 23 of the intermediate teachers replied "moderate extent," 77 replied "great extent," and 16 replied "very great extent." The weighted mean computed in this item is 3.94 which is leading to "great extent" in the scale.

Finally, when inquired as to the extent to which they have been able to effectively assess pupils' communication skills, 20 of the intermediate teachers responded "moderate extent," 82 replied "great extent," and 14 replied "very great extent." Here, the weighted mean computed is 3.95 which is indicative of "great extent" in the scale.

Moreover, the computed area weighted mean is 3.95. This implies that the intermediate teachers perceived that they master 21st century teaching skills along communication skills to a great extent.

TABLE 10
The Assessment of the Intermediate Teachers on the Extent to which They Master 21st Century Teaching Skills along Communication Skills

Assessment Items	Responses					WM	DE
C. Communication Skills	VL	LE	ME	GE	VG		
1. I make my pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs).	0	0	23	76	17	3.95	GE
2. I make my pupils convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.).	0	0	26	76	14	3.90	GE
3. I make my pupils prepare and deliver an oral presentation to the teacher or others.	0	0	19	83	14	3.96	GE
4. I make my pupils answer questions in front of an audience.	0	0	23	76	17	3.95	GE
5. I make my pupils decide how they will present their work or demonstrate their learning.	0	0	23	76	17	3.95	GE
6. I make my pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs).	0	0	17	86	13	3.97	GE
7. I have tried to develop pupils' communication skills.	0	0	22	75	19	3.97	GE
8. Most pupils have learned communication skills while in my class.	0	0	23	77	16	3.94	GE
9. I have been able to effectively assess pupils' communication skills.	0	0	20	82	14	3.95	GE
					AWM	3.95	GE

Legend:
WM = weighted mean
DE = descriptive equivalent

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AWM = area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

Assessment of the School Heads. The assessment of the school heads on the extent to which the intermediate teachers master 21st century skills along communication skills is presented in Table 11.

As revealed in Table 11, when questioned as to the extent to which the intermediate teachers make their pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs), two of the school heads claimed "limited extent," nine claimed "moderate extent," two claimed "great extent." The weighted mean computed here is 3.00 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers make their pupils convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.), three of the school heads replied "limited extent," eight replied "moderate extent," and two replied "great extent." The weighted mean computed in this item is 2.92 which is leading to "moderate extent" in the scale.

TABLE 11
The Assessment of the School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills along Communication Skills

Assessment Items	Responses					WM	DE
C. Communication Skills: My intermediate teachers/teachers'…	VL	LE	ME	GE	VG		
1. Make their pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs).	0	2	9	2	0	3.00	ME
2. Make their pupils convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.).	0	3	8	2	0	2.92	ME
3. Make their pupils prepare and deliver an oral presentation to the teacher or others.	0	2	10	1	0	2.92	ME
4. Make their pupils answer questions in front of an audience.	0	1	9	3	0	3.15	ME
5. Make their pupils decide how they will present their work or demonstrate their learning.	0	2	9	2	0	3.00	ME
6. Make their pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs).	0	2	8	3	0	3.08	ME
7. Have tried to develop pupils' communication skills.	0	1	9	3	0	3.15	ME

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8. Pupils have learned communication skills while in their class.	0	1	10	2	0	3.08	ME
9. Have been able to effectively assess pupils' communication skills.	0	2	9	2	0	3.00	ME
					AWM	3.03	ME

Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
AWM	=	area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When inquired as to the extent to which the intermediate teachers make their pupils prepare and deliver an oral presentation to the teacher or others, two of the school heads responded "limited extent," 10 responded "moderate extent," and one responded "great extent." Here, the weighted mean computed is 2.92 which is indicative of "moderate extent" in the scale.

When queried as to the extent to which the intermediate teachers make their pupils answer questions in front of an audience, one of the school heads responded "limited extent," nine responded "moderate extent," and three responded "great extent." The weighted mean computed in this item is 3.95 which is pointing to "moderate extent" in the scale of interpretation.

When questioned as to the extent to which the intermediate teachers make their pupils decide how they will present their work or demonstrate their learning, two of the school heads checked "limited extent," nine checked "moderate extent," and two checked "great extent." Here, the weighted mean computed is 3.00 which is "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers make their pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs), two of the school heads mentioned "limited extent," eight mentioned "moderate extent," and three mentioned "great extent." In this item, the weighted mean computed is 3.08 which is pointing to "moderate extent" in the scale.

When questioned as to the extent to which the intermediate teachers have tried to develop pupils' communication skills, one of the school heads claimed "limited extent," nine claimed "moderate extent," and three claimed "great extent." The weighted mean computed here is 3.15 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which most of the pupils of the intermediate teachers have learned communication skills while in their class, one of the school heads relied "limited extent," 10 replied "moderate extent," and two replied "great extent." The weighted mean computed in this item is 3.08 which is leading to "moderate extent" in the scale.

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And, when inquired as to the extent to which the intermediate teachers have been able to effectively assess pupils' communication skills, two of the school heads replied "limited extent," nine responded "moderate extent," and two replied "great extent." Here, the weighted mean computed is 3.00 which is indicative of "moderate extent" in the scale.

Moreover, the computed area weighted mean is 3.03. This implies that the school heads perceived that the intermediate teachers master 21st century teaching skills along communication skills to a moderate extent.

On Creativity and Innovation Skills

The intermediate teachers and their school heads assessed the extent to which the intermediate teachers master 21st century teaching skills along creativity and innovation skills.

Assessment of the Intermediate Teachers. The assessment of the intermediate teachers on the extent to which they master 21st century teaching skills along creativity and innovation skills is presented in Table 12.

As shown in Table 12, when questioned as to the extent to which they make their pupils use idea creation techniques such as brainstorming or concept mapping, 23 of the intermediate teachers claimed "moderate extent," 78 claimed "great extent," and 15 claimed "very great extent." The weighted mean computed here is 3.93 which is pointing to "great extent" in the scale.

When asked as to the extent to which they make their pupils generate their own ideas about how to confront a problem or question, 20 of the intermediate teachers replied "moderate extent," 82 replied "great extent," and 14 replied "very great extent." The weighted mean computed in this item is 3.95 which is leading to "great extent" in the scale.

When inquired as to the extent to which they make their pupils test out different ideas and work to improve them, 20 of the intermediate teachers responded "moderate extent," 82 responded "great extent," and 14 responded "very great extent." Here, the weighted mean computed is 3.95 which is indicative of "great extent" in the scale.

When queried as to the extent to which they make their pupils invent a solution to a complex, open-ended question or problem, 25 of the intermediate teachers responded "moderate extent," 75 responded "great extent," and 16 responded "very great extent." The weighted mean computed in this item is 3.92 which is pointing to "great extent" in the scale of interpretation.

When questioned as to the extent to which they make their pupils create an original product or performance to express their ideas, 22 of the intermediate teachers checked "moderate extent," 75 checked "great extent," and 19 checked "very great extent." Here, the weighted mean computed is 3.97 which is "great extent" in the scale.

When asked as to the extent to which they have tried to develop pupils' creativity and innovation skills, 26 of the intermediate teachers mentioned "moderate extent," 76 mentioned

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"great extent," and 14 mentioned "very great extent." In this item, the weighted mean computed is 3.90 which is pointing to "great extent" in the scale.

When questioned as to the extent to which most of their pupils have learned creativity and innovation skills while in their class, 23 of the intermediate teachers claimed "moderate extent," 77 claimed "great extent," and 16 claimed "very great extent." The weighted mean computed here is 3.94 which is pointing to "great extent" in the scale.

And, when asked as to the extent to which they have been able to effectively assess pupils' creativity and innovation skills, 20 of the intermediate teachers replied "moderate extent," 82 replied "great extent," and 14 replied "very great extent." The weighted mean computed in this item is 3.95 which is leading to "great extent" in the scale.

Moreover, the computed area weighted mean is 3.94. This implies that the intermediate teachers perceived that they master 21st century teaching skills along creativity and innovation skills to a great extent.

TABLE 12
The Assessment of the Intermediate Teachers on the Extent to which They Master 21st Century Teaching Skills along Creativity and Innovation Skills

Assessment Items	Responses					WM	DE
D. Creativity and Innovation Skills	VL	LE	ME	GE	VG		
1. I make my pupils use idea creation techniques such as brainstorming or concept mapping.	0	0	23	78	15	3.93	GE
2. I make my pupils generate their own ideas about how to confront a problem or question.	0	0	20	82	14	3.95	GE
3. I make my pupils test out different ideas and work to improve them.	0	0	20	82	14	3.95	GE
4. I make my pupils invent a solution to a complex, open-ended question or problem.	0	0	25	75	16	3.92	GE
5. I make my pupils create an original product or performance to express their ideas.	0	0	22	75	19	3.97	GE
6. I have tried to develop pupils' creativity and innovation skills.	0	0	26	76	14	3.90	GE
7. Most pupils have learned creativity and innovation skills while in my class.	0	0	23	77	16	3.94	GE
8. I have been able to effectively assess pupils' creativity and innovation skills.	0	0	20	82	14	3.95	GE
					AWM	3.94	GE

Assessment of the School Heads. The assessment of the school heads on the extent to which the intermediate teachers master 21st century skills along creativity and innovation skills is presented in Table 13.

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As shown in Table 13, when questioned as to the extent to which the intermediate teachers make their pupils use idea creation techniques such as brainstorming or concept mapping, three of the school heads claimed "limited extent," eight claimed "moderate extent," and two claimed "great extent." The weighted mean computed here is 2.92 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers make their pupils generate their own ideas about how to confront a problem or question, two of the school heads replied "limited extent," eight replied "moderate extent," and three replied "great extent." The weighted mean computed in this item is 3.08 which is leading to "moderate extent" in the scale.

TABLE 13
The Assessment of the School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills along Creativity and Innovation Skills

Assessment Items	Responses					WM	DE
D. Creativity and Innovation Skills: My intermediate teachers/teachers'…	VL	LE	ME	GE	VG		
1. Make their pupils use idea creation techniques such as brainstorming or concept mapping.	0	3	8	2	0	2.92	ME
2. Make their pupils generate their own ideas about how to confront a problem or question.	0	2	8	3	0	3.08	ME
3. Make their pupils test out different ideas and work to improve them.	0	2	10	1	0	2.92	ME
4. Make their pupils invent a solution to a complex, open-ended question or problem.	0	2	9	2	0	3.00	ME
5. Make their pupils create an original product or performance to express their ideas.	0	3	9	1	0	2.85	ME
6. Have tried to develop pupils' creativity and innovation skills.	0	3	10	0	0	2.77	ME
7. Pupils have learned creativity and innovation skills while in their class.	0	1	10	2	0	3.08	ME
8. Have been able to effectively assess pupils' creativity and innovation skills.	0	2	9	2	0	3.00	ME
					AWM	2.95	ME

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

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When inquired as to the extent to which the intermediate teachers make their pupils test out different ideas and work to improve them, two of the school heads responded "limited extent," 10 responded "moderate extent," and one responded "great extent." Here, the weighted mean computed is 2.92 which is indicative of "moderate extent" in the scale.

When queried as to the extent to which the intermediate teachers make their pupils invent a solution to a complex, open-ended question or problem, two of the school heads responded "limited extent," nine responded "moderate extent," and two responded "great extent." The weighted mean computed in this item is 3.00 which is pointing to "moderate extent" in the scale of interpretation.

When questioned as to the extent to which the intermediate teachers make their pupils create an original product or performance to express their ideas, three of the school heads checked "limited extent," nine checked "moderate extent," and one checked "great extent." Here, the weighted mean computed is 2.85 which is "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers have tried to develop pupils' creativity and innovation skills, three of the school heads mentioned "limited extent," and 10 mentioned "moderate extent." In this item, the weighted mean computed is 2.77 which is pointing to "moderate extent" in the scale.

When questioned as to the extent to which most of the pupils of the intermediate teachers have learned creativity and innovation skills while in their class, one of the school heads claimed "limited extent," 10 claimed "moderate extent," and two claimed "great extent." The weighted mean computed here is 3.08 which is pointing to "moderate extent" in the scale.

And, when asked as to the extent to which the intermediate teachers have been able to effectively assess pupils' creativity and innovation skills, two of the school heads replied "limited extent," nine replied "moderate extent," and two replied "great extent." The weighted mean computed in this item is 3.00 which is leading to "moderate extent" in the scale.

Moreover, the computed area weighted mean is 3.00. This implies that the school heads perceived that the intermediate teachers master 21st century teaching skills along creativity and innovation skills to a moderate extent.

On Self-Direction Skills

The intermediate teachers and their school heads assessed the extent to which the intermediate teachers master 21st century teaching skills along self-direction skills.

Assessment of the Intermediate Teachers. The assessment of the intermediate teachers on the extent to which they master 21st century teaching skills along self-direction skills is presented in Table 14.

As shown in Table 14, when questioned as to the extent to which they make their pupils take initiative when confronted with a difficult problem or question, 26 of the intermediate teachers claimed "moderate extent," 76 claimed "great extent," and 14 claimed "very great extent." The weighted mean computed here is 3.90 which is pointing to "great extent" in the scale.

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TABLE 14
The Assessment of the Intermediate Teachers on the Extent to which They Master 21st Century Teaching Skills along Self-Direction Skills

Assessment Items	Responses					WM	DE
E. Self-Direction Skills	VL	LE	ME	GE	VG		
1. I make my pupils take initiative when confronted with a difficult problem or question.	0	0	26	76	14	3.90	GE
2. I make my pupils choose their own topics of learning or questions to pursue.	0	0	19	83	14	3.96	GE
3. I make my pupils plan the steps they will take to accomplish a complex task.	0	0	23	76	17	3.95	GE
4. I make my pupils choose for themselves what examples to study or resources to use.	0	0	17	86	13	3.97	GE
5. I make my pupils monitor their own progress towards completion of a complex task and modify their work accordingly.	0	0	17	86	13	3.97	GE
6. I make my pupils use specific criteria to assess the quality of their work before it is completed.	0	0	23	77	16	3.94	GE
7. I make my pupils use peer, teacher or expert feedback to revise their work.	0	0	17	86	13	3.97	GE
8. I have tried to develop pupils' self-direction skills.	0	0	22	75	19	3.97	GE
9. Most pupils have learned self-direction skills while in my class.	0	0	23	78	15	3.93	GE
10. I have been able to effectively assess pupils' self-direction skills.	0	0	20	82	14	3.95	GE
					AWM	3.95	GE

Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
AWM	=	area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When asked as to the extent to which they make their pupils choose their own topics of learning or questions to pursue, 19 of the intermediate teachers replied "moderate extent," 83 replied "great extent," and 14 replied "very great extent." The weighted mean computed in this item is 3.96 which is leading to "great extent" in the scale.

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When inquired as to the extent to which they make their pupils plan the steps they will take to accomplish a complex task, 23 of the intermediate teachers responded “moderate extent,” 76 responded “great extent,” and 17 responded “very great extent.” Here, the weighted mean computed is 3.95 which is indicative of “great extent” in the scale.

When questioned as to the extent to which they make their pupils choose for themselves what examples to study or resources to use, 17 of the intermediate teachers checked “moderate extent,” 86 checked “great extent,” and 13 checked “very great extent.” Here, the weighted mean computed is 3.97 which is “great extent” in the scale.

When asked as to the extent to which they make their pupils monitor their own progress towards completion of a complex task and modify their work accordingly, 17 of the intermediate teachers mentioned “moderate extent,” 86 mentioned “great extent,” and 13 mentioned “very great extent.” In this item, the weighted mean computed is 3.97 which is pointing to “great extent” in the scale.

When questioned as to the extent to which they make their pupils use specific criteria to assess the quality of their work before it is completed, 23 of the intermediate teachers claimed “moderate extent,” 77 claimed “great extent,” and 16 claimed “very great extent.” The weighted mean computed here is 3.94 which is pointing to “great extent” in the scale.

When asked as to the extent to which they make their pupils use peer, teacher or expert feedback to revise their work, 17 of the intermediate teachers mentioned “moderate extent,” 86 mentioned “great extent,” and 13 mentioned “very great extent.” In this item, the weighted mean computed is 3.97 which is pointing to “great extent” in the scale.

When questioned as to the extent to which they have tried to develop pupils’ self-direction skills, 22 of the intermediate teachers claimed “moderate extent,” 75 claimed “great extent,” and 19 claimed “very great extent.” The weighted mean computed here is 3.97 which is pointing to “great extent” in the scale.

When queried as to the extent to which most of their pupils have learned self-direction skills while in their class, 23 of the intermediate teachers responded “moderate extent,” 78 responded “great extent,” and 15 responded “very great extent.” The weighted mean computed in this item is 3.93 which is pointing to “great extent” in the scale of interpretation.

And, when asked as to the extent to which they have been able to effectively assess pupils’ self-direction skills, 20 of the intermediate teachers replied “moderate extent,” 82 replied “great extent,” and 14 replied “very great extent.” The weighted mean computed in this item is 3.95 which is leading to “great extent” in the scale.

Moreover, the computed area weighted mean is 3.95. This implies that the intermediate teachers perceived that they master 21st century teaching skills along self-direction skills to a great extent.

Assessment of the School Heads. The assessment of the school heads on the extent to which the intermediate teachers master 21st century skills along self-direction skills is presented in Table 15.

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As shown in Table 15, when questioned as to the extent to which the intermediate teachers make their pupils take initiative when confronted with a difficult problem or question, one of the school heads claimed "limited extent," 10 claimed "moderate extent," and two claimed "great extent." The weighted mean computed here is 3.08 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers make their pupils choose their own topics of learning or questions to pursue, three of the school heads replied "limited extent," eight replied "moderate extent," and two replied "great extent." The weighted mean computed in this item is 2.92 which is leading to "moderate extent" in the scale.

When inquired as to the extent to which the intermediate teachers make their pupils plan the steps they will take to accomplish a complex task, three of the school heads responded "limited extent," eight responded "moderate extent," and two responded "great extent." Here, the weighted mean computed is 2.92 which is indicative of "moderate extent" in the scale.

TABLE 15
The Assessment of the School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills along Self-Direction Skills

Assessment Items	Responses					WM	DE
E. Self-Direction Skills: My intermediate teachers/teachers'…	VL	LE	ME	GE	VG		
1. Make their pupils take initiative when confronted with a difficult problem or question.	0	1	10	2	0	3.08	ME
2. Make their pupils choose their own topics of learning or questions to pursue.	0	3	8	2	0	2.92	ME
3. Make their pupils plan the steps they will take to accomplish a complex task.	0	3	8	2	0	2.92	ME
4. Make their pupils choose for themselves what examples to study or resources to use.	0	3	9	1	0	2.85	ME
5. Make their pupils monitor their own progress towards completion of a complex task and modify their work accordingly.	0	2	9	2	0	3.00	ME
6. Make their pupils use specific criteria to assess the quality of their work before it is completed.	0	1	9	3	0	3.15	ME
7. Make their pupils use peer, teacher or expert feedback to revise their work.	0	3	8	2	0	2.92	ME
8. Have tried to develop pupils' self-direction skills.	0	4	8	1	0	2.77	ME
9. Pupils have learned self-direction skills while in their class.	0	2	8	3	0	3.08	ME
10. Have been able to effectively assess pupils' self-direction skills.	0	3	8	2	0	2.92	ME
					AWM	2.96	ME

Legend:

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WM	=	weighted mean		
DE	=	descriptive equivalent		
AWM	=	area weighted mean		

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When questioned as to the extent to which the intermediate teachers make their pupils choose for themselves what examples to study or resources to use, three of the school heads checked “limited extent,” nine checked “moderate extent,” and one checked “great extent.” Here, the weighted mean computed is 2.85 which is “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers make their pupils monitor their own progress towards completion of a complex task and modify their work accordingly, two of the school heads mentioned “limited extent,” nine mentioned “moderate extent,” and two mentioned “great extent.” In this item, the weighted mean computed is 3.00 which is pointing to “moderate extent” in the scale.

When questioned as to the extent to which the intermediate teachers make their pupils use specific criteria to assess the quality of their work before it is completed, one of the school heads claimed “limited extent,” nine claimed “moderate extent,” and three claimed “great extent.” The weighted mean computed here is 3.15 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers make their pupils use peer, teacher or expert feedback to revise their work, three of the school heads mentioned “limited extent,” eight mentioned “moderate extent,” and two mentioned “great extent.” In this item, the weighted mean computed is 2.92 which is pointing to “moderate extent” in the scale.

When questioned as to the extent to which the intermediate teachers have tried to develop pupils’ self-direction skills, four of the school heads claimed “limited extent,” eight claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 2.77 which is pointing to “moderate extent” in the scale.

When queried as to the extent to which most of the pupils of the intermediate teachers have learned self-direction skills while in their class, two of the school heads responded “limited extent,” eight responded “moderate extent,” and three responded “great extent.” The weighted mean computed in this item is 3.08 which is pointing to “moderate extent” in the scale of interpretation.

And, when asked as to the extent to which the intermediate teachers have been able to effectively assess pupils’ self-direction skills, three of the intermediate teachers replied “limited extent,” eight replied “moderate extent,” and two replied “great extent.” The weighted mean computed in this item is 2.92 which is leading to “moderate extent” in the scale.

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Moreover, the computed area weighted mean is 2.96. This implies that the school heads perceived that the intermediate teachers master 21st century teaching skills along self-direction skills to a moderate extent.

On Global Connection Skills

The intermediate teachers and their school heads assessed the extent to which the intermediate teachers master 21st century teaching skills along global connection skills.

Assessment of the Intermediate Teachers. The assessment of the intermediate teachers on the extent to which they master 21st century teaching skills along global connection skills is presented in Table 16.

As shown in Table 16, when questioned as to the extent to which they make their pupils study information about other countries or cultures, 23 of the intermediate teachers claimed "moderate extent," 77 claimed "great extent," and 16 claimed "very great extent." The weighted mean computed here is 3.94 which is pointing to "great extent" in the scale.

When asked as to the extent to which they make their pupils use information or ideas that come from people in other countries or cultures, 20 of the intermediate teachers replied "moderate extent," 82 replied "great extent," and 14 replied "very great extent." The weighted mean computed in this item is 3.95 which is leading to "great extent" in the scale.

TABLE 16
The Assessment of the Intermediate Teachers on the Extent to which They Master 21st Century Teaching Skills along Global Connection Skills

Assessment Items	Responses					WM	DE
F. Global Connection Skills	VL	LE	ME	GE	VG		
1. I make my pupils study information about other countries or cultures.	0	0	23	77	16	3.94	GE
2. I make my pupils use information or ideas that come from people in other countries or cultures.	0	0	20	82	14	3.95	GE
3. I make my pupils discuss issues related to global interdependency (for example, global environment trends, global market economy).	0	0	19	81	16	3.97	GE
4. I make my pupils understand the life experiences of people in cultures besides their own.	0	0	23	76	17	3.95	GE
5. I make my pupils study the geography of distant countries.	0	0	23	76	17	3.95	GE
6. I make my pupils reflect on how their own experiences and local issues are connected to global issues.	0	0	20	82	14	3.95	GE
7. I have tried to develop pupils' skills in making global connections.	0	0	17	86	13	3.97	GE
8. Most pupils have learned to make global connections while in my class.	0	0	23	77	16	3.94	GE

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9. I have been able to effectively assess pupils' skills in making global connections.	0	0	20	82	14	3.95	GE
					AWM	3.95	GE

Legend:

WM	=	weighted mean		
DE	=	descriptive equivalent		
AWM	=	area weighted mean		

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When inquired as to the extent to which they make their pupils discuss issues related to global interdependency (for example, global environment trends, global market economy), 19 of the intermediate teachers responded "moderate extent," 81 responded "great extent," and 16 responded "very great extent." Here, the weighted mean computed is 3.97 which is indicative of "great extent" in the scale.

When questioned as to the extent to which they make their pupils understand the life experiences of people in cultures besides their own, 23 of the intermediate teachers checked "moderate extent," 76 checked "great extent," and 17 checked "very great extent." Here, the weighted mean computed is 3.95 which is "great extent" in the scale.

When asked as to the extent to which they make their pupils study the geography of distant countries, 23 of the intermediate teachers mentioned "moderate extent," 76 mentioned "great extent," and 17 mentioned "very great extent." In this item, the weighted mean computed is 3.95 which is pointing to "great extent" in the scale.

When questioned as to the extent to which they make their pupils reflect on how their own experiences and local issues are connected to global issues, 20 of the intermediate teachers claimed "moderate extent," 82 claimed "great extent," and 14 claimed "very great extent." The weighted mean computed here is 3.95 which is pointing to "great extent" in the scale.

When asked as to the extent to which they have tried to develop pupils' skills in making global connections, 17 of the intermediate teachers mentioned "moderate extent," 86 mentioned "great extent," and 13 mentioned "very great extent." In this item, the weighted mean computed is 3.97 which is pointing to "great extent" in the scale.

When questioned as to the extent to which most of their pupils have learned to make global connections while in their class, 23 of the intermediate teachers claimed "moderate extent," 77 claimed "great extent," and 16 claimed "very great extent." The weighted mean computed here is 3.97 which is pointing to "great extent" in the scale.

And, when queried as to the extent to which they have been able to effectively assess pupils' skills in making global connections, 20 of the intermediate teachers responded "moderate

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extent," 82 responded "great extent," and 14 responded "very great extent." The weighted mean computed in this item is 3.95 which is pointing to "great extent" in the scale of interpretation.

Moreover, the computed area weighted mean is 3.95. This implies that the intermediate teachers perceived that they master 21st century teaching skills along global connection skills to a great extent.

Assessment of the School Heads. The assessment of the school heads on the extent to which the intermediate teachers master 21st century skills along global connection skills is presented in Table 17.

TABLE 17
The Assessment of the School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills along Global Connection Skills

Assessment Items	Responses					WM	DE
F. Global Connection Skills: My intermediate teachers/teachers'…	VL	LE	ME	GE	VG		
1. Make their pupils study information about other countries or cultures.	0	2	10	1	0	2.92	ME
2. Make their pupils use information or ideas that come from people in other countries or cultures.	0	2	9	2	0	3.00	ME
3. Make their pupils discuss issues related to global interdependency (for example, global environment trends, global market economy).	0	3	9	1	0	2.85	ME
4. Make their pupils understand the life experiences of people in cultures besides their own.	0	3	8	2	0	2.92	ME
5. Make their pupils study the geography of distant countries.	0	2	9	2	0	3.00	ME
6. Make their pupils reflect on how their own experiences and local issues are connected to global issues.	0	3	9	1	0	2.85	ME
7. Have tried to develop pupils' skills in making global connections.	0	4	9	0	0	2.69	ME
8. Pupils have learned to make global connections while in their class.	0	4	8	1	0	2.77	ME
9. Have been able to effectively assess pupils' skills in making global connections.	0	3	8	2	0	2.92	ME
					AWM	2.88	ME

Legend:
WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:
VL = very limited extent = 1.00 – 1.49
LE = limited extent = 1.50 – 2.49

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ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

As shown in Table 17, when questioned as to the extent to which the intermediate teachers make their pupils study information about other countries or cultures, two of the school heads claimed “limited extent,” 10 claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 2.92 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers make their pupils use information or ideas that come from people in other countries or cultures, two of the school heads replied “limited extent,” nine replied “moderate extent,” and two replied “great extent.” The weighted mean computed in this item is 3.00 which is leading to “moderate extent” in the scale.

When inquired as to the extent to which the intermediate teachers make their pupils discuss issues related to global interdependency (for example, global environment trends, global market economy), three of the school heads responded “limited extent,” nine responded “moderate extent,” and one responded “great extent.” Here, the weighted mean computed is 2.85 which is indicative of “moderate extent” in the scale.

When questioned as to the extent to which the intermediate teachers make their pupils understand the life experiences of people in cultures besides their own, three of the school heads checked “limited extent,” eight checked “moderate extent,” and two checked “great extent.” Here, the weighted mean computed is 2.92 which is “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers make their pupils study the geography of distant countries, two of the school heads mentioned “limited extent,” nine mentioned “moderate extent,” and two mentioned “great extent.” In this item, the weighted mean computed is 3.00 which is pointing to “moderate extent” in the scale.

When questioned as to the extent to which the intermediate teachers make their pupils reflect on how their own experiences and local issues are connected to global issues, three of the school heads claimed “limited extent,” nine claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 2.85 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers have tried to develop pupils’ skills in making global connections, four of the school heads mentioned “limited extent” and nine mentioned “moderate extent.” In this item, the weighted mean computed is 2.69 which is pointing to “moderate extent” in the scale.

When questioned as to the extent to which most of the pupils of the intermediate teachers have learned to make global connections while in their class, four of the school heads claimed “limited extent,” eight claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 2.77 which is pointing to “moderate extent” in the scale.

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And, when queried as to the extent to which the intermediate teachers have been able to effectively assess pupils' skills in making global connections, three of the school heads responded "limited extent," eight responded "moderate extent," and two responded "great extent." The weighted mean computed in this item is 2.92 which is pointing to "moderate extent" in the scale of interpretation.

Moreover, the computed area weighted mean is 2.88. This implies that the school heads perceived that the intermediate teachers master 21st century teaching skills along global connection skills to a moderate extent.

On Local Connection Skills

The intermediate teachers and their school heads assessed the extent to which the intermediate teachers master 21st century teaching skills along local connection skills.

Assessment of the Intermediate Teachers. The assessment of the intermediate teachers on the extent to which they master 21st century teaching skills along local connection skills is presented in Table 18.

As shown in Table 18, when questioned as to the extent to which they make their pupils investigate topics or issues that are relevant to their family or community, 23 of the intermediate teachers claimed "moderate extent," 76 claimed "great extent," and 17 claimed "very great extent." The weighted mean computed here is 3.95 which is pointing to "great extent" in the scale.

When asked as to the extent to which they make their pupils apply what they are learning to local situations, issues or problems, 23 of the intermediate teachers replied "moderate extent," 76 replied "great extent," and 17 replied "very great extent." The weighted mean computed in this item is 3.95 which is leading to "great extent" in the scale.

TABLE 18
The Assessment of the Intermediate Teachers on the Extent to which They Master 21st Century Teaching Skills along Local Connection Skills

Assessment Items	Responses					WM	DE
G. Local Connection Skills	VL	LE	ME	GE	VG		
1. I make my pupils investigate topics or issues that are relevant to their family or community.	0	0	23	76	17	3.95	GE
2. I make my pupils apply what they are learning to local situations, issues or problems.	0	0	23	76	17	3.95	GE
3. I make my pupils talk to one or more members of the community about a class project or activity.	0	0	23	76	17	3.95	GE
4. I make my pupils analyze how different stakeholder groups or community members view an issue.	0	0	23	76	17	3.95	GE
5. I make my pupils respond to a question or task in a way that weighs the concerns of different community	0	0	17	86	13	3.97	

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members or groups.							GE
6. I have tried to develop pupils' skills in making local connections	0	0	22	75	19	3.97	GE
7. Most pupils have learned to make local connections while in my class	0	0	26	76	14	3.90	GE
8. I have been able to effectively assess pupils' skills in making local connections	0	0	20	82	14	3.95	GE
					AWM	3.95	GE

Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
AWM	=	area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When inquired as to the extent to which they make their pupils talk to one or more members of the community about a class project or activity, 23 of the intermediate teachers responded "moderate extent," 76 responded "great extent," and 17 responded "very great extent." Here, the weighted mean computed is 3.95 which is indicative of "great extent" in the scale.

When questioned as to the extent to which they make their pupils analyze how different stakeholder groups or community members view an issue, 23 of the intermediate teachers checked "moderate extent," 76 checked "great extent," and 17 checked "very great extent." Here, the weighted mean computed is 3.95 which is "great extent" in the scale.

When asked as to the extent to which they make their pupils respond to a question or task in a way that weighs the concerns of different community members or groups, 17 of the intermediate teachers mentioned "moderate extent," 86 mentioned "great extent," and 13 mentioned "very great extent." In this item, the weighted mean computed is 3.97 which is pointing to "great extent" in the scale.

When questioned as to the extent to which they have tried to develop pupils' skills in making local connections, 22 of the intermediate teachers claimed "moderate extent," 75 claimed "great extent," and 19 claimed "very great extent." The weighted mean computed here is 3.97 which is pointing to "great extent" in the scale.

When asked as to the extent to which most of their pupils have learned to make local connections while in their class, 26 of the intermediate teachers mentioned "moderate extent," 76 mentioned "great extent," and 14 mentioned "very great extent." In this item, the weighted mean computed is 3.90 which is pointing to "great extent" in the scale.

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And, when questioned as to the extent to which they have been able to effectively assess pupils' skills in making local connections, 20 of the intermediate teachers claimed "moderate extent," 82 claimed "great extent," and 14 claimed "very great extent." The weighted mean computed here is 3.95 which is pointing to "great extent" in the scale.

Moreover, the computed area weighted mean is 3.95. This implies that the intermediate teachers perceived that they master 21st century teaching skills along local connection skills to a great extent.

Assessment of the School Heads. The assessment of the school heads on the extent to which the intermediate teachers master 21st century skills along local connection skills is presented in Table 19.

As shown in Table 19, when questioned as to the extent to which the intermediate teachers make their pupils investigate topics or issues that are relevant to their family or community, two of the school heads claimed "limited extent," nine claimed "moderate extent," and two claimed "great extent." The weighted mean computed here is 3.00 which is pointing to "moderate extent" in the scale.

TABLE 19
The Assessment of the School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills along Local Connection Skills

Assessment Items	Responses					WM	DE
G. Local Connection Skills: My intermediate teachers/teachers'…	VL	LE	ME	GE	VG		
1. Make their pupils investigate topics or issues that are relevant to their family or community.	0	2	9	2	0	3.00	ME
2. Make their pupils apply what they are learning to local situations, issues or problems.	0	3	9	1	0	2.85	ME
3. Make their pupils talk to one or more members of the community about a class project or activity.	0	4	9	0	0	2.69	ME
4. Make their pupils analyze how different stakeholder groups or community members view an issue.	0	1	9	3	0	3.15	ME
5. Make their pupils respond to a question or task in a way that weighs the concerns of different community members or groups.	0	4	8	1	0	2.77	ME
6. Have tried to develop pupils' skills in making local connections.	0	3	8	2	0	2.92	ME
7. Pupils have learned to make local connections while in their class.	0	3	10	0	0	2.77	ME
8. Have been able to effectively assess pupils' skills in making local connections	0	2	9	2	0	3.00	ME
					AWM	2.89	ME

Legend:

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WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When asked as to the extent to which the intermediate teachers make their pupils apply what they are learning to local situations, issues or problems, three of the school heads replied "limited extent," nine replied "moderate extent," and one replied "great extent." The weighted mean computed in this item is 2.85 which is leading to "moderate extent" in the scale.

When inquired as to the extent to which the intermediate teachers make their pupils talk to one or more members of the community about a class project or activity, four of the school heads responded "limited extent" and nine responded "moderate extent." Here, the weighted mean computed is 2.69 which is indicative of "moderate extent" in the scale.

When questioned as to the extent to which the intermediate teachers make their pupils analyze how different stakeholder groups or community members view an issue, one of the school heads checked "limited extent," nine checked "moderate extent," and three checked "great extent." Here, the weighted mean computed is 3.15 which is "moderate extent" in the scale.

When asked as to the extent to which the intermediate teachers make their pupils respond to a question or task in a way that weighs the concerns of different community members or groups, four of the school heads mentioned "limited extent," eight mentioned "moderate extent," and one mentioned "great extent." In this item, the weighted mean computed is 2.77 which is pointing to "moderate extent" in the scale.

When questioned as to the extent to which the intermediate teachers have tried to develop pupils' skills in making local connections, three of the school heads claimed "limited extent," eight claimed "moderate extent," and two claimed "great extent." The weighted mean computed here is 2.92 which is pointing to "moderate extent" in the scale.

When asked as to the extent to which most of the pupils of the intermediate teachers have learned to make local connections while in their class, three of the school heads mentioned "limited extent" and 10 mentioned "moderate extent." In this item, the weighted mean computed is 2.77 which is pointing to "moderate extent" in the scale.

And, when questioned as to the extent to which the intermediate teachers have been able to effectively assess pupils' skills in making local connections, two of the school heads claimed "limited extent," nine claimed "moderate extent," and two claimed "great extent." The weighted mean computed here is 3.00 which is pointing to "moderate extent" in the scale.

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Moreover, the computed area weighted mean is 2.89. This implies that the school heads perceived that the intermediate teachers master 21st century teaching skills along local connection skills to a moderate extent.

On Technology Skills

The intermediate teachers and their school heads assessed the extent to which the intermediate teachers master 21st century teaching skills along technology skills.

Assessment of the Intermediate Teachers. The assessment of the intermediate teachers on the extent to which they master 21st century teaching skills along technology skills is presented in Table 20.

As shown in Table 20, when questioned as to the extent to which they make their pupils use technology or the Internet for self-instruction, 23 of the intermediate teachers claimed "moderate extent," 78 claimed "great extent," and 15 claimed "very great extent." The weighted mean computed here is 3.93 which is pointing to "great extent" in the scale.

When asked as to the extent to which they make their pupils select appropriate technology tools or resources for completing a task, 20 of the intermediate teachers replied "moderate extent," 82 replied "great extent," and 14 replied "very great extent." The weighted mean computed in this item is 3.95 which is leading to "great extent" in the scale.

When inquired as to the extent to which they make their pupils evaluate the credibility and relevance of online resources, 20 of the intermediate teachers responded "moderate extent," 82 responded "great extent," and 14 responded "very great extent." Here, the weighted mean computed is 3.95 which is indicative of "great extent" in the scale.

When questioned as to the extent to which they make their pupils use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.), 19 of the intermediate teachers checked "moderate extent," 83 checked "great extent," and 14 checked "very great extent." Here, the weighted mean computed is 3.96 which is "great extent" in the scale.

TABLE 20
The Assessment of the Intermediate Teachers on the Extent to which They Master 21st Century Teaching Skills along Technology Skills

Assessment Items	Responses					WM	DE
H. Technology Skills	VL	LE	ME	GE	VG		
1. I make my pupils use technology or the Internet for self-instruction.	0	0	23	78	15	3.93	GE
2. I make my pupils select appropriate technology tools or resources for completing a task.	0	0	20	82	14	3.95	GE
3. I make my pupils evaluate the credibility and relevance of online resources.	0	0	20	82	14	3.95	GE
4. I make my pupils use technology to analyze	0	0	19	83	14	3.96	

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information (e.g., databases, spreadsheets, graphic programs, etc.).							GE
5. I make my pupils use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.).	0	0	23	78	15	3.93	GE
6. I make my pupils use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.).	0	0	20	82	14	3.95	GE
7. I make my pupils use technology to interact directly with experts or members of local/global communities.	0	0	17	86	13	3.97	GE
8. I make my pupils use technology to keep track of their work on extended tasks or assignments.	0	0	22	75	19	3.97	GE
9. I have tried to develop pupils' skills in using technology as a tool for learning	0	0	26	76	14	3.90	GE
10. Most pupils have learned to use technology as a tool for learning while in my class.	0	0	23	76	17	3.95	GE
11. I have been able to effectively assess pupils' skills in using technology for learning	0	0	23	76	17	3.95	GE
					AWM	3.95	GE

Legend:

WM	=	weighted mean
DE	=	descriptive equivalent
AWM	=	area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

When asked as to the extent to which they make their pupils use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.), 23 of the intermediate teachers mentioned "moderate extent," 78 mentioned "great extent," and 15 mentioned "very great extent." In this item, the weighted mean computed is 3.93 which is pointing to "great extent" in the scale.

When questioned as to the extent to which they make their pupils use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.), 14 of the intermediate teachers claimed "moderate extent," 82 claimed "great extent," and 14 claimed "very great extent." The weighted mean computed here is 3.95 which is pointing to "great extent" in the scale.

When asked as to the extent to which they make their pupils use technology to interact directly with experts or members of local/global communities, 17 of the intermediate teachers

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mentioned “moderate extent,” 86 mentioned “great extent,” and 13 mentioned “very great extent.” In this item, the weighted mean computed is 3.97 which is pointing to “great extent” in the scale.

When asked as to the extent to which they make their pupils use technology to keep track of their work on extended tasks or assignments, 22 of the intermediate teachers mentioned “moderate extent,” 75 mentioned “great extent,” and 19 mentioned “very great extent.” In this item, the weighted mean computed is 3.97 which is pointing to “great extent” in the scale.

When questioned as to the extent to which they have tried to develop pupils’ skills in using technology as a tool for learning, 26 of the intermediate teachers claimed “moderate extent,” 76 claimed “great extent,” and 14 claimed “very great extent.” The weighted mean computed here is 3.90 which is pointing to “great extent” in the scale.

When asked as to the extent to which most pupils have learned to use technology as a tool for learning while in their class, 23 of the intermediate teachers mentioned “moderate extent,” 76 mentioned “great extent,” and 17 mentioned “very great extent.” In this item, the weighted mean computed is 3.95 which is pointing to “great extent” in the scale.

And, when questioned as to the extent to which they have been able to effectively assess pupils’ skills in using technology for learning, 23 of the intermediate teachers claimed “moderate extent,” 76 claimed “great extent,” and 17 claimed “very great extent.” The weighted mean computed here is 3.95 which is pointing to “great extent” in the scale.

Moreover, the computed area weighted mean is 3.95. This implies that the intermediate teachers perceived that they master 21st century teaching skills along technology skills to a great extent.

Assessment of the School Heads. The assessment of the school heads on the extent to which the intermediate teachers master 21st century skills along technology skills is presented in Table 21.

As shown in Table 21, when questioned as to the extent to which the intermediate teachers make their pupils use technology or the Internet for self-instruction, three of the school heads claimed “limited extent,” eight claimed “moderate extent,” and two claimed “great extent.” The weighted mean computed here is 2.92 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers make their pupils select appropriate technology tools or resources for completing a task, two of the school heads replied “limited extent,” nine replied “moderate extent,” and two replied “great extent.” The weighted mean computed in this item is 3.00 which is leading to “moderate extent” in the scale.

When inquired as to the extent to which the intermediate teachers make their pupils evaluate the credibility and relevance of online resources, three of the school heads responded “limited extent,” nine responded “moderate extent,” and one responded “great extent.” Here, the weighted mean computed is 2.85 which is indicative of “moderate extent” in the scale.

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TABLE 21
The Assessment of the School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills along Technology Skills

Assessment Items	Responses					WM	DE
H. Technology Skills: My intermediate teachers/teachers'…	VL	LE	ME	GE	VG		
1. Make their pupils use technology or the Internet for self-instruction.	0	3	8	2	0	2.92	ME
2. Make their pupils select appropriate technology tools or resources for completing a task.	0	2	9	2	0	3.00	ME
3. Make their pupils evaluate the credibility and relevance of online resources.	0	3	9	1	0	2.85	ME
4. Make their pupils use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.).	0	2	10	1	0	2.92	ME
5. Make their pupils use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.).	0	2	9	2	0	3.00	ME
6. Make their pupils use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.).	0	3	9	1	0	2.85	ME
7. Make their pupils use technology to interact directly with experts or members of local/global communities.	0	3	8	2	0	2.92	ME
8. Make their pupils use technology to keep track of their work on extended tasks or assignments.	0	2	8	3	0	3.08	ME
9. Have tried to develop pupils' skills in using technology as a tool for learning	0	2	10	1	0	2.92	ME
10. Pupils have learned to use technology as a tool for learning while in their class.	0	3	10	0	0	2.77	ME
11. Have been able to effectively assess pupils' skills in using technology for learning	0	3	9	1	0	2.85	ME
					AWM	2.92	ME

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

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When questioned as to the extent to which the intermediate teachers make their pupils use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.), two of the school heads checked “limited extent,” 10 checked “moderate extent,” and one checked “great extent.” Here, the weighted mean computed is 2.92 which is “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers make their pupils use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.), two of the school heads mentioned “limited extent,” nine mentioned “moderate extent,” and two mentioned “great extent.” In this item, the weighted mean computed is 3.00 which is pointing to “moderate extent” in the scale.

When questioned as to the extent to which the intermediate teachers make their pupils use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.), three of the school heads claimed “limited extent,” nine claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 2.85 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers make their pupils use technology to interact directly with experts or members of local/global communities, three of the school heads mentioned limited extent,” eight mentioned “moderate extent,” and two mentioned “great extent.” In this item, the weighted mean computed is 2.92 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which the intermediate teachers make their pupils use technology to keep track of their work on extended tasks or assignments, two of the school heads mentioned “limited extent,” eight mentioned “moderate extent,” and three mentioned “great extent.” In this item, the weighted mean computed is 3.08 which is pointing to “moderate extent” in the scale.

When questioned as to the extent to which the intermediate teachers have tried to develop pupils’ skills in using technology as a tool for learning, two of the school heads claimed “limited extent,” 10 claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 2.92 which is pointing to “moderate extent” in the scale.

When asked as to the extent to which most of the pupils of the intermediate teachers have learned to use technology as a tool for learning while in their class, three of the school heads mentioned “limited extent” and 10 mentioned “moderate extent.” In this item, the weighted mean computed is 2.77 which is pointing to “moderate extent” in the scale.

And, when questioned as to the extent to which the intermediate teachers have been able to effectively assess pupils’ skills in using technology for learning, three of the intermediate teachers claimed “limited extent,” nine claimed “moderate extent,” and one claimed “great extent.” The weighted mean computed here is 2.85 which is pointing to “moderate extent” in the scale.

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Moreover, the computed area weighted mean is 2.92. This implies that the school heads perceived that the intermediate teachers master 21st century teaching skills along technology skills to a moderate extent.

A Summary

The extent to which the intermediate teachers master 21st century teaching skills as perceived by themselves and by their school is presented in Table 22.

As can be seen in Table 22, all the computed area weighted means in the assessment of the intermediate teachers have a descriptive equivalent of "great extent" in the scale. Conformably, the computed overall weighted mean of 3.95 also has a descriptive equivalent of "great extent" in the scale. This means that the intermediate teachers perceived that generally they master 21st century teaching skills to a great extent. On the other hand, all the computed area weighted means in the assessment of the school heads have a descriptive equivalent of "moderate extent" in the scale. As such, the computed overall weighted mean of 2.94 also has a descriptive equivalent of "moderate extent" in the scale. This implies that the school heads perceived that the intermediate teachers master 21st century teaching skills to a moderate extent only.

TABLE 22
The Extent to which the Intermediate Teachers Master 21st Century Teaching Skills

Areas	Assessment of the Intermediate Teachers		Assessment of the School Heads	
	AWM	DE	AWM	DE
Critical Thinking Skills	3.94	GE	2.95	ME
Collaboration Skills	3.95	GE	2.95	ME
Communication Skills	3.95	GE	3.03	ME
Creativity and Innovation Skills	3.94	GE	2.95	ME
Self-Direction Skills	3.95	GE	2.96	ME
Global Connection Skills	3.95	GE	2.88	ME
Local Connection Skills	3.95	GE	2.89	ME
Technology Skills	3.95	GE	2.92	ME
OWM	3.95	GE	2.94	ME

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean
OWM = overall weighted mean

Scale:

VL	=	very limited extent	=	1.00 – 1.49
LE	=	limited extent	=	1.50 – 2.49
ME	=	moderate extent	=	2.50 – 3.49
GE	=	great extent	=	3.50 – 4.49
VG	=	very great extent	=	4.50 – 5.00

Difference between the Perceptions of the Intermediate Teachers and School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills

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This part of the chapter discusses answers to the third sub-problem of the study which is about the significant difference between the perceptions or assessments of the intermediate teachers and the school heads on the extent to which the intermediate teachers master 21st century teaching skills.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant difference between the perceptions or assessments of the intermediate teachers and the school heads on the extent to which the intermediate teachers master 21st century teaching skills. Thereafter, the researcher compared the perceptions or assessments of the perceptions or assessments of the intermediate teachers and the school heads on the extent to which the intermediate teachers master 21st century teaching skills using the t-test. Here, the researcher computed the p value at .05 level of significance. Table 23 presents the results.

TABLE 23
Difference between the Perceptions of the Intermediate Teachers and the School Heads on the Extent to which the Intermediate Teachers Master 21st Century Teaching Skills

Areas	Computed p Value	Level of Significance	RM
21st Century Teaching Skills	0.00	0.05	S

Legend:

RM = remarks
S = significant
NS = not significant

As shown in Table 23, when the perceptions or assessments of the intermediate teachers and the school heads on the extent to which the intermediate teachers master 21st century teaching skills are compared, the p value computed is 0.00. This figure is lower than the .05 level of significance. As such, the null hypothesis is rejected. There is a significant difference between the perceptions or assessments of the intermediate teachers and the school heads on the extent to which the intermediate teachers master 21st century teaching skills.

Relationship between the Profile Variables of the Intermediate Teachers and the Extent to which They Master 21st Century Teaching Skills

This part of the chapter provides answers to the fourth sub-problem of the study which is about the significant relationship between the profile variables of the of the intermediate teachers and the extent to which they master 21st century teaching skills.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the profile variables of the of the intermediate teachers and the extent to which they master 21st century teaching skills. Thereafter, the researcher correlated the profile variables of the intermediate teachers and the extent to which they master

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21st century teaching skills using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the p value and the chi square value at .05 level of significance. Table 24 presents the results.

As shown in Table 24, when the gender of the intermediate teachers and the extent to which they master 21st century teaching skills are correlated, the p value computed is 0.09. This figure is higher than the .05 level of significance. Moreover, the computed chi square value is 2.71. This figure is lower than the chi square critical value of 3.84. This means that there is no significant relationship between the two. Being so, the null hypothesis is accepted. Conformably, it can be said that the extent to which the intermediate teachers master 21st century teaching skills is not influenced by their gender.

TABLE 24
Relationship between the Profile Variables of the Intermediate Teachers and the Extent to which They Master 21st Century Teaching Skills

Profile Variables	P Value .05 LS	Chi Square Value	Chi Square Critical Value	RM
Gender	0.09	2.71	3.84	NS
Civil Status	0.08	3.02	3.84	NS
Educational Attainment	0.01	7.39	3.84	S
Length of Teaching Experience	0.02	5.55	3.84	S
Number of Relevant Trainings Attended	0.00	10.35	3.84	S

Legend:

RM = remarks
S = significant
NS = not significant

Secondly, when the civil status of the intermediate teachers and the extent to which they master 21st century teaching skills are correlated, the p value computed is 0.09. This figure is higher than the .05 level of significance. Moreover, the computed chi square value is 3.02. This figure is lower than the chi square critical value of 3.84. This means that there is no significant relationship between the two. Being so, the null hypothesis is accepted. Conformably, it can be said that the extent to which the intermediate teachers master 21st century teaching skills is not influenced by their civil status.

Thirdly, when the educational attainment of the intermediate teachers and the extent to which they master 21st century teaching skills are correlated, the p value computed is 0.01. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 7.39. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the extent to which the intermediate teachers master 21st century teaching skills is influenced by their highest educational attainment.

Fourthly, when the length of teaching experience of the intermediate teachers and the extent to which they master 21st century teaching skills are correlated, the p value computed is 0.02. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 5.55.

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This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the extent to which the intermediate teachers master 21st century teaching skills is influenced by their length of teaching experience.

Lastly, when the number of relevant trainings of the intermediate teachers and the extent to which they master 21st century teaching skills are correlated, the p value computed is 0.00. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 10.35. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the extent to which the intermediate teachers master 21st century teaching skills is influenced by the number of relevant trainings they attended.

The Proposed Capacity Building Program on 21st Century Teaching Skills for the Intermediate Teachers of Public Elementary Schools in Calasiao I District

This last part of the chapter provides answers to the last sub-problem of the study which is about the proposed capacity building program on 21st century teaching skills for the intermediate teachers of public elementary schools in Calasiao I District.

To answer the sub-problem, the researcher considered the findings that majority of the intermediate teachers have attended not more than three trainings related with 21st century teaching skills for the past five years, that the number of trainings related with 21st century teaching skills attended by the intermediate teachers influenced the extent to which they master 21st century teaching skills, and that the school heads perceived that the intermediate teachers master 21st century teaching skills to a moderate extent only/

. What follows is the proposed capacity building program.

The Capacity Building Program on 21st Century Teaching Skills for the Intermediate Teachers of Public Elementary Schools in Calasiao I District

Program Description

This is a district-based capacity building program on 21st century teaching skills designed for the intermediate teachers of public elementary schools in Calasiao I District to enhance their teaching skills.

Duration

The district-based capacity building program on 21st century skills is divided into eight different sessions with each session to last for one day.

Management Level of Program

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The capacity building program on 21st century teaching skills is a district-based program which will be implemented by the district supervisor of Calasiao I District in coordination with the Schools Division Office in Pangasinan I.

Delivery Mode

The district-based capacity building program on 21st century skills is to be delivered in an interactive-collaborative-participative manner. The resource speaker is simply to act as a facilitator. More so, lecture/discussion must be limited to a maximum of 30% of the session time.

Target Personnel

The target personnel for the district-based capacity building program on 21st century skills are the intermediate teachers of public elementary schools in Calasiao I District.

Source of Fund

School MOOE.

Rationale

Many nations around the world have undertaken wide-ranging reforms in curriculum and instruction with the intention of better preparing all children for the higher educational demands of life and work in the 21st century. Thus, the question: "What are the skills that young people need to possess in this rapidly changing world and what competencies do teachers need to have to effectively teach those skills?" This question undoubtedly begs for a capacity building program that will equip teachers with the necessary skills and knowledge for them to effectively teach in a 21st century classroom. Hence, this program is created.

Objectives

The program aims to improve the 21st century teaching skills of the intermediate teachers of public elementary schools in Calasiao I District.

Program Matrix

Session Title	**Objectives**	Duration
Training-Workshop on Critical Thinking Skills	At the end of the activity, the intermediate teachers are equipped with the knowledge and skills in developing critical thinking skills of their pupils.	1 day
Training-Workshop on Collaboration Skills	At the end of the activity, the intermediate teachers are equipped with the knowledge and skills in developing collaboration skills of their pupils.	1 day
Training-Workshop on Communication Skills	At the end of the activity, the intermediate teachers are equipped with the knowledge and skills in developing communication skills of their pupils.	1 day
Training-Workshop on	At the end of the activity, the intermediate teachers	1 day

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Creativity and Innovation Skills	are equipped with the knowledge and skills in developing creativity and innovation skills of their pupils.	
Training-Workshop on Self-Direction Skills	At the end of the activity, the intermediate teachers are equipped with the knowledge and skills in developing self-direction skills of their pupils.	1 day
Training-Workshop on Making Global Connection Skills	At the end of the activity, the intermediate teachers are equipped with the knowledge and skills in developing global connection skills of their pupils.	1 day
Training-Workshop on Making Local Connection Skills	At the end of the activity, the intermediate teachers are equipped with the knowledge and skills in developing local connection skills of their pupils.	1 day
Training-Workshop on Technology Skills	At the end of the activity, the intermediate teachers are equipped with the knowledge and skills in developing the skills in using technology as a tool of learning of their pupils.	1 day

CONCLUSIONS

Based on the findings made, the following conclusions were drawn:

1. A typical teacher of public elementary schools in Malasiqui II District has no post-graduate degree, has been teaching for more than 15 years already, and has attended not more than three trainings related with global citizenship education for the past five years.

2. The teachers of public elementary schools in Malasiqui II District perceived that they have advanced level of knowledge on global citizenship education but their school heads perceived that they only competent level of knowledge on global citizenship

3. The perceptions of the teachers and the school heads on the level of knowledge on global citizenship education of the teachers are significantly different from each other.

4. The level of knowledge on global citizenship education of the teachers is influenced their length of teaching experience and the number of relevant trainings they attended.

5. The proposed enhancement training program will improve the level of knowledge on global citizenship education of the teachers.

RECOMMENDATIONS

Based on the findings made and the conclusions drawn, the following recommendations are offered:

1. The proposed enhancement training program on global citizenship education be implemented in the public elementary schools in Malasiqui II District to enhance the knowledge of the teachers.

2. The implementation of the enhancement training program on global citizenship education in the public elementary schools in Malasiqui II District should be evaluated.

3. Similar study may be conducted by other researchers to validate the findings of the study.

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APPENDICES

THE SURVEY-QUESTIONNAIRE FOR THE INTERMEDIATE TEACHERS

January 5, 2024

Dear Colleagues,

Greetings!

The undersigned is conducting a study entitled **"Assessment of the 21st Century Teaching Skills of the Intermediate Teachers of Public Elementary Schools in Calasiao I District"** in partial fulfillment of the degree Master of Arts in Education.

In connection with this, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

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(Sgd.) Luisito C. Jiao
Researcher

NAME (Optional): _____

I. Please provide your profile in the following:

A. Gender
( ) Male
( ) Female

B. Civil Status
( ) Married
( ) Single
( ) Separated/Widow/er

C. Highest Educational Attainment
( ) Bachelor's Degree
( ) Finished academic requirements in the Master's Degree
( ) Master's Degree
( ) Finished academic requirements in the Doctorate Degree
( ) Doctorate Degree

D. Length of Teaching Experience
( ) 1 – 5 years
( ) 6 – 10 years
( ) 11 – 15 years
( ) more than 15 years

E. Number of Trainings Related with 21st Century Teaching Skills Attended for the Past Five Years:

( ) have not attended any trainings/seminars related with 21st century teaching skills for the past five years
( ) have attended not more than three trainings/seminars related with 21st century teaching skill for the past five years
( ) have attended more than three trainings/seminars related with 21st century teaching skills for the past five years

II. Please rate the extent to which you master 21st century teaching skills. Please be guided by the following:

1 = very limited extent
2 = limited extent
3 = moderate extent

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4 = great extent
5 = very great extent

Assessment Items	Responses				
	1	2	3	4	5
A. Critical Thinking Skills					
1. I ask my pupils to compare information from different sources before completing a task or assignment.					
2. I ask my pupils to draw their own conclusions based on analysis of numbers, facts, or relevant information.					
3. I ask my pupils to summarize or create their own interpretation of what they have read or been taught.					
4. I ask my pupils to analyze competing arguments, perspectives or solutions to a problem.					
5. I ask my pupils to develop a persuasive argument based on supporting evidence or reasoning.					
6. I ask my pupils to try to solve complex problems or answer questions that have no single correct solution or answer.					
7. I have tried to develop pupils' critical thinking skills.					
8. Most pupils have learned critical thinking skills while in my class.					
9. I have been able to effectively assess pupils' critical thinking skills.					
B. Collaboration Skills					
1. I ask my pupils to work in pairs or small groups to complete a task together.					
2. I ask my pupils to work with other students to set goals and create a plan for their team.					
3. I ask my pupils to create joint products using contributions from each pupil.					
4. I ask my pupils to present their group work to the class, teacher or others.					
5. I ask my pupils to work as a team to incorporate feedback on group tasks or products.					
6. I ask my pupils to give feedback to peers or assess another pupils' work.					
7. I have tried to develop pupils' collaboration skills.					
8. Most pupils have learned collaboration skills while in my class.					
9. I have been able to effectively assess pupils' collaboration skills					
C. Communication Skills					
1. I make my pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs).					
2. I make my pupils convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.).					
3. I make my pupils prepare and deliver an oral presentation to the teacher or others.					
4. I make my pupils answer questions in front of an audience.					
5. I make my pupils decide how they will present their work or demonstrate their learning.					
6. I make my pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs).					
7. I have tried to develop pupils' communication skills.					
8. Most pupils have learned communication skills while in my class.					

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9. I have been able to effectively assess pupils' communication skills.					
D. Creativity and Innovation Skills					
1. I make my pupils use idea creation techniques such as brainstorming or concept mapping.					
2.. I make my pupils generate their own ideas about how to confront a problem or question.					
3. I make my pupils test out different ideas and work to improve them.					
4. I make my pupils invent a solution to a complex, open-ended question or problem.					
5. I make my pupils create an original product or performance to express their ideas.					
6. I have tried to develop pupils' creativity and innovation skills.					
7. Most pupils have learned creativity and innovation skills while in my class.					
8. I have been able to effectively assess pupils' creativity and innovation skills.					
E. Self-Direction Skills					
1. I make my pupils take initiative when confronted with a difficult problem or question.					
2. I make my pupils choose their own topics of learning or questions to pursue.					
3. I make my pupils plan the steps they will take to accomplish a complex task.					
4. I make my pupils choose for themselves what examples to study or resources to use.					
5. I make my pupils monitor their own progress towards completion of a complex task and modify their work accordingly.					
6. I make my pupils use specific criteria to assess the quality of their work before it is completed.					
7. I make my pupils use peer, teacher or expert feedback to revise their work.					
8. I have tried to develop pupils' self-direction skills.					
9. Most pupils have learned self-direction skills while in my class.					
10. I have been able to effectively assess pupils' self-direction skills.					
F. Global Connection Skills					
1. I make my pupils study information about other countries or cultures.					
2. I make my pupils use information or ideas that come from people in other countries or cultures.					
3. I make my pupils discuss issues related to global interdependency (for example, global environment trends, global market economy).					
4. I make my pupils understand the life experiences of people in cultures besides their own.					
5. I make my pupils study the geography of distant countries.					
6. I make my pupils reflect on how their own experiences and local issues are connected to global issues.					
7. I have tried to develop pupils' skills in making global connections.					
8. Most pupils have learned to make global connections while in my class.					

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9. I have been able to effectively assess pupils' skills in making global connections.					
G. Local Connection Skills					
1. I make my pupils investigate topics or issues that are relevant to their family or community.					
2. I make my pupils apply what they are learning to local situations, issues or problems.					
3. I make my pupils talk to one or more members of the community about a class project or activity.					
4. I make my pupils analyze how different stakeholder groups or community members view an issue.					
5. I make my pupils respond to a question or task in a way that weighs the concerns of different community members or groups.					
6. I have tried to develop pupils' skills in making local connections					
7. Most pupils have learned to make local connections while in my class					
8. I have been able to effectively assess pupils' skills in making local connections					
H. Technology Skills					
1. I make my pupils use technology or the Internet for self-instruction.					
2. I make my pupils select appropriate technology tools or resources for completing a task.					
3. I make my pupils evaluate the credibility and relevance of online resources.					
4. I make my pupils use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.).					
5. I make my pupils use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.).					
6. I make my pupils use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.).					
7. I make my pupils use technology to interact directly with experts or members of local/global communities.					
8. I make my pupils use technology to keep track of their work on extended tasks or assignments.					
9. I have tried to develop pupils' skills in using technology as a tool for learning					
10. Most pupils have learned to use technology as a tool for learning while in my class.					
11. I have been able to effectively assess pupils' skills in using technology for learning					

THE SURVEY-QUESTIONNAIRE FOR THE SCHOOL HEADS

January 5, 2024

Dear School Heads,

Greetings!

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The undersigned is conducting a study entitled **"Assessment of the 21st Century Teaching Skills of the Intermediate Teachers of Public Elementary Schools in Calasiao I District"** in partial fulfillment of the degree Master of Arts in Education.

In connection with this, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

(Sgd.) Luisito C. Jiao
Researcher

NAME (Optional): _____

I. Please rate the extent to which you intermediate teachers master 21st century teaching skills. Please be guided by the following:

1 = very limited extent
2 = limited extent
3 = moderate extent
4 = great extent
5 = very great extent

Assessment Items	Responses				
	1	2	3	4	5
A. Critical Thinking Skills: My intermediate teachers/Teachers'…					
1. Ask their pupils to compare information from different sources before completing a task or assignment.					
2. Ask their pupils to draw their own conclusions based on analysis of numbers, facts, or relevant information.					
3. Ask their pupils to summarize or create their own interpretation of what they have read or been taught.					
4. Ask their pupils to analyze competing arguments, perspectives or solutions to a problem.					
5. Ask their pupils to develop a persuasive argument based on supporting evidence or reasoning.					
6. Ask their pupils to try to solve complex problems or answer questions that have no single correct solution or answer.					
7. Have tried to develop pupils' critical thinking skills.					
8. Pupils have learned critical thinking skills while in their class.					
9. Have been able to effectively assess pupils' critical thinking skills.					
B. Collaboration Skills: My intermediate teachers/Teachers'…					
1. Ask their pupils to work in pairs or small groups to complete a					

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task together.					
2. Ask their pupils to work with other students to set goals and create a plan for their team.					
3. Ask their pupils to create joint products using contributions from each pupil.					
4. Ask their pupils to present their group work to the class, teacher or others.					
5. Ask their pupils to work as a team to incorporate feedback on group tasks or products.					
6. Ask their pupils to give feedback to peers or assess another pupils' work.					
7. Have tried to develop pupils' collaboration skills.					
8. Pupils have learned collaboration skills while in their class.					
9. Have been able to effectively assess pupils' collaboration skills.					
C. Communication Skills: My intermediate teachers/teachers'…					
1. Make their pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs).					
2. Make their pupils convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.).					
3. Make their pupils prepare and deliver an oral presentation to the teacher or others.					
4. Make their pupils answer questions in front of an audience.					
5. Make their pupils decide how they will present their work or demonstrate their learning.					
6. Make their pupils structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs).					
7. Have tried to develop pupils' communication skills.					
8. Pupils have learned communication skills while in their class.					
9. Have been able to effectively assess pupils' communication skills.					
D. Creativity and Innovation Skills: My intermediate teachers/teachers'…					
1. Make their pupils use idea creation techniques such as brainstorming or concept mapping.					
2.. Make their pupils generate their own ideas about how to confront a problem or question.					
3. Make their pupils test out different ideas and work to improve them.					
4. Make their pupils invent a solution to a complex, open-ended question or problem.					
5. Make their pupils create an original product or performance to express their ideas.					
6. Have tried to develop pupils' creativity and innovation skills.					
7. Pupils have learned creativity and innovation skills while in their class.					
8. Have been able to effectively assess pupils' creativity and innovation skills.					
E. Self-Direction Skills: My intermediate teachers/teachers'…					
1. Make their pupils take initiative when confronted with a difficult problem or question.					
2. Make their pupils choose their own topics of learning or questions to pursue.					
3. Make their pupils plan the steps they will take to accomplish a complex task.					

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4. Make their pupils choose for themselves what examples to study or resources to use.					
5. Make their pupils monitor their own progress towards completion of a complex task and modify their work accordingly.					
6. Make their pupils use specific criteria to assess the quality of their work before it is completed.					
7. Make their pupils use peer, teacher or expert feedback to revise their work.					
8. Have tried to develop pupils' self-direction skills.					
9. Pupils have learned self-direction skills while in their class.					
10. Have been able to effectively assess pupils' self-direction skills.					
F. Global Connection Skills: My intermediate teachers/teachers'…					
1. Make their pupils study information about other countries or cultures.					
2. Make their pupils use information or ideas that come from people in other countries or cultures.					
3. Make their pupils discuss issues related to global interdependency (for example, global environment trends, global market economy).					
4. Make their pupils understand the life experiences of people in cultures besides their own.					
5. Make their pupils study the geography of distant countries.					
6. Make their pupils reflect on how their own experiences and local issues are connected to global issues.					
7. Have tried to develop pupils' skills in making global connections.					
8. Pupils have learned to make global connections while in their class.					
9. Have been able to effectively assess pupils' skills in making global connections.					
G. Local Connection Skills: My intermediate teachers/teachers'…					
1. Make their pupils investigate topics or issues that are relevant to their family or community.					
2. Make their pupils apply what they are learning to local situations, issues or problems.					
3. Make their pupils talk to one or more members of the community about a class project or activity.					
4. Make their pupils analyze how different stakeholder groups or community members view an issue.					
5. Make their pupils respond to a question or task in a way that weighs the concerns of different community members or groups.					
6. Have tried to develop pupils' skills in making local connections.					
7. Pupils have learned to make local connections while in their class.					
8. Have been able to effectively assess pupils' skills in making local connections					
H. Technology Skills: My intermediate teachers/teachers'…					
1. Make their pupils use technology or the Internet for self-instruction.					
2. Make their pupils select appropriate technology tools or resources for completing a task.					
3. Make their pupils evaluate the credibility and relevance of online resources.					

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4. Make their pupils use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.).					
5. Make their pupils use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.).					
6. Make their pupils use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.).					
7. Make their pupils use technology to interact directly with experts or members of local/global communities.					
8. Make their pupils use technology to keep track of their work on extended tasks or assignments.					
9. Have tried to develop pupils' skills in using technology as a tool for learning					
10. Pupils have learned to use technology as a tool for learning while in their class.					
11. Have been able to effectively assess pupils' skills in using technology for learning					

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RELATIONSHIP BETWEEN THE PSYCHOLOGICAL CAPITAL LEVEL AND PSYCHOLOGICAL BURNOUT LEVEL OF THE TEACHERS IN SELECTED PUBLIC ELEMENTARY SCHOOLS IN MALASIQUI II DISTRICT

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Abstract

This study sought to determine the relationship between the psychological capital level and psychological burnout level of the teachers of selected public elementary schools in Malasiqui II District during the School Year 2026-2027 through a quantitative-descriptive-correlational research design. The data used in this study came from the 179 teachers and eight school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, Pearson r, and regression analysis. Results showed that: majority of the teachers are bachelor's degree holders, have been teaching for more than ten years, and have attended not more than three trainings related with well-being; in general, the teachers have high psychological capital level as evidenced by the computed overall weighted mean of 3.80; there is a significant relationship between the highest educational attainment, the length of teaching experience, and the number of relevant trainings attended of the teachers and their psychological capital level; in general, the teachers have moderate psychological burnout level as evidenced by the computed overall weighted mean of 2.96; and, there is a significant strong positive relationship between the psychological capital level of the teachers and their psychological burnout level as evidenced by the computed r value of 0.79 and by the computed p value of 0.00. Based from the findings, the following conclusions were drawn: a typical teacher in the selected public elementary schools in Malasiqui II District has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with well-being; the teachers have high psychological capital level; the psychological capital level of the teachers is influenced by their highest educational attainment, length of teaching experience, and the number of relevant trainings attended; the teachers have moderate psychological burnout level; and, the psychological burnout level of the teachers is influenced by the psychological capital level. addressed.

Keywords: *Psychological capital, psychological burnout, teachers*

Introduction

Ineffective workplace structures and management practices, according to Edu-Valsania, Laguia, and Moriano (2022), can have adverse effects on employees by depleting their psychological resources instead of fostering their sense of worth and dignity. In modern workplaces, burnout has

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become a significant psychosocial hazard, resulting in considerable consequences for both employees and organizations. Although burnout was initially associated mainly with caregiving professions, later studies have shown that it can affect individuals across various occupations and professional fields.

According to Parker and Russo (2025), burnout is a syndrome that arises from chronic workplace stress that has not been successfully addressed. It is marked by three key manifestations: ongoing exhaustion and reduced energy, increased mental distance from work accompanied by negative or cynical feelings toward one's job, and a decline in professional performance. Burnout is specifically associated with occupational settings. Xie et al. (2022) described it as a form of psychological exhaustion that develops progressively, often without the individual recognizing its onset, and may increase the risk of depression. Thus, burnout may be viewed as a psychological condition, more specifically referred to as psychological burnout.

According to Avola et al. (2025), psychological burnout has attracted considerable scholarly attention due to its substantial impact on employees' work performance. They defined psychological burnout as a condition marked by mental pressure, emotional exhaustion, and feelings of detachment or dissatisfaction regarding one's accomplishments and job performance. Furthermore, they explained that burnout is characterized by psychological manifestations, including emotional and cognitive exhaustion, negative attitudes toward work, and decreased concern for colleagues, which collectively lead to fatigue and a reduced orientation toward achievement. They also highlighted that burnout may contribute to the development of unfavorable attitudes toward coworkers.

Arvidsson et al. (2019) described psychological burnout as a state that occurs when individuals feel that their needs and expectations have not been satisfied. Such experiences often give rise to frustration and are accompanied by physical and psychological symptoms that can eventually diminish self-esteem. In general, psychological burnout adversely affects job performance by causing fatigue, exhaustion, and feelings that one's work lacks purpose, value, or fulfillment.

Meanwhile, Jain et al. (2025) asserted that although work-related pressure is a major factor contributing to psychological burnout, it is not its only cause. Psychological burnout

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develops from psychological stress in the workplace, frequently stemming from role conflicts and escalating job demands. It is particularly common among individuals who set exceptionally high standards for their performance and among those who struggle to meet the responsibilities assigned to them. Furthermore, occupations characterized by excessive demands can generate persistent psychological burnout, which may gradually reduce employees' concentration and weaken their dedication to work.

According to Agyapong et al. (2022), professionals working in human service sectors, such as education, are especially susceptible to psychological burnout. Among these professionals, teachers often encounter substantial levels of work-related psychological burnout within the school setting. Teaching is commonly recognized as a highly demanding profession and has been associated with negative health consequences, including psychological distress and burnout. Moreover, research suggests that teachers experience higher levels of psychological burnout than individuals in the broader workforce.

Teacher psychological burnout is typically manifested through emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment (Jain et al., 2025). It often arises from excessive workloads, inadequate resources, and the emotional challenges associated with meeting the diverse needs of students. Emotional exhaustion, considered the central component of psychological burnout, is characterized by feelings of fatigue, hopelessness, anxiety, and, in some cases, depression. Teachers may become physically and mentally depleted due to the numerous demands of their profession, including not only classroom instruction but also lesson preparation, assessment, and administrative duties. Depersonalization involves emotional disengagement from students, colleagues, and the teaching profession. As psychological burnout and frustration increase, teachers may distance themselves from others, reducing their capacity to establish meaningful relationships and effectively perform their roles. Meanwhile, a diminished sense of personal accomplishment reflects a decline in teachers' perceptions of their competence and success. When they believe that their efforts are producing little meaningful impact, their motivation, confidence, and sense of purpose in teaching may gradually weaken.

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Theoretical and Conceptual Framework

This study was also anchored in Herzberg's Two-Factor Theory. According to Wu et al. (2016), the theory suggests that motivation is influenced by two distinct sets of factors: hygiene factors and motivator factors. Hygiene factors constitute the fundamental conditions necessary to satisfy basic needs related to existence and social relationships. On the other hand, motivator factors address higher-order needs and are linked to personal growth, achievement, and self-fulfillment, similar to Maslow's concept of self-actualization and Alderfer's relatedness and growth needs.

In the context of this study, the levels of the teachers' psychological burnout are shaped by both hygiene and motivator factors. Hygiene factors refer to the external conditions surrounding the work environment, such as compensation, supervision, organizational policies, relationships with supervisors, and working conditions. These extrinsic factors primarily affect the extent to which teachers experience psychological burnout at a basic level. In contrast, motivator factors involve the intrinsic elements of the teaching profession that encourage performance and engagement, including achievement, recognition, opportunities for career advancement, and responsibility. These internal factors are associated with higher levels of psychological burnout and play a significant role in fostering motivation and fulfillment.

The study was further anchored in Equity Theory. As explained by Wu et al. (2016), this theory is based on motivational principles and emphasizes individuals' perceptions of fairness regarding the relationship between their inputs and the rewards they receive. It underscores the significance of maintaining a fair balance between contributions and outcomes in the workplace. Employees who perceive that they receive fewer rewards than they deserve may experience frustration and dissatisfaction, while those who believe they are receiving more than their fair share may feel guilt or discomfort.

Within the context of this study, teachers' perceptions of inequity between their efforts and the rewards they obtain may adversely influence their job satisfaction, morale, performance, relationships with colleagues, and overall attitudes toward the organization. Moreover, both perceived under-reward and over-reward can result in different forms of dissatisfaction, highlighting the importance of fairness in maintaining positive workplace outcomes.

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Statement of the Problem

This study aimed to propose an action plan to improve the well-being of the teachers of selected public elementary schools in Malasiqui II District. Specifically, it sought answers to the following problems:

Main Problem. What action plan may be proposed to improve the well-being of the teachers of selected public elementary schools in Malasiqui II District?

Sub-problems. To substantially answer the main problem, answers to the following problems were likewise sought:

1. What is the profile of the teachers in terms of:

    a. Highest educational attainment

    b. Length of teaching experience, and

    c. Number of trainings attended related with well-being for the past 5 years?

2. What is the psychological capital level of the teachers?

3. Is there a significant relationship between the profile variables of the teachers and their psychological capital level?

4. What is the psychological burnout level of the teachers?

5. Is there a significant relationship between the psychological capital level of the teachers and their psychological burnout level?

6. Based on the findings, what action plan may be proposed for the teachers of the selected public elementary schools in Malasiqui II District to improve their well-being?

Methods

Research Design

This study used the quantitative-descriptive method of research. It described the teachers of the selected public elementary schools in Malasiqui II District in terms of highest educational

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attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determined their psychological capital level and their psychological burnout level. The study was also correlational for it determined if there is a significant relationship between the profile variables of the teachers and their psychological capital level and if there is a significant relationship between the psychological capital level of the teachers and their psychological burnout level.

Moreover, the developmental method of research was also employed for the study came up with a proposed action plan to improve the well-being of the teachers.

Participants and Sampling

All the 179 teachers in the nine selected public elementary schools were made as respondents of the study. Hence, no sampling was done to them. The distribution of the teachers per the nine selected public elementary schools is presented in Table 1.

TABLE 1
Distribution of the Teachers per the Selected
Public Elementary Schools

Public Elementary Schools	Number of Teachers	Percentage
Aliaga Elementary School	19	11%
Bakitiw Elementary School	18	10%
Canan Elementary School	17	9%
Don Pedro Elementary School	17	9%
Malimpec Elementary School	19	11%
Nalsian-Tomling Elementary School	24	13%
Olea Elementary School	19	11%
San Julian Central School	12	7%
Talospatang Elementary School	34	19%
Total	179	100%

Research Participants. As mentioned, all the 179 teachers in the nine selected public elementary schools in Malasiqui II District were made as respondents in the study. These teachers provided data relative to their profile in terms of highest educational attainment, length of teaching experience, and number of relevant trainings attended as well as their psychological capital level and their psychological burnout level.

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Instrumentation and Data Collection

Instrumentation. The data utilized in this study were gathered through a survey-questionnaire. The survey-questionnaire had three parts. The first part focused on the profile of the teachers; the second part looked into their psychological capital level, and the third part dealt with their psychological burnout level.

Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the teachers is common in researches. Hence, no validation is required.

In relation to the second part of the survey-questionnaire which is about the psychological capital level of the teachers, the items were based on the Psychological Capital Questionnaire adopted by Dacasin (2025) in her study entitled "Psychological Capital Level of the Teachers in Selected Public Elementary School in Malasiqui I District." The Psychological Capital Questionnaire is widely recognized as the standard scale measuring psychological capital. It was developed as a compound measure consisting of items from published scales for hope, optimism, resilience, and self-efficacy. The questionnaire was used in employee, manager, and student samples, and its items are closely tied to the work place. Accordingly, the items are considered as valid and reliable.

With respect to the third part of the survey-questionnaire which is about the psychological burnout level, the items were based on the Burnout Assessment Tool (BAT) of Schaefeli, De Witte, and Desart (2020). The items in the BAT have a Cronbach's alpha coefficient ranging from .89 to .97. According to Nunally and Bernstein (1994), as cited by Schaefeli, De Witte, and Desart (2020), a Cronbach's alpha coefficient which is greater than .70 is sufficient and a Cronbach's alpha coefficient which is greater than .80 is good. Accordingly, the BAT has an excellent internal consistency.

Data Analysis

To determine the profile of the teachers in the nine selected public elementary schools in Malasiqui II District, the data gathered were subjected to frequency count and percentage employing the formula:

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$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage

f = the observed frequency

N = total number of subject cases

To determine the psychological capital level and the psychological burnout level of the teachers, the weighted mean was used employing the formula:

$$WM = \frac{\sum wX}{\sum w}$$

where:

WM = weighted mean

∑ = summation

W = weighing factor

X = frequency.

Moreover, the weighted means computed were interpreted using this scale of interpretation:

very low level = 1.00 – 1.49

low level = 1.50 – 2.49

moderate level= 2.50 – 3.49

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high level = 3.50 – 4.49

very high level= 4.50 – 5.00.

To determine if there is a significant relationship between the profile variables of the teachers and their psychological capital level, the chi-square test of independence was used.

And, to determine if there is a significant relationship between the psychological capital level of the teachers and their psychological burnout level, Pearson r and Regression Analysis were used.

Results

Profile of the Teachers

RESULTS AND DISCUSSION

This chapter presents the data gathered and their analysis and interpretation to answer the sub-problems raised in the study.

The Profile of the Teachers

This section presents the profile of the teachers of the selected public elementary schools in Malasiqui II District to answer the first sub-problem of the study.

On Highest Educational

Attainment

With respect to the educational attainment, the teachers were given five choices, namely, bachelor's degree, completed academic requirements in the master's degree, master's degree, completed academic requirements in the doctorate degree, and doctorate degree. Table 2 indicates the results.

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TABLE 2
Distribution of the Teachers in terms of
Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's Degree	50	28%%
Completed academic requirements in the Master's Degree	47	26%
Master's Degree	53	30%
Completed academic requirements in the Doctorate Degree	17	9%
Doctorate Degree	12	7%
Total	179	100%

As presented by Table 2, 50 or 28% of the teachers are bachelor's degree holders, 47 or 26% have completed the academic requirements for the master's degree, 53 or 30% are master's degree holders, 17 or 9% have completed the academic requirements for the doctorate degree, and 12 or 7% are doctorate degree holders. It can be noted that majority of the teachers in the selected public elementary schools in Malasiqui II District have no post-graduate degree.

On Length of Teaching

Experience

In relation to the length of teaching experience, the teachers were provided with five choices to choose from, viz., five years and below, six to ten years, 11 to 15 years, 16 to 20 years, and more than 20 years . Table 3 shows the results.

TABLE 3
Distribution of the Teachers in terms of
Length of Teaching Experience

Length of Experience	Frequency	Percentage
1 to 5 years	21	12%
6 to 10 years	33	18%
11 to 15 years	38	21%
16 to 20 years	45	25%
More than 20 years	42	24%
Total	179	100%

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As disclosed by Table 3, 21 or 12% of the teachers have been teaching for one to five years, 33 or 18% have been teaching for six to ten years already, 38 or 21% have been teaching for 11 to 15 years already, 45 or 25% have been teaching for 16 to 20 years already, and 42 or 24% have been teaching for more than 20 years already. It can be noted here that majority of the teachers in the selected public elementary schools in Malasiqui II District have been teaching for more than ten years already.

On Number of Trainings/Seminars

Attended

In relation to the number of trainings/seminars related with well-being attended for the past five years, the teachers were given three choices, to wit: have not attended any training/seminar related with well-being for the past five years, have attended not more than three trainings/seminars related with well-being for the past five years, and have attended more than three trainings/seminars related with well-being for the past five years. Table 4 presents the results.

Table 4

Distribution of the Teachers in terms of Number of

Relevant Trainings Attended

Number of Relevant Trainings Attended	Frequency	Percentage
Have not attended any training related with well-being for the past five years	0	0
Have attended not more than three trainings related with well-being for the past five years	124	69%
Have attended more than three trainings related with well-being for the past five years	55	31%
Total	179	100%

As disclosed by Table 4, 124 or 69% of the teachers have attended not more than three trainings related well-being for the past five years and 55 or 31% have attended more than three trainings. It can be noted that majority of the teachers in the selected public elementary schools in

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Malasiqui II DIstrict have attended not more than three trainings related with well-being for the past five years.

The Psychological Capital Level of the Teachers

This section provides answers to the second sub-problem of the study which is about the psychological capital level of the teachers.

To provide answers to the sub-problem, the teachers were asked to rate their psychological capital level. Table 5 presents the results.

As provided in Table 5, when asked as to what level they feel confident analyzing a long-term problem to find a solution, 71 of the teachers claimed “moderate level,” 68 claimed “high level,” and 40 claimed “very high level.” The weighted mean computed here is 3.83 which is pointing to “high level” in the scale.

When questioned as to what level they feel confident in representing their work area in meetings with superiors, 71 of the teachers said “moderate level,” 64 said “high level,” and 44 said “very high level.” In this item, the weighted mean computed is 3.85 which is leading to “high level” in the scale of interpretation.

When queried as to what level they feel confident contributing to discussions about the school strategy, 71 of the teachers mentioned “moderate level,” 68 mentioned “high level,” and 40 mentioned “very high level.” The weighted mean computed here is 3.83 which is indicative of “high level” in the scale.

TABLE 5

The Psychological Capital Level the Teachers

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Assessment Items	Responses					WM	DE
	VL	LO	MO	HI	VH		
1. I feel confident analyzing a long-term problem to find a solution.	0	0	71	68	40	3.83	HI
2. I feel confident in representing my work area in meetings with superiors.	0	0	71	64	44	3.85	HI
3. I feel confident contributing to discussions about the school strategy.	0	0	71	68	40	3.83	HI
4. I feel confident helping to set targets/goals in my work area.	0	10	57	57	55	3.88	HI
5. I feel confident contacting people outside the school (e.g., parents, barangay officials) to discuss problems.	0	0	61	58	60	3.99	HI
6. I feel confident presenting information to a group of colleagues.	0	10	63	69	37	3.74	HI
7. If I should find myself in a jam at work, I could think of many ways to get out of it.	0	10	63	72	34	3.73	HI
8. At the present time, I am energetically pursuing my work goals.	0	10	63	56	50	3.82	HI
9. I believe that there are a lot of ways around any problem.	0	10	63	74	32	3.72	HI
10. Right now, I see myself as being pretty successful at work.	0	10	57	57	55	3.88	HI
11. I can think of many ways to reach my current work goals.	0	20	46	83	30	3.69	HI
12. At this time, I am meeting the work goals that I have set for myself.	0	0	75	60	44	3.83	HI
13. When I have a setback at work, I have no trouble recovering from it or moving on.	0	10	65	60	44	3.77	HI
14. I usually manage difficulties one way or another at work.	0	20	46	79	34	3.71	HI
15. I can be on my own, so to speak, at work if I have to.	0	20	44	75	40	3.75	HI
16. I usually take stressful things at work in stride.	0	10	61	62	46	3.80	HI
17. I can get through difficult times at work because I have experienced difficulty before.	0	10	53	68	48	3.86	HI
18. I feel I can handle many things at a time at this job.	0	0	74	55	50	3.87	HI
19. When things are uncertain for me at work, I usually expect the best.	0	0	76	53	50	3.85	HI
20. I believe that nothing can go wrong for	0	0	79	50	50	3.84	

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me work-wise.							HI
21. I always look at the bright side of things regarding my job.	0	0	86	45	48	3.79	HI
22. I am optimistic about what will happen to me in the future as it pertains to work.	0	10	69	64	36	3.70	HI
23. I believe that, in my job, things work out the way I want them to.	0	0	74	67	38	3.80	HI
24. I approach my job as if every cloud has a silver lining.	0	20	43	68	48	3.80	HI
					AWM	3.80	HI

Legend:

WM = weighted mean

DE = descriptive equivalent

AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49

LO = mow level = 1.50 – 2.49

MO = moderate level = 2.50 – 3.49

HI = high level = 3.50 – 4.49

VH = very high level = 4.50 – 5.00

When inquired as to what level they feel confident helping to set targets/goals in their work area, ten of the teachers checked “low level,” 57 checked “moderate level,” 57 also checked “high level,” and 55 checked “very high level.” In this item, the weighted mean computed is 3.88 which is “high level” in the scale.

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Asked as to what level they feel confident contacting people outside the school (e.g., parents, barangay officials) to discuss problems, 61 of the teachers claimed “moderate level,” 58 claimed “high level,” and 60 claimed “very high level.” Here, the weighted mean computed is 3.99 which is reflective of “high level” in the scale.

Questioned as to what level they feel confident presenting information to a group of colleagues, 10 of the teachers answered “low level,” 63 answered “moderate level,” 69 answered “high level,” and 37 answered “very high level.” The weighted mean computed here is 3.74 which is “high level” in the scale.

Inquired as to what level they could think of many ways to get out of a jam at work should they find it, 10 of the teachers replied “low level,” 63 replied “moderate level,” 72 replied “high level,” and 34 replied “very high level.” Here, the weighted mean computed is 3.73 which is indicative of “high level” in the scale.

Queried as wo what level they are energetically pursuing their work goals at the present time, 10 of the teachers responded “low level,” 63 responded “moderate level,” 56 responded “high level,” and 50 responded “very high level.” In this item, the weighted mean computed is 3.82 which is pointing to “high level” in the scale.

When questioned as to what level they believe that there are a lot of ways around any problem, 10 of the teachers ticked “low level,” 63 ticked “moderate level,” 74 ticked “high level,” and 32 ticked “very high level.” Here, the weighted mean computed is 3.72 which is leading to “high level” in the scale.

When inquired as to what level they see themselves as being pretty successful at work right now, 10 of the teachers pointed “low level,” 57 pointed “moderate level,” 57 also pointed “high level,” and 55 pointed “very high level.” In this item, the weighted mean computed is 3.88 which is indicative of “low level” in the scale.

When inquired as to what level they can think of many ways to reach their current work goals, 20 of the teachers checked “low level,” 46 checked “moderate level,” 83 checked “high level,” and 30 checked “very high level.” In this item, the weighted mean computed is 3.69 which is “high level” in the scale.

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Asked as to what level they are meeting the work goals that they have set for themselves at this time, 75 of the teachers claimed “moderate level,” 60 claimed “high level,” and 44 claimed “very high level.” Here, the weighted mean computed is 3.83 which is reflective of “high level” in the scale.

Questioned as to what level, when they have a setback at work, they have no trouble recovering from it or moving on, 10 of the teachers answered “low level,” 65 answered “moderate level,” 60 answered “high level,” and 44 answered “very high level.” The weighted mean computed here is 3.77 which is “high level” in the scale.

Inquired as to what level they usually manage difficulties one way or another at work, 20 of the teachers replied “low level,” 46 replied “moderate level,” 79 replied “high level,” and 34 replied “very high level.” Here, the weighted mean computed is 3.71 which is indicative of “high level” in the scale.

Queried as wo what level they can be on their own, so to speak, at work if they have to, 20 of the teachers responded “low level,” 44 responded “moderate level,” 75 responded “high level,” and 40 responded “very high level.” In this item, the weighted mean computed is 3.75 which is pointing to “high level” in the scale.

When questioned as to what level they usually take stressful things at work in stride, 10 of the teachers ticked “low level,” 61 ticked “moderate level,” 62 ticked “high level,” and 46 ticked “very high level.” Here, the weighted mean computed is 3.80 which is leading to “high level” in the scale.

When inquired as to what level they can get through difficult times at work because they have experienced difficulty before, 10 of the teachers pointed “low level,” 53 pointed “moderate level,” 68 pointed “high level,” and 48 pointed “very high level.” In this item, the weighted mean computed is 3.86 which is indicative of “high level” in the scale.

When inquired as to what level they feel they can handle many things at a time at this job, 74 of the teachers checked “moderate level,” 55 checked “high level,” and 50 checked “very high level.” In this item, the weighted mean computed is 3.87 which is “high level” in the scale.

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Asked as to what level, when things are uncertain for them at work, they usually expect the best, 76 of the teachers claimed “moderate level,” 53 claimed “high level,” and 50 claimed “very high level.” Here, the weighted mean computed is 3.85 which is reflective of “high level” in the scale.

Questioned as to what level they believe that nothing can go wrong for them work-wise, 79 of the teachers answered “moderate level,” 50 answered “high level,” and 50 also answered “very high level.” The weighted mean computed here is 3.84 which is “high level” in the scale.

Inquired as to what level they always look at the bright side of things regarding their job, 86 of the teachers replied “moderate level,” 45 replied “high level,” and 48 replied “very high level.” Here, the weighted mean computed is 3.79 which is indicative of “high level” in the scale.

Queried as wo what level they are optimistic about what will happen to them in the future as it pertains to work, 10 of the teachers responded “low level,” 69 responded “moderate level,” 64 responded “high level,” and 36 responded “very high level.” In this item, the weighted mean computed is 3.70 which is pointing to “high level” in the scale.

When questioned as to what level they believe that, in their job, things work out the way they want them to, 74 of the teachers ticked “moderate level,” 67 ticked “high level,” and 38 ticked “very high level.” Here, the weighted mean computed is 3.80 which is leading to “high level” in the scale.

Lastly, when queried as to what level they approach their job as if every cloud has a silver lining, 20 of the teachers claimed “low level,” 43 claimed “moderate level,” 68 claimed “high level,” and 48 claimed “very high level.” Here, the weighted mean computed is 3.80 which is pointing to “high level” in the scale.

Meanwhile, the area weighted mean computed is 3.80. This implies that the teachers perceived that they have high psychological capital level.

Relationship between the Profile Variables of the Teachers and

Their Psychological Capital Level

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This part of the chapter provides answers to the third sub-problem of the study which is about the significant relationship between the profile variables of the teachers and their psychological capital level.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the profile variables of the teachers and their psychological capital level. Thereafter, the researcher correlated the profile variables of the teachers and their psychological capital level using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the chi square value at .05 level of significance. Table 6 presents the results.

TABLE 6

Relationship between the Profile Variables of the Teachers and

Their Psychological Capital Level

Profile Variables	Chi Square Value	Chi Square Critical Value	RM
Highest Educational Attainment	6.47	3.84	S
Length of Teaching Experience	6.22	3.84	S
Number of Relevant Trainings	5.61	3.84	S

Legend:

RM = remarks

S = significant

NS = not significant

As shown in Table 6, when the highest educational attainment of the teachers and their psychological capital level, the chi square value computed is 6.47. This figure is higher than the

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chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the psychological capital level of the teachers is influenced by their highest educational attainment.

Secondly, when the length of teaching experience of the teachers and their psychological capital level are correlated, the chi square value computed is 6.22. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the psychological capital level of the teachers is influenced by their length of teaching experience.

Lastly, when the number of relevant trainings of the teachers and their psychological capital level are correlated, the computed chi square value computed is 5.61. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the psychological capital level of the teachers is influenced by the number of relevant trainings they attended.

The Psychological Burnout Level of the Teachers

This section presents answers to the second problem of the study which is about the psychological burnout level of the teachers.

To find answers to the problem, the teachers were asked to rate their psychological burnout level along the exhaustion dimension, mental distance dimension, emotional impairment dimension, cognitive impairment dimension, psychological distress dimension, and psychosomatic complaints dimension.

On Exhaustion

Dimension

The teachers assessed their psychological burnout level along exhaustion dimension. Table 7 presents the results.

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TABLE 7

The Psychological Burnout Level along Exhaustion

Dimension of the Teachers

Assessment Items	Responses					WM	DE
	VL	LO	MO	HI	VH		
1. At work, I feel mentally exhausted.	0	41	98	40	0	2.99	MO
2. Everything I do at work requires a great deal of effort.	0	52	94	33	0	2.89	MO
3. After a day at work, I find it hard to recover my energy.	0	41	98	40	0	2.99	MO
4. At work, I feel physically exhausted.	0	57	67	55	0	2.99	MO
5. When I get up in the morning, I lack the energy to start a new day at work.	0	41	89	49	0	3.04	MO
6. I want to be active at work, but somehow I am unable to manage.	0	63	79	37	0	2.85	MO
7. When I exert myself at work, I quickly get tired.	0	63	82	34	0	2.84	MO
8. At the end of my working day, I feel mentally exhausted and drained.	0	53	76	50	0	2.98	MO
					AWM	2.95	MO

Legend:

WM = weighted mean

DE = descriptive equivalent

AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49

LO = low level = 1.50 – 2.49

MO = moderate level= 2.50 – 3.49

HI = high level = 3.50 – 4.49

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VH = very high level= 4.50 – 5.00

As provided in Table 7, when asked as to what level they feel mentally exhausted at work, 41 of the claimed “low level,” 98 claimed “moderate level,” and 40 claimed “high level.” The weighted mean computed here is 2.99 which is pointing to “moderate level” in the scale.

When questioned as to what level everything they do at work requires a great deal of effort, 52 of the teachers said “low level,” 94 claimed “moderate level,” and 33 said “high level.” In this item, the weighted mean computed is 2.89 which is leading to “moderate level” in the scale of interpretation.

When questioned as to what level they find it hard to recover their energy after a day at work, 41 of the teachers said “low level,” 98 claimed “moderate level,” and 40 said “high level.” In this item, the weighted mean computed is 2.99 which is leading to “moderate level” in the scale of interpretation.

When queried as to what level they feel physically exhausted at work, 57 of the teachers mentioned “low level,” 67 mentioned “moderate level,” and 55 mentioned “high level.” The weighted mean computed here is 2.99 which is indicative of “moderate level” in the scale.

When inquired as to what level they lack the energy to start a new day at work when they get up in the morning, 41 of the teachers checked “low level,” 89 checked “moderate level,” and 49 checked “high level.” In this item, the weighted mean computed is 3.04 which is “moderate level” in the scale.

Asked as to what level they want to be active at work but somehow, they are unable to manage, 63 of the teachers claimed “low level,” 79 claimed “moderate level,” and 37 claimed “high level.” Here, the weighted mean computed is 2.85 which is reflective of “moderate level” in the scale.

Questioned as to what level they quickly get tired when they exert themselves at work, 63 of the teachers answered “low level,” 82 answered “moderate level,” and 34 also answered “high level.” The weighted mean computed here is 2.84 which is “moderate level” in the scale.

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Lastly, when asked as to what level they feel mentally exhausted and drained at the end of their working day, 53 of the teachers claimed “low level,” 76 claimed “moderate level,” and 50 claimed “high level.” Here, the weighted mean computed is 2.98 which is pointing to “moderate level” in the scale.

Meanwhile, the area weighted mean computed is 2.95. This implies that the teachers have moderate psychological burnout level along exhaustion dimension.

On Mental Distance

Dimension

The teachers assessed their psychological burnout level along mental distance dimension. Table 8 presents the results.

As provided in Table 8, when asked as to what level they struggle to find any enthusiasm for their work, 44 of the teachers claimed “low level,” 94 claimed “moderate level,” and 41 claimed “high level.” The weighted mean computed here is 2.98 which is pointing to “moderate level” in the scale.

TABLE 8

The Psychological Burnout Level along Mental Distance

Dimension of the Teachers

Assessment Items	Responses					WM	DE
	VL	LO	MO	HI	VH		
1. I struggle to find any enthusiasm for my work.	0	44	94	41	0	2.98	MO
2. At work, I do not think much about what I am doing and I function on autopilot.	0	57	67	55	0	2.99	MO
3. I feel a strong aversion towards my job.	0	57	83	39	0	2.90	MO
4. I feel indifferent about my job.	0	46	80	53	0	3.04	MO
5. I am cynical about what my work means to others.	0	46	80	53	0	3.04	MO
					AWM	2.99	MO

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Legend:

WM = weighted mean

DE = descriptive equivalent

AWM = area weighted mean

Scale:

VL	=	very low level =	1.00 – 1.49
LO	=	low level	=	1.50 – 2.49
MO	=	moderate level=	2.50 – 3.49
HI	=	high level	=	3.50 – 4.49
VH	=	very high level=	4.50 – 5.00

When inquired as to what level they do not think much about what they are doing and they function on autopilot at work, 57 of the teachers checked “low level,” 67 checked “moderate level,” and 55 checked “high level.” In this item, the weighted mean computed is 2.99 which is “moderate level” in the scale.

Asked as to what level they feel a strong aversion towards their job, 57 of the teachers claimed “low level,” 83 claimed “moderate level,” and 39 claimed “high level.” Here, the weighted mean computed is 2.90 which is reflective of “moderate level” in the scale.

Questioned as to what level they feel indifferent about their job, 46 of the teachers answered “low level,” 80 answered “moderate level,” and 53 answered “high level.” The weighted mean computed here is 3.04 which is “moderate level” in the scale.

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And, when queried as to what level they are cynical about what their work means to others, 46 of the teachers checked “low level,” 80 checked “moderate level,” and 53 checked “high level.” In this item, the weighted mean computed is 3.04 which is leading to “moderate level” in the scale.

Moreover, the area weighted mean computed is 2.99. This implies that the teachers have moderate psychological burnout level along mental distance dimension.

On Emotional Impairment

Dimension

The teachers assessed their psychological burnout level along emotional impairment dimension. Table 9 shows the results.

As provided in Table 9, when asked as to what level they feel unable to control their emotions at work, 66 of the teachers claimed “low level,” 79 claimed “moderate level,” and 34 claimed “high level.” The weighted mean computed here is 2.82 which is pointing to “moderate level” in the scale.

When questioned as to what level they do not recognize themselves in the way they react emotionally at work, 64 of the teachers said “low level,” 75 said “moderate level,” and 40 said “high level.” In this item, the weighted mean computed is 2.87 which is leading to “moderate level” in the scale of interpretation.

TABLE 9

The Psychological Burnout Level along Emotional

Impairment Dimension of the Teachers

Assessment Items	Responses					WM	DE
	VL	LO	MO	HI	VH		
1. At work, I feel unable to control my emotions.	0	66	79	34	0	2.82	MO
2. I do not recognize myself in the way I	0	64	75	40	0	2.87	

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react emotionally at work.							MO
3. During my work, I become irritable when things do not go my way.	0	61	72	46	0	2.92	MO
4. I get upset or sad at work without knowing why.	0	53	68	58	0	3.03	MO
5. At work, I may overreact unintentionally.	0	56	65	58	0	3.01	MO
					AWM	2.93	MO

Legend:

WM = weighted mean

DE = descriptive equivalent

AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49

LO = low level = 1.50 – 2.49

MO = moderate level= 2.50 – 3.49

HI = high level = 3.50 – 4.49

VH = very high level= 4.50 – 5.00

Questioned as to what level they become irritable when things do not go their way during their work, 61 of the teachers answered “low level,” 72 answered “moderate level,” and 46 answered “high level.” The weighted mean computed here is 2.92 which is “moderate level” in the scale.

Inquired as to what level they get upset or sad at work without knowing why, 53 of the teachers replied “low level,” 68 replied “moderate level,” and 58 replied “high level.” Here, the weighted mean computed is 3.03 which is indicative of “moderate level” in the scale.

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And, inquired as to what level they may overreact unintentionally at work, 56 of the teachers mentioned “low level,” 65 mentioned “moderate level,” and 58 mentioned “high level.” The weighted mean computed in this item is 3.01 which is leading to “moderate level” in the scale.

Moreover, the area weighted mean computed is 2.93. This implies that the teachers have moderate psychological burnout level along emotional impairment dimension.

On Cognitive Impairment

Dimension

The teachers assessed their psychological burnout level along cognitive impairment dimension. Table 10 shows the results.

As provided in Table 10, when asked as to what level they have trouble staying focused at work, 58 of the teachers claimed “low level,” 63 claimed “moderate level,” and 58 claimed “high level.” The weighted mean computed here is 3.00 which is pointing to “moderate level” in the scale.

When questioned as to what level they struggle to think clearly at work, 61 of the teachers said “low level,” 60 said “moderate level,” and 58 said “high level.” In this item, the weighted mean computed is 2.98 which is leading to “moderate level” in the scale of interpretation.

TABLE 10

The Psychological Burnout Level along Cognitive

Impairment Dimension of the Teachers

Assessment Items	Responses					WM	DE
	VL	LO	MO	HI	VH		
1. At work, I have trouble staying focused.	0	58	63	58	0	3.00	MO
2. At work, I struggle to think clearly.	0	61	60	58	0	2.98	MO

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3. I am forgetful and distracted at work.	0	58	75	46	0	2.93	MO
4. When I am working, I have trouble concentrating.	0	60	74	45	0	2.92	MO
5. I make mistakes in my work because I have my mind on other things.	0	66	67	46	0	2.89	MO
					AWM	2.94	MO

Legend:

WM = weighted mean

DE = descriptive equivalent

AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49

LO = low level = 1.50 – 2.49

MO = moderate level= 2.50 – 3.49

HI = high level = 3.50 – 4.49

VH = very high level= 4.50 – 5.00

Questioned as to what level they forgetful and distracted at work, 58 of the teachers answered “low level,” 75 answered “moderate level,” and 46 answered “high level.” The weighted mean computed here is 2.93 which is “moderate level” in the scale.

Inquired as to what level they have trouble concentrating when they are working, 60 of the teachers replied “low level,” 74 replied “moderate level,” and 45 replied “high level.” Here, the weighted mean computed is 2.92 which is indicative of “moderate level” in the scale.

And, inquired as to what level they make mistakes in their work because they have their mind on other things, 66 of the teachers mentioned “low level,” 67 mentioned “moderate level,”

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and 46 mentioned “high level.” The weighted mean computed in this item is 2.89 which is leading to “moderate level” in the scale.

Furthermore, the area weighted mean computed is 2.94. This implies that the teachers have moderate psychological burnout level along cognitive impairment dimension.

On Psychological Distress

Dimension

The teachers assessed their psychological burnout level along psychological distress dimension. Table 11 shows the results.

As provided in Table 11, when asked as to what level they suffer from palpitations or chest pain, 65 of the teachers claimed “low level,” 68 claimed “moderate level,” and 46 claimed “high level.” The weighted mean computed here is 2.89 which is pointing to “moderate level” in the scale.

When questioned as to what level they suffer from stomach and/or intestinal complaints, 47 of the teachers said “low level,” 75 said “moderate level,” and 57 said “high level.” In this item, the weighted mean computed is 3.06 which is leading to “moderate level” in the scale of interpretation.

Questioned as to what level they suffer from headaches, 42 of the teachers answered “low level,” 86 answered “moderate level,” and 51 answered “high level.” The weighted mean computed here is 3.05 which is “moderate level” in the scale.

TABLE 11

The Psychological Burnout Level along Psychological

Distress Dimension of the Teachers

Assessment Items	Responses					WM	DE
	VL	LO	MO	HI	VH		
1. I suffer from palpitations or chest pain.	0	65	68	46	0	2.89	MO

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2. I suffer from stomach and/or intestinal complaints.	0	47	75	57	0	3.06	MO
3. I suffer from headaches.	0	42	86	51	0	3.05	MO
4. I suffer from muscle pain, for example in the neck, shoulder or back.	0	54	73	52	0	2.99	MO
5. I often get sick.	0	52	75	52	0	3.00	MO
					AWM	3.00	MO

Legend:

WM = weighted mean

DE = descriptive equivalent

AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49

LO = low level = 1.50 – 2.49

MO = moderate level= 2.50 – 3.49

HI = high level = 3.50 – 4.49

VH = very high level= 4.50 – 5.00

Inquired as to what level they suffer from muscle pain, for example in the neck, shoulder or back, 54 of the teachers replied “low level,” 73 replied “moderate level,” and 52 replied “high level.” Here, the weighted mean computed is 2.99 which is indicative of “moderate level” in the scale.

And, inquired as to what level they often get sick, 52 of the teachers mentioned “low level,” 75 mentioned “moderate level,” and 52 mentioned “high level.” The weighted mean computed in this item is 3.00 which is leading to “moderate level” in the scale.

Furthermore, the area weighted mean computed is 3.00. This implies that the teachers have moderate psychological burnout level along psychological distress dimension.

On Psychosomatic Complaints

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Dimension

The teachers assessed their psychological burnout level along psychosomatic complaints dimension. Table 12 shows the results.

TABLE 12

The Psychological Burnout Level along Psychosomatic

Complaints Dimension of the Teachers

Assessment Items	Responses					WM	DE
	VL	LO	MO	HI	VH		
1. My weight fluctuates without being on a diet.	0	59	76	44	0	2.92	MO
2. I have trouble falling or staying asleep.	0	52	89	38	0	2.92	MO
3. I tend to worry.	0	42	95	42	0	3.00	MO
4. I feel tense and stressed.	0	58	73	48	0	2.94	MO
5. I feel anxious and/or suffer from panic attacks.	0	54	84	41	0	2.93	MO
6. Noise and crowds disturb me.	0	54	77	48	0	2.97	MO
					AWM	2.95	MO

Legend:

WM = weighted mean

DE = descriptive equivalent

AWM = area weighted mean

Scale:

VL = very low level = 1.00 – 1.49

LO = low level = 1.50 – 2.49

MO = moderate level= 2.50 – 3.49

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HI = high level = 3.50 – 4.49

VH = very high level= 4.50 – 5.00

As provided in Table 12, when asked as to what level their weight fluctuates without being on a diet, 59 of the teachers claimed “low level,” 76 claimed “moderate level,” and 44 claimed “high level.” The weighted mean computed here is 2.92 which is pointing to “moderate level” in the scale.

When questioned as to what level they have trouble falling or staying asleep, 52 of the teachers said “low level,” 89 said “moderate level,” and 38 said “high level.” In this item, the weighted mean computed is 2.92 which is leading to “moderate level” in the scale of interpretation.

Queried as to what level they tend to worry, 42 of the teachers answered “low level,” 95 answered “moderate level,” and 42 answered “high level.” The weighted mean computed here is 3.00 which is “moderate level” in the scale.

Inquired as to what level they feel tense and stressed, 58 of the teachers replied “low level,” 73 replied “moderate level,” and 48 replied “high level.” Here, the weighted mean computed is 2.94 which is indicative of “moderate level” in the scale.

When asked as to what level they feel anxious and/or suffer from panic attacks, 54 of the teachers replied “low level,” 84 replied “moderate level,” and 41 replied “high level.” Here, the weighted mean computed is 2.93 which is indicative of “moderate level” in the scale.

And, inquired as to what level noise and crowds disturb them, 54 of the teachers mentioned “low level,” 77 mentioned “moderate level,” and 48 mentioned “high level.” The weighted mean computed in this item is 2.97 which is leading to “moderate level” in the scale.

Furthermore, the area weighted mean computed is 2.95. This implies that the teachers have moderate psychological burnout level along psychosomatic complaints dimension.

The Psychological Burnout

Level of the Teachers

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The psychological burnout level of the teachers in the selected public elementary schools in Malasiqui II District is presented in Table 13.

TABLE 13

The Psychological Burnout Level

of the Teachers

Dimensions	Teachers	
	AWM	DE
Exhaustion Dimension	2.95	MO
Mental Distance Dimension	2.99	MO
Emotional Impairment Dimension	2.93	MO
Cognitive Impairment Dimension	2.94	MO
Psychological Distress Dimension	3.00	MO
Psychosomatic Complaints Dimension	2.95	MO
OWM	2.96	MO

Legend:

AWM = area weighted mean

DE = descriptive equivalent

OWM = overall weighted mean

As can be noted in Table 13, the teachers perceived that they have moderate psychological burnout level as evidenced by the computed overall weighted mean of 2.96.

Relationship between the Psychological Capital Level of the Teachers and

Their Psychological Burnout Level

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This part of the chapter provides answers to the fifth sub-problem of the study which is about the significant relationship between the psychological capital level of the teachers and their psychological burnout level.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the psychological capital level of the teachers and their psychological burnout level. Thereafter, the researcher correlated the psychological capital level of the teachers and their psychological burnout level using Pearson r and Regression Analysis in the Microsoft Excel. Here, the researcher computed for the r value and the p value at .05 alpha. Table 14 presents the results.

TABLE 14

Relationship between the Psychological Capital Level of the Teachers and Their Psychological Burnout Level

	Computed r Value	Computed p Value at .05 alpha	RM
Psychological Capital Level	0.79	0.00	Significantly strong positive relation

Scale:

very strong positive relationship = 0.80 – 1.000

strong positive relationship = 0.60 – 0.799

moderate positive relationship = 0.40 – 0.599

weak positive relationship = 0.20 – 0.399

very weak positive relationship = 0.00 – 0.199

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As shown in Table 14, when the psychological capital level of the teachers and their psychological burnout level are correlated, the r value computed is 0.79. Following the scale of interpretation, this figure implies a strong positive correlation. Moreover, the p value computed is 0.00. This figure is lower than the .05 alpha. This implies that there is a significant strong positive relationship between the psychological capital level of the teachers and their psychological burnout level. This means that the psychological burnout level of the teachers is influenced by the psychological capital level.

Conclusion and Recommendations

Conclusion

Based on the findings made, the following conclusions were drawn:

1. A typical teacher in the selected public elementary schools in Malasiqui II District has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with well-being.

2. The teachers have high psychological capital level.

3. The psychological capital level of the teachers is influenced by their highest educational attainment, length of teaching experience, and the number of relevant trainings attended.

4. The teachers have moderate psychological burnout level.

5. The psychological burnout level of the teachers is influenced by the psychological capital level.

6. The proposed action plan will improve the well-being of the teachers in the selected public elementary schools in Malasiqui II District.

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Recommendations

Based on the findings made and the conclusions drawn, the following recommendations are offered:

1. The proposed action plan be approved for implementation in the selected public elementary schools in Malasiqui II District improve the well-being of the teachers.

2. The implementation of the proposed action plan in the selected public elementary schools in Malasiqui II District improve the well-being of the teachers should be evaluated.

3. Similar study may be conducted by other researchers to validate the findings of the study. competence.

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Mathematics Teachers' Teaching Competency in Selected Public Elementary Schools in the City of Manila

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Abstract

This study determined the teaching competency level of mathematics teachers in selected public elementary schools in the City of Manila during School Year 2025–2026. Specifically, it examined the teachers' profile in terms of highest educational attainment, length of teaching experience, and number of relevant trainings attended; determined their teaching competency level as perceived by themselves and their school heads; examined the relationship between their profile variables and teaching competency level; and determined the difference between the perceptions of mathematics teachers and school heads. The study employed a quantitative-descriptive-correlational research design with a developmental component. The respondents were 170 mathematics teachers and 14 school heads from selected public elementary schools in the City of Manila. Data were gathered through survey questionnaires and analyzed using frequency, percentage, weighted mean, chi-square test of independence, and t-test. Findings revealed that 74% of the mathematics teachers had no postgraduate degree, 66% had more than 10 years of teaching experience, and 70% had attended not more than three relevant trainings during the past five years. Mathematics teachers perceived themselves as having an advanced teaching competency level, with an overall weighted mean of 4.04, while school heads rated them as competent, with an overall weighted mean of 2.89. Significant relationships were found between teaching competency and educational attainment, teaching experience, and relevant trainings. A significant difference was also found between the perceptions of mathematics teachers and school heads. Based on the findings, a faculty development program was proposed to enhance the teaching competency of mathematics teachers.

Keywords: teaching competency; mathematics teachers; public elementary schools; faculty development program; professional development

Introduction

Quality education is essential to the development of learners and society because it enables learners to acquire knowledge, skills, attitudes, and competencies needed for meaningful participation in life. Quality education requires safe and inclusive learning environments, relevant curricula and instructional materials, learner-centered teaching approaches, appropriate assessment practices, and competent and well-trained teachers (UNICEF, 2026). Teachers are at the core of quality education because their knowledge, skills, and professional practices directly influence the quality of learners' educational experiences. Quality teaching involves effective instructional delivery, classroom management, formative assessment, and personal competencies that support learner achievement (Hattie, 2019). Teaching competency encompasses the knowledge and skills necessary for teachers to perform effectively in the teaching profession (Wing Institute,

2017). In mathematics education, these competencies are particularly important because teachers need adequate content knowledge and pedagogy, effective learning-environment practices, responsiveness to learner diversity, appropriate curriculum planning, assessment skills, professional engagement, and continuous professional development. These areas provide an important basis for examining the teaching competency of mathematics teachers in public elementary schools.

Despite the recognized importance of teacher competency in providing quality education, there remains a need to determine how mathematics teachers demonstrate these competencies in actual school settings. The level of teaching competency may differ across the various domains of professional practice, and teachers' perceptions of their own competency may not necessarily correspond with the perceptions of their school heads. Professional development and relevant training may also contribute to teachers' knowledge and skills, but the extent to which teachers' educational attainment, teaching experience, and participation in relevant trainings are associated with their competency level requires empirical examination. In the selected public elementary schools in the City of Manila, there was a need to obtain evidence regarding the teaching competency of mathematics teachers across the areas of content knowledge and pedagogy, learning environment, diversity of learners, curriculum and planning, assessment and reporting, community linkages and professional engagement, and personal growth and professional development. Continuous assessment and improvement are important in addressing such concerns because quality education involves ongoing improvement in learners, learning environments, curriculum content, instructional processes, and learning outcomes (UNICEF, 2026).

In response to this need, the present study aimed to determine the teaching competency level of mathematics teachers in selected public elementary schools in the City of Manila during School Year 2025–2026. Specifically, it examined the teachers' profile in terms of highest educational attainment, length of teaching experience, and number of relevant trainings attended during the past five years; determined their teaching competency level as perceived by themselves and their school heads; examined the relationship between their profile variables and teaching competency level; and determined whether there was a significant difference between the perceptions of mathematics teachers and school heads regarding the teachers' competency level. The study employed a quantitative-descriptive-correlational research design with a developmental component and involved 170 mathematics teachers and 14 school heads. The findings were intended to provide a basis for the development of a faculty development program to enhance the teaching competency of mathematics teachers in the selected public elementary schools in the City of Manila.

Methodology

Research Design

The study employed a quantitative-descriptive, correlational, and developmental research design. The descriptive component was used to determine the profile of the

mathematics teachers and their teaching competency level as perceived by themselves and their school heads. The correlational component was used to determine the relationship between the teachers' profile variables and their teaching competency level and the difference between the perceptions of the mathematics teachers and school heads. The developmental component was used as the basis for developing a faculty development program intended to improve the teaching competency of mathematics teachers.

Research Setting and Participants

The study was conducted in 14 selected public elementary schools in the City of Manila during School Year 2025–2026. The population consisted of 296 mathematics teachers. Using Slovin's formula with a 0.05 margin of error, a sample of 170 mathematics teachers was obtained. The sample was proportionately distributed among the selected schools, and the teachers were randomly selected. All 14 school heads of the selected schools were included as respondents.

Research Instrument

Data were gathered using two survey questionnaires, one for the mathematics teachers and another for the school heads. The mathematics teachers' questionnaire gathered information about their highest educational attainment, length of teaching experience, number of relevant seminars/trainings attended, and teaching competency level. The school heads' questionnaire gathered data concerning the teaching competency level of the mathematics teachers.

Data Collection Procedure

The questionnaires were administered to the selected mathematics teachers and school heads. The accomplished questionnaires were retrieved and the data were organized for statistical treatment.

Data Analysis

Frequency and percentage were used to describe the profile of the mathematics teachers**.** Weighted mean was used to determine the teaching competency level. The chi-square test of independence was used to determine the relationship between the profile variables and teaching competency level, while the t-test was used to determine whether a significant difference existed between the perceptions of mathematics teachers and school heads.

Results

Profile of the Mathematics Teachers

The findings showed that 74% of the mathematics teachers had no postgraduate degree. In terms of teaching experience**,** 66% had been teaching for more than 10 years. Regarding relevant professional development, 70% had attended not more than three trainings related to teaching competency during the past five years.

Table 1. Profile of the Mathematics Teachers

Profile Variable	Major Finding
Highest educational attainment	74% had no postgraduate degree
Length of teaching experience	66% had more than 10 years of experience
Relevant trainings	70% attended not more than three trainings

Level of Teaching Competency

The mathematics teachers and school heads provided different assessments of the teachers' competency across the seven areas.

Table 2. Teaching Competency Level of Mathematics Teachers as Perceived by Teachers and School Heads

Competency Area	Teachers' WM	Teachers' Interpretation	School Heads' WM	School Heads' Interpretation
Content Knowledge and Pedagogy	4.00	Advanced	2.93	Competent
Learning Environment	4.06	Advanced	2.88	Competent
Diversity of Learners	4.00	Advanced	2.89	Competent
Curriculum and Planning	4.06	Advanced	2.89	Competent
Assessment and Reporting	4.10	Advanced	2.90	Competent
Community Linkages and Professional Engagement	4.01	Advanced	2.89	Competent
Personal Growth and Professional Development	4.07	Advanced	2.87	Competent
Overall	**4.04**	**Advanced**	**2.89**	**Competent**

Note: WM = Weighted Mean; Scale: 1.00–1.49 = Novice, 1.50–2.49 = Beginner, 2.50–3.49 = Competent, 3.50–4.49 = Advanced, 4.50–5.00 = Expert.

Difference Between Perceptions

To determine whether there was a significant difference between the perceptions of the mathematics teachers and school heads regarding the teaching competency level of the mathematics teachers. The test was conducted at the 0.05 level of significance. The computed p-value was 0.00, which was lower than the 0.05 level of significance. Therefore, the null hypothesis was rejected. This indicates that there was a significant difference between the perceptions of the mathematics teachers and school heads regarding the teaching competency level of the mathematics teachers.

Table 3. Difference Between the Perceptions of Mathematics Teachers and School Heads

Teaching Competency Level	Computed p-value	Level of significance	Remarks
Mathematics Teachers and School Heads	0.00	0.05	Significant

Relationship Between Profile Variables and Teaching Competency

The profile variables considered were highest educational attainment, length of teaching experience, and number of relevant trainings attended during the past five years**.** The relationship between these variables and teaching competency was analyzed using the chi-square test of independence at the 0.05 level of significance. The results showed significant relationships between teaching competency and highest educational attainment, length of teaching experience, and number of relevant trainings attended. These findings indicate that the teachers' professional and educational background were significantly associated with their teaching competency level.

Table 4. Relationship Between Profile Variables and Teaching Competency Level

Profile Variable	p- value	Chi-square	Decision/Result
Highest Educational Attainment	0.01	3.13	Significant
Length of Teaching Experience	0.00	7.96	Significant
Number of Relevant Trainings	0.01	6.59	Significant

Discussion

The findings indicate that the typical mathematics teacher in the selected public elementary schools had no postgraduate degree, had more than 10 years of teaching experience, and had attended not more than three relevant trainings during the past five years. This profile suggests that the teachers generally possessed substantial classroom experience, although postgraduate education and participation in relevant professional development were less common among the respondents.

A notable finding was the difference between the teachers' self-assessment and the school heads' assessment. Mathematics teachers perceived themselves as having an advanced level of teaching competency, whereas school heads assessed them as competent. The difference was consistent across the seven competency areas. The overall weighted means of 4.04 and 2.89 show that the two respondent groups did not have the same assessment of the teachers' competency.

The findings also showed significant relationships between teaching competency and all three profile variables. Educational attainment had a chi-square value of 6.13 and p-value of 0.01**;** teaching experience had a chi-square value of 7.96 and p-value of 0.00; and relevant trainings had a chi-square value of 6.59 and p-value of 0.01. Since all p-values were below 0.05, the null hypothesis was rejected for each variable.

The significant difference between the perceptions of teachers and school heads further indicates the importance of using more than one perspective when assessing teaching competency. The teachers' self-perceptions alone may provide only one view of their professional competence, while school-head assessments provide another perspective based on administrative and professional observation. The significant p-value of 0.00 supports the conclusion that the two groups differed significantly in their assessment.

The findings provided a basis for the proposed faculty development program. The thesis specifically considered the relatively limited number of relevant trainings attended by the majority of teachers, the school heads' assessment of teachers as competent, and the significant relationship between relevant trainings and teaching competency.

Conclusion

The mathematics teachers in the selected public elementary schools in the City of Manila were generally experienced teachers, with the majority having more than 10 years of teaching experience. However, most of the teachers had no postgraduate degree and had attended not more than three relevant trainings during the past five years. These findings indicate that although the respondents had considerable teaching experience, opportunities for further academic advancement and relevant professional development remained important considerations in strengthening their teaching competency.

In terms of teaching competency, the mathematics teachers assessed themselves as Advanced, with an overall weighted mean of 4.04, while the school heads assessed them

as Competent, with an overall weighted mean of 2.89. This shows that the perceptions of the two groups differed in assessing the teaching competency of the mathematics teachers.

The study further established that highest educational attainment, length of teaching experience, and number of relevant trainings attended had significant relationships with teaching competency level. Moreover, there was a significant difference between the perceptions of mathematics teachers and school heads regarding the teachers' teaching competency. These findings demonstrate the importance of considering teachers' educational background, professional experience, and continuing professional development when examining teaching competency.

Finally, based on the findings of the study, a Faculty Development Program was proposed to enhance the teaching competency of mathematics teachers in the selected public elementary schools in the City of Manila. The proposed program provides a basis for addressing areas of professional development and supporting the continuous improvement of mathematics teachers' competencies.

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Integration of Gender and Development in the Teaching and Learning Process of Public Secondary School Teachers in Binalonan, Pangasinan

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Abstract

This study examined the extent of integration of Gender and Development (GAD) in the teaching and learning process of public secondary school teachers in Binalonan, Pangasinan, during School Year 2025–2026. It also determined the relationship between teachers' profile variables and the extent of GAD integration, compared teachers' and school heads' perceptions, and developed a proposed capacity-building program. The study employed a quantitative-descriptive cross-sectional survey design, with a developmental component. Respondents consisted of 158 teachers selected from a population of 262 using Slovin's formula and all six school heads of the public secondary schools in the municipality. Data were gathered through survey questionnaires covering learners' development, learning delivery, learning environment, learning resources, and assessment. Teachers rated the extent of GAD integration at an overall mean of 4.00, interpreted as Great Extent, while school heads gave an overall mean of 2.97, interpreted as Moderate Extent. The computed chi-square values for educational attainment, teaching experience, and relevant GAD-related trainings were 6.32, 5.71, and 5.99, respectively; the thesis reported these relationships as significant. A significant difference between the perceptions of teachers and school heads was also reported ($p = 0.00$, as presented in the source thesis). A five-day capacity-building program was proposed to strengthen GAD integration across the five domains. The findings indicate a need to strengthen professional learning, instructional support, and school-level monitoring of gender-responsive teaching practices.

Keywords: gender and development, GAD integration, teaching and learning process, public secondary school teachers, capacity building

Introduction

Gender and Development (GAD) is a framework that promotes gender equality and the empowerment of all people by examining and addressing inequalities embedded in social structures, policies, institutions, and everyday practices. In education, GAD integration involves creating learning experiences, environments, resources, and assessment practices that recognize diverse needs, prevent gender stereotyping, and provide equitable opportunities for participation and achievement.

Schools play an important role in translating gender-equality principles into classroom practice. Teachers influence the examples used in lessons, classroom interactions, allocation of learning opportunities, selection of instructional materials, and assessment procedures.

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The integration of GAD therefore requires more than awareness of gender-related policies; it calls for consistent application in the different dimensions of teaching and learning.

The study focused on public secondary school teachers in Binalonan, Pangasinan. Specifically, it examined teachers' profile in terms of highest educational attainment, length of teaching experience, and number of relevant trainings attended; assessed the extent of GAD integration in five domains; determined the relationship between profile variables and GAD integration; and compared teachers' perceptions with those of their school heads. It also sought to develop a proposed capacity-building program based on the findings.

The study is significant because differences between teachers' self-assessments and school heads' assessments may point to areas where shared expectations, technical assistance, and monitoring can be improved. A clearer understanding of these areas can help schools strengthen gender-responsive teaching and learning practices.

Methodology

Research Design

The study used a quantitative-descriptive cross-sectional survey design to describe teachers' profile and determine the extent of GAD integration in the teaching and learning process as perceived by teachers and school heads. It also included a developmental component through the formulation of a proposed capacity-building program.

Research Setting and Participants

The study was conducted in public secondary schools in Binalonan, Pangasinan, during School Year 2025–2026. The teacher population consisted of 262. A sample of 158 teachers was determined using Slovin's formula with a 5% margin of error. All six school heads were included as respondents.

Public Secondary School	Teacher Population	Sample
Juan G. Macaraeg National High School	149	90
San Felipe National High School	24	14
Sta. Maria National High School	28	17
Sumabnit National High School	16	10
Batasan National High School	16	10
Bugayong Integrated School	29	17
Total	262	158

Research Instrument

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Data was gathered using survey questionnaires for teachers and school heads. The instrument assessed GAD integration in five domains: learners' development, learning delivery, learning environment, learning resources, and assessment. The source thesis describes the instrument as adapted from Doydoy and Lomarda (2025). The questionnaire used a five-point Likert scale. Further details on validation and reliability should be supplied from the original research records before journal submission.

Data Collection Procedure

Permission was sought from the Schools Division Superintendent of Pangasinan II, and coordination was undertaken with the school heads. The questionnaires were personally administered and retrieved after three weeks. Participation was voluntary, and respondents were informed of the purpose of the study and the confidentiality of their responses.

Data Analysis

Frequency counts and percentages were used to describe respondents' profiles. Weighted means were used to determine the perceived extent of GAD integration. Chi-square analysis was used to examine relationships between profile variables and GAD integration, while a t-test was reported for the comparison of teachers' and school heads' perceptions. The source thesis reports the statistical results summarized below. Exact test statistics, degrees of freedom, confidence intervals, and assumptions should be verified against the original statistical output.

Results

Profile of Teachers

In terms of educational attainment, 69 teachers (44%) held a bachelor's degree, 42 (27%) had completed master's academic requirements, 36 (23%) held a master's degree, seven (4%) had completed doctoral academic requirements, and four (2%) held a doctorate. Overall, 71% had not completed a graduate degree.

Highest Educational Attainment	Frequency	Percentage
Bachelor's degree	69	44%
Completed MA academic requirements	42	27%
Master's degree	36	23%
Completed doctoral academic requirements	7	4%
Doctorate	4	2%
Total	158	100%

Regarding teaching experience, 17 teachers (11%) had one to five years of service, 37 (23%) had six to ten years, 42 (27%) had 11 to 15 years, 38 (24%) had 16 to 20 years, and 24 (15%) had more than 20 years of experience. Thus, 66% had more than ten years of teaching experience.

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Length of Teaching Experience	Frequency	Percentage
1–5 years	17	11%
6–10 years	37	23%
11–15 years	42	27%
16–20 years	38	24%
More than 20 years	24	15%
Total	158	100%

For GAD-related training attended during the previous five years, 98 teachers (62%) had attended not more than three training courses, while 60 (38%) had attended more than three. No respondent selected the option indicating no relevant training.

Number of Relevant GAD Trainings	Frequency	Percentage
No training	0	0%
Not more than three trainings	98	62%
More than three trainings	60	38%
Total	158	100%

Extent of GAD Integration in the Teaching and Learning Process

Teachers generally rated their GAD integration practices at a Great Extent, with an overall mean of 4.00. School heads rated the same practices at a Moderate Extent, with an overall mean of 2.97. The pattern was consistent across all five domains.

Domain	Teachers' Mean	School Heads' Mean
Learners' development	4.02	2.98
Learning delivery	3.98	2.87
Learning environment	4.02	3.03
Learning resources	3.99	2.97
Assessment	4.00	3.00
Overall Mean	4.00	2.97

The highest teacher ratings were recorded for learners' development and learning environment (both 4.02), while the lowest was learning delivery (3.98). Among school heads, learning environment received the highest mean (3.03), while learning delivery received the lowest (2.87).

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Relationship Between Profile Variables and GAD Integration

The thesis reported significant relationships between each of the three teacher profile variables and the extent of GAD integration. The reported computed chi-square values were 6.32 for educational attainment, 5.71 for teaching experience, and 5.99 for the number of relevant trainings attended.

Profile Variable	Computed χ^2	Decision Reported in Thesis
Highest educational attainment	6.32	Significant relationship
Length of teaching experience	5.71	Significant relationship
Number of relevant GAD trainings	5.99	Significant relationship

The original thesis presents a critical value of 3.84. The degrees of freedom and complete contingency tables were not available in the summarized results used for this article; these details should be checked against the original statistical computations before publication.

Difference Between Teachers' and School Heads' Perceptions

The thesis reported a significant difference between teachers' and school heads' perceptions of the extent of GAD integration, with a reported p-value of 0.00. Because a p-value should not be reported as exactly zero, the value should be checked in the original statistical output and presented using the appropriate exact value or threshold (for example, $p < .001$, if supported by the output). The test statistic, degrees of freedom, and test assumptions should also be added.

Proposed Capacity-Building Program

Based on the findings, a five-day capacity-building program was proposed to enhance teachers' integration of GAD in the teaching and learning process. The program is organized around the five assessed domains: learners' development, learning delivery, learning environment, learning resources, and assessment. The detailed schedule, session objectives, resource persons, and evaluation measures should be inserted from the approved program in the thesis if the journal requires the full intervention design.

Discussion

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The profile results show that most teacher-respondents had substantial teaching experience, while a majority had not completed a graduate degree. Although all respondents reported attending at least one relevant GAD training during the previous five years, most had attended not more than three. This pattern suggests that schools may need to provide continuing, practice-oriented professional development rather than relying only on occasional seminars.

The difference between teachers' self-ratings and school heads' ratings is a central finding. Teachers perceived that they integrated GAD to a great extent, whereas school heads assessed the extent as moderate. This gap may reflect differences in the criteria used to judge classroom practice, the visibility of GAD strategies during observation, or the need for clearer shared indicators. These are possible interpretations and should be examined through follow-up classroom observations or qualitative inquiry.

The reported significant relationships between teachers' profile variables and GAD integration suggest that educational attainment, teaching experience, and relevant training may be associated with differences in reported practice. However, the strength and direction of these relationships cannot be determined from the reported chi-square values alone. The complete contingency tables, degrees of freedom, and effect-size measures should be included to support a fuller interpretation.

The proposed capacity-building program responds to the need to strengthen GAD integration across the five domains. To maximize its usefulness, the program should include practical lesson-planning activities, analysis and revision of learning resources, inclusive classroom strategies, gender-responsive assessment, and mechanisms for coaching and monitoring.

Conclusion

The study found that public secondary school teachers in Binalonan, Pangasinan perceived their integration of GAD in the teaching and learning process to be at a great extent, while school heads perceived it to be at a moderate extent. The thesis also reported significant relationships between teachers' educational attainment, teaching experience, and relevant GAD-related training and the extent of GAD integration, as well as a significant difference between the perceptions of teachers and school heads. A five-day capacity-building program was proposed to strengthen GAD-responsive practices across the five domains. Continued professional development, shared performance indicators, and supportive instructional monitoring are recommended to improve the consistency of GAD integration.

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ASSESSMENT OF THE INFORMATION LITERACY OF THE ELEMENTARY SCHOOL TEACHERS OF PRIVATE SCHOOLS IN BAYAMBANG, PANGASINAN

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Abstract

This study sought to determine the information literacy level of the elementary school teachers of private schools in Bayambang, Pangasinan during the School Year 2025-2026 through a quantitative-descriptive-correlational research design. The data used in this study came from the 103 elementary school teachers and eight school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, and the t-test. Results showed that: majority of the elementary school teachers have no post-graduate degree, have been teaching for one to five years only, have not attended any training/seminar related with information literacy for the past five years; in general, the elementary school teachers of private schools in Bayambang, Pangasinan perceived that their information literacy level is advanced as evidenced by the computed overall weighted mean of 3.78 and the school heads also perceived that the information literacy level of the elementary school teachers is intermediate only as evidenced by the computed overall weighted mean of 2.98; there is a significant relationship between the highest educational attainment, length of teaching experience, and number of relevant trainings attended of the elementary school teachers and their information literacy level; and, there is a significant difference between the perceptions of the elementary school teachers and the school heads of private schools on the information literacy level of the elementary school teachers. Based from the findings, the following conclusions were drawn: a typical elementary school teacher of a private school in Bayambang, Pangasinan has no post-graduate degree, has been teaching for one to five 15 years, and has not attended any training/seminar related with information literacy for the past five years; the elementary school teachers perceived that their information literacy level is advanced while the school heads perceived that the information literacy level of the elementary school teachers is intermediate only; the information literacy level of the elementary school teachers is influenced by their educational attainment, length of teaching experience, and the number of relevant trainings attended; and, the perceptions of the elementary school teachers and the school heads on the information literacy level of the elementary school teachers are significantly different from each other.

Keywords: *Information literacy, elementary school teachers*

Introduction

In the modern age of rapidly advancing technology, the information age has changed the way people obtain, interact with, and use information. Consequently, information literacy has become an essential set of abilities and competencies that greatly affects individuals' daily lives in a society driven by information (Fernandez-Otoya et al, 2024).

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Information literacy, according to Deepmala and Upadhyay (2021), refers to the ability to use information resources effectively in carrying out work-related tasks. They considered it as a collection of fundamental skills and tools associated with the use of information. Botturi and Beretta (2022) described information literacy as the skills necessary to locate, comprehend, and access trustworthy sources of information, such as facts, data, and knowledge. In the same way, Lee et al. (2023) defined information literacy as the capacity to identify the need for information and to find, evaluate, and use it effectively and efficiently. Likewise, Durodolu (2020) explained that information literacy includes the knowledge, attitudes, and competencies needed to determine information needs, locate and critically evaluate information, organize it properly, and apply it ethically.

Moreover, Yevelson-Shorsher and Bronstein (2018), described information literacy as a socially situated practice. She highlighted its importance as a catalyst for learning, a basis for civic and community participation, and an essential competence for professional achievement in a rapidly advancing technological world. Similarly, Ryan (2023) defined information literacy as the ability to find, evaluate, and effectively use information sources. This encompasses various competencies, including database navigation, identification of credible sources, and proper citation of references.

In addition, Peciuliauskiene, Tamonilune, and Trepule (2022) explained information literacy as a blend of skills and dispositions that involve understanding the functions of information systems, engaging in reflective information searching, and applying information to create and communicate new knowledge in different contexts. Likewise, Wu, Zhou, Li, & Chen (2022) defined information literacy as a collection of interconnected abilities that include the careful exploration of information, understanding how information is produced and valued, and the ethical use of information in generating knowledge and participating in scholarly communities.

Meanwhile, UNESCO (2023) highlighted information literacy as a fundamental pillar of the information society, together with lifelong learning, as it directs individuals toward growth, prosperity, and freedom. It enables people from diverse backgrounds to effectively locate, evaluate, utilize, and create information, helping them achieve their personal, social, professional, and academic goals. Individuals who are information literate are able to access essential information concerning health, education, employment, and the environment, allowing them to make well-informed decisions in their everyday lives.

Similarly, Turpo-Gebera, Diaz-Zavala, Cuadros-Linares, and Ramírez-García (2022) noted that information-literate individuals have a comprehensive understanding of how information systems function and can interact with them critically and thoughtfully. They are also capable of accessing, producing, and disseminating information in ways that enhance their professional, family, religious, and civic responsibilities.

Likewise, Ryan (2023) emphasized that the vast amount of information accessible on the internet makes it increasingly challenging to differentiate credible sources from unreliable ones. He explained that not all online content can be considered trustworthy, as some materials contain biased viewpoints designed to shape or influence readers' opinions. The internet is also filled with fake news, misleading information intended to undermine opposing perspectives, and native advertisements that closely resemble ordinary content, making promotional material difficult to identify. Therefore, individuals must remain cautious of deceptive information, critically examine where information originates, and evaluate sources carefully for both academic use and everyday media consumption. Hence, information literacy has become an essential and highly important skill.

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UNESCO (2023) further highlighted that in the modern digital environment, information literacy includes the capacity to effectively utilize information and communication technologies (ICT) and other related tools in accessing and producing information. Closely linked to this are two related forms of literacy: computer literacy, which pertains to proficiency in ICT, and media literacy, which involves understanding the different formats and channels used in delivering information. For example, exploring the online environment and engaging with multimedia hypertext documents require both the technical skills needed to use digital platforms and the analytical abilities necessary to interpret and understand the information presented.

According to Moreno-Guerrero, Miaja-Chippirraz, Bueno-Pedrero, and Borrego-Otero (2020), an information-literate individual is able to determine the nature and extent of the information needed, access that information effectively and efficiently, and critically evaluate both the information itself and its sources. Such an individual can also incorporate relevant information into existing knowledge and belief systems, use it appropriately to accomplish a specific purpose, and demonstrate awareness of the ethical, legal, and socio-economic issues related to information and information technology use.

Similarly, Manabat (2021) stated that an information-literate person has the capacity to locate information sources, assess their credibility and authority, distinguish objective information from biased content, use suitable references to support research, identify plagiarism, and apply correct citation practices.

Based on the foregoing discussion, it is undeniable that teachers must possess information literacy skills. As facilitators of learning and knowledge, they should be capable of identifying the nature and extent of the information they need, accessing information efficiently and effectively, critically evaluating information and its sources, and integrating relevant information into their knowledge base and value system. Teachers must also be able to use information appropriately to achieve specific objectives while understanding the ethical, legal, and socio-economic concerns related to information and information technology. Moreover, they should know how to locate reliable sources, evaluate the authority and credibility of information, distinguish biased content from unbiased material, utilize relevant references in research, recognize plagiarism, and apply proper citation practices accurately.

METHODOLOGY

Research Design

This study utilized the quantitative-descriptive method of research. It described the elementary school teachers of private schools in Bayambang, Pangasinan in terms of their highest educational attainment, length of teaching experience, and number of relevant trainings/seminars attended as well as determined their information literacy level as perceived by themselves and their school heads. The study was also correlational for it determined if there is a significant relationship between the profile variables of the elementary school teachers and their information literacy level and if there is a significant difference between the perceptions of the elementary school teachers and the school heads on the information literacy level of the elementary school teachers. Moreover, the developmental method of research was also employed for the study came up with a capacity building program to improve the information literacy level of the elementary school teachers of private schools in Bayambang, Pangasinan.

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Sources of Data

Research Setting. This study was conducted in private schools in Bayambang, Pangasinan during the School Year 2025-2026.

Sampling. The respondents of the present investigation were all the 103 elementary school teachers and eight school heads of the private schools in Bayambang, Pangasinan. Accordingly, no sampling was done.

Research Participants. As mentioned, all the 103 elementary school teachers and eight school heads of the private schools in Bayambang, Pangasinan were made as respondents of the study. The elementary school teachers provide their profile in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as their information literacy level. Table 1 shows the distribution of the elementary school teachers per private school. Meanwhile, the school heads provided data relative to the information literacy level of the elementary school teachers.

TABLE 1
Distribution of the Elementary School Teachers per Private School

Private Schools	Number of Teachers	Percentage
Marianne College of Science and Technology	10	9
Mother Goose Special School System, Inc.	8	8
St. Vincent's Catholic School of Bayambang, Inc.	40	39
St. Alexander M. Sauli Catholic School	12	11
Sunbeam Methodist Christian School, Inc.	9	9
Liahona Learning Center, Inc.	7	7
Asiana Learning Institute, Inc.	9	9
Emmanuel's Way Educational Institution, Inc.	8	8
Total	103	100%

Instrumentation and Data Collection

Instrumentation. The data utilized in this study were gathered through two survey-questionnaires – one for the elementary school teachers and one for the school heads. The survey-questionnaire for the elementary school teachers had two parts. The first part focused on the profile of the elementary school teachers in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended. And, the second part concentrated on the information literacy level of the elementary school teachers. On the other hand, the survey-questionnaire for the school heads only looked into the information literacy level of the elementary school teachers.

Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the elementary school teachers is common in researches. Hence, no validation is required.With respect to the second part of the survey-questionnaire which is about the information literacy level of the elementary school teachers, the items were based from the survey-questionnaire of Payomo (2024) in her study entitled “The Information Literacy Level of Public

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Elementary School Teachers in Malasiqui II District." The items in this survey-questionnaire were validated by the researcher and, hence, are considered valid and reliable.

Data Collection. In collecting the data needed in the study, the researcher personally administered the survey-questionnaire to the elementary school teachers giving them two weeks to answer. After two weeks, the researcher retrieved the survey questionnaire.

Ethical Considerations. So as not to violate the data privacy of the elementary school teachers and the school heads, permission to conduct the study was first secured from the school heads of the different private schools. Thereafter, informed consent was taken from the elementary school teachers and the school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

Tools for Data Analysis

To determine the profile of the elementary school teachers of private schools in Bayambang, Pangasinan, the data gathered were subjected to frequency count and percentage employing the formula:

$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage
f = the observed frequency
N = total number of subject cases

To determine the information literacy level of the elementary school teachers, the weighted mean was used employing the formula:

$$WM = \frac{\Sigma wX}{\Sigma w}$$

where:

WM = weighted mean
Σ = summation
W = weighing factor
X = frequency.

Moreover, the weighted means computed were interpreted using this scale of interpretation:

fundamental	=	1.00 – 1.49
basic	=	1.50 – 2.49
intermediate	=	2.50 – 3.49
advanced	=	3.50 – 4.49
expert	=	4.50 – 5.00.

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To determine if there is a significant relationship between the profile variables of the elementary school teachers and their information literacy level, the chi-square test of independence was used.

Lastly, to determine if there is a significant difference between the perceptions of the elementary school teachers and the school heads on the information literacy level of the elementary school teachers, the t-test was utilized.

RESULTS AND DISCUSSION

This chapter presents the data gathered and their analysis and interpretation to answer the sub-problems raised in the study.

The Profile of the Elementary School Teachers

This section presents the profile of the elementary school teachers in the private schools in Bayambang, Pangasinan to answer the first sub-problem of the study.

On Highest Educational Attainment

With respect to highest educational attainment, the elementary school teachers were provided with five choices, scilicet, "bachelor's degree holder," "finished academic requirements for the master's degree," "master's degree holders," "finished academic requirements for the doctoral degree," and "doctoral degree holder." Table 2 presents the results.

TABLE 2
Distribution of the Elementary School Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's degree holder	81	79%
Finished academic requirements for the master's degree	15	14%
Master's degree holder	7	7%
Finished academic requirements for the doctoral degree	0	0%
Doctoral degree holder	0	0%
Total	103	100%

As presented in Table 2, 81 or 79% of the elementary school teachers are bachelor's degree holders, 15 or 14% have finished the academic requirements for the master's degree, and seven or 7% are master's degree holders. It can be deduced that majority of the elementary school teachers in the private schools in Bayambang, Pangasinan have no post-graduate degrees.

On Length of Teaching Experience

With regard to length of teaching experience, the elementary school teachers were provided with five choices: "1 to 5 years," "6 to 10 years," "11 to 15 years," "16 to 20 years," and "more than 20 years." Table 3 manifests the results.

TABLE 3
Distribution of the Elementary School Teachers in terms of Length of Teaching Experience

Length of Experience	Frequency	Percentage

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1 - 5 years	64	62%
6 - 10 years	19	18%
11 - 15 years	14	14%
16 – 20 years	4	4%
more than 20 years	2	2%
Total	103	100%

As revealed in Table 3, 64 or 62% of the elementary school teachers have been teaching for one to five years, 19 or 18% have been teaching for six to 10 years, 14 or 14% have been teaching for 11 to 15 years, four or 4% have been teaching for 16 to 20 years, and two or 2% have been teaching for more than 20 years. It can be surmised that majority of the elementary school teachers in the private schools in Bayambang, Pangasinan have been teaching for one to five years only.

On Number of Trainings/Seminars Related with Information Literacy Attended

In relation to the number of trainings/seminars related with information literacy attended for the past five years, the elementary school teachers were provided with three choices, to wit, "have not attended any trainings/seminars related with information literacy for the past five years," "have attended not more than three trainings/seminars related with information literacy for the past five years," and "have attended more than three trainings/seminars related with information literacy for the past five years." Table 4 presents the results.

TABLE 4
Distribution of the Elementary School Teachers in terms of Number of Related Trainings Attended

Number of Trainings/Seminars Attended	Frequency	Percentage
Have not attended any training/seminar related with information literacy for the past five years	90	87%
Have attended not more than three trainings/seminars related with information literacy for the past five years	13	13%
Have attended more than three trainings/seminars related with information literacy for the past five years	0	0%
Total	103	100%

As gleaned in Table 4, 90 or 87% of the elementary school teachers have attended not attended any training/seminar related with information literacy for the past five years and 13 or 13% have attended not more than three trainings/seminars. As can be noted, majority of the elementary school teachers in the private schools in Bayambang, Pangasinan have not attended any training/seminar related with information literacy for the past five years.

The Information Literacy Level of the Elementary School Teachers in the Private Schools in Bayambang, Pangasinan

This section presents answers to the second sub-problem of the study which is about the information literacy level of the elementary school teachers in the private schools in Bayambang, Pangasinan.

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To provide answers to the sub-problem, the elementary school teachers were asked to rate their information literacy level. In the same way, the school heads were asked to rate the information literacy level of the elementary school teachers.

On Defining and Articulating the Nature and Extent of Information Needed

The elementary school teachers and the school heads assessed the information literacy level along defining and articulating the nature and extent of information needed of the elementary school teachers.

Assessment of the Elementary School Teachers. The assessment of the elementary school teachers on their information literacy level along defining and articulating the nature and extent of information needed is presented in Table 5.

TABLE 5
The Assessment of the Elementary School Teachers on Their Information Literacy Level along Defining and Articulating the Nature and Extent of Information Needed

Assessment Items	Responses					WM	DE
A. Defining and Articulating the Nature and Extent of Information Needed: I (can/have) . . .	FU	BA	IN	AD	EX		
1. Know the appropriate resource for a topic.	0	0	35	59	9	3.75	AD
2. Know the appropriate resource based on depth of information needed.	0	0	41	53	9	3.69	AD
3. Distinguish between types of sources.	0	0	32	62	9	3.78	AD
4. Narrow down information.	0	0	32	58	13	3.82	AD
5. Distinguish between sources.	0	0	38	53	12	3.75	AD
6. Evaluate source credibility.	0	0	38	57	8	3.71	AD
7. Knowledge of resources for proper citation	0	0	48	44	12	3.69	AD
					AWM	3.74	AD

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

As shown in Table 5, when questioned as to the level to which they know the appropriate resource for a topic, 35 of the elementary school teachers claimed “intermediate,” 59 claimed “advance,” and nine claimed “expert.” The weighted mean computed here is 3.75 which is pointing to “advanced” in the scale.

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When asked as to the level to which they know the appropriate resource based on depth of information needed, 41 of the elementary school teachers replied "intermediate," 53 replied "advanced," and nine replied "expert." The weighted mean computed in this item is 3.69 which is leading to "advanced" in the scale.

When inquired as to the level to which they can distinguish between types of sources, 32 of the elementary school teachers responded "intermediate," 62 responded "advanced," and nine responded "expert." Here, the weighted mean computed is 3.78 which is indicative of "advanced" in the scale.

When queried as to the level to which they can narrow down information, 32 of the elementary school teachers responded "intermediate," 58 responded "advanced," and 13 responded "expert." The weighted mean computed in this item is 3.82 which is pointing to "advanced" in the scale of interpretation.

When questioned as to the level to which they can distinguish between sources, 38 of the elementary school teachers checked "intermediate," 53 checked "advanced," and 12 checked "expert." Here, the weighted mean computed is 3.75 which is "advanced" in the scale.

When asked as to the level to which they can evaluate source credibility, 38 of the elementary school teachers mentioned "intermediate," 57 mentioned "advanced," and eight mentioned "expert." In this item, the weighted mean computed is 3.71 which is pointing to "advanced" in the scale.

Lastly, when inquired as to the level to which they have knowledge of resources for proper citation, 48 of the elementary school teachers responded "intermediate," 44 replied "advanced," and 12 replied "expert." Here, the weighted mean computed is 3.69 which is indicative of "advanced" in the scale.

Meanwhile, the computed area weighted mean is 3.74. This implies that the elementary school teachers perceived that their information literacy level along defining and articulating the nature and extent of information needed is advanced.

Assessment of the School Heads. The assessment of the school heads on the information literacy level along defining and articulating the nature and extent of information needed of the elementary school teachers is presented in Table 6.

As shown in Table 6, when questioned as to the level to which the elementary school teachers know the appropriate resource for a topic, two of the school heads claimed "basic," five claimed "intermediate," and one claimed "advanced." The weighted mean computed here is 2.88 which is pointing to "intermediate" in the scale.

When asked as to the level to which the elementary school teachers know the appropriate resource based on depth of information needed, one of the school heads replied "basic," six replied "intermediate," and one replied "advanced." The weighted mean computed in this item is 3.00 which is leading to "intermediate" in the scale.

TABLE 6
The Assessment of the School Heads on the Information Literacy Level along Defining and Articulating the Nature and Extent of Information Needed of the Elementary School Teachers

Assessment Items	Responses					WM	DE
A. Defining and Articulating the Nature and Extent of Information Needed: My teachers (can/have) . . .	FU	BA	IN	AD	EX		

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1. Know the appropriate resource for a topic.	0	2	5	1	0	2.88	IN
2. Know the appropriate resource based on depth of information needed.	0	1	6	1	0	3.00	IN
3. Distinguish between types of sources.	0	2	5	1	0	2.88	IN
4. Narrow down information.	0	1	6	1	0	3.00	IN
5. Distinguish between sources.	0	1	6	1	0	3.00	IN
6. Evaluate source credibility.	0	0	7	1	0	3.13	IN
7. Knowledge of resources for proper citation	0	0	7	1	0	3.13	IN
					AWM	3.00	IN

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advance	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

When inquired as to the level to which the elementary school teachers can distinguish between types of sources, two of the school heads responded “basic,” five responded “intermediate,” and one responded “advanced.” Here, the weighted mean computed is 2.88 which is indicative of “intermediate” in the scale.

When queried as to the level to which the elementary school teachers can narrow down information, one of the school heads responded “basic,” six responded “intermediate” and one responded “advanced.” The weighted mean computed in this item is 3.00 which is pointing to “intermediate” in the scale of interpretation.

When questioned as to the level to which the elementary school teachers can distinguish between sources, one of the school heads checked “basic,” six checked “intermediate,” and one checked “advanced.” Here, the weighted mean computed is 3.00 which is “intermediate” in the scale.

When asked as to the level to which the elementary school teachers can evaluate source credibility, seven of the school heads mentioned “intermediate” and one mentioned “advanced.” In this item, the weighted mean computed is 3.13 which is pointing to “intermediate” in the scale.

Lastly, when inquired as to the level to which the elementary school teachers have knowledge of resources for proper citation, seven of the school heads responded “intermediate” and one replied “advanced.” Here, the weighted mean computed is 3.13 which is indicative of “intermediate” in the scale.

Meanwhile, the computed area weighted mean is 3.00. This implies that the school heads perceived that the information literacy level along defining and articulating the nature and extent of information needed of the elementary school teachers is intermediate.

On Accessing Needed Information Effectively and Efficiently

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The elementary school teachers and the school heads assessed the information literacy level along accessing needed information effectively and efficiently of the elementary school teachers.

Assessment of the Elementary School Teachers. The assessment of the elementary school teachers on their information literacy level along accessing needed information effectively and efficiently is shown in Table 7.

As shown in Table 7, when questioned as to the level to which they know effective search terms, 38 of the elementary school teachers claimed "intermediate," 53 claimed "advanced," and 12 claimed "expert." The weighted mean computed here is 3.75 which is pointing to "advanced" in the scale.

When asked as to the level to which they can refine search operators, 42 of the elementary school teachers replied "intermediate," 49 replied "advanced," and 12 replied "expert." The weighted mean computed in this item is 3.71 which is leading to "advanced" in the scale.

When inquired as to the level to which they know where sources are located, 36 of the elementary school teachers responded "intermediate," 50 responded "advanced," and 17 responded "expert." Here, the weighted mean computed is 3.82 which is indicative of "advanced" in the scale.

TABLE 7
The Assessment of the Elementary School Teachers on Their Information Literacy Level along Accessing Needed Information Effectively and Efficiently

Assessment Items	Responses					WM	DE
B. Accessing Needed Information Effectively and Efficiently: I (can/have) .	FU	BA	IN	AD	EX		
1. Know effective search terms.	0	0	38	53	12	3.75	AD
2. Refine search operators.	0	0	42	49	12	3.71	AD
3. Know where sources are located.	0	0	36	50	17	3.82	AD
4. Acquire a source.	0	0	43	43	17	3.75	AD
5. Query database.	0	0	34	60	9	3.76	AD
6. Distinguish between databases.	0	0	38	56	9	3.72	AD
7. Search for publications.	0	0	39	55	9	3.71	AD
8. Knowledge of search operators	0	0	41	45	17	3.77	AD
9. Knowledge of finding books in a library.	0	0	33	58	12	3.80	AD
10. Access a publication.	0	0	34	57	12	3.79	AD
11. Knowledge of reference types.	0	0	38	53	12	3.75	AD
12. Knowledge of the bibliography or references (works cited).	0	0	40	51	12	3.73	AD
13. Use data from a table.	0	0	43	48	12	3.70	AD
					AWM	3.75	AD

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU = fundamental = 1.00 – 1.49

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BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

When queried as to the level to which they can acquire a source, 43 of the elementary school teachers responded “intermediate,” 43 also responded “advanced,” and 17 responded “expert.” The weighted mean computed in this item is 3.75 which is pointing to “advanced” in the scale of interpretation.

When questioned as to the level to which they can query database, 34 of the elementary school teachers checked “intermediate,” 60 checked “advanced,” and nine checked “expert.” Here, the weighted mean computed is 3.76 which is “advanced” in the scale.

When asked as to the level to which they can distinguish between databases, 38 of the elementary school teachers mentioned “intermediate,” 56 mentioned “advanced,” and nine mentioned “expert.” In this item, the weighted mean computed is 3.72 which is pointing to “advanced” in the scale.

When questioned as to the level to which they can search for publications, 39 of the elementary school teachers claimed “intermediate,” 55 claimed “advanced,” and nine claimed “expert.” The weighted mean computed here is 3.71 which is pointing to “advanced” in the scale.

When asked as to the level to which they have knowledge of search operators, 41 of the elementary school teachers replied “intermediate,” 45 replied “advanced,” and 17 replied “expert.” The weighted mean computed in this item is 3.77 which is leading to “advanced” in the scale.

When inquired as to the level to which they have knowledge of finding books in a library, 33 of the elementary school teachers responded “intermediate,” 58 31 responded “advanced,” and 12 responded “expert.” Here, the weighted mean computed is 3.80 which is indicative of “advanced” in the scale.

When questioned as to the level to which they can access a publication, 34 of the elementary school teachers checked “intermediate,” 57 checked “advanced,” and 12 checked “expert.” Here, the weighted mean computed is 3.79 which is “advanced” in the scale.

When asked as to the level to which they have knowledge of reference types, 38 of the elementary school teachers mentioned “intermediate,” 53 mentioned “advanced,” and 12 mentioned “expert. “In this item, the weighted mean computed is 3.75 which is pointing to “advanced” in the scale.

When queried as to the level to which they have knowledge of the bibliography or references (works cited), 40 of the elementary school teachers responded “intermediate,” 51 responded “advanced,” and 12 mentioned “expert.” The weighted mean computed in this item is 3.73 which is pointing to “advanced” in the scale of interpretation.

And, when inquired as to the level to which they can use data from a table, 43 of the elementary school teachers responded “intermediate,” 48 replied “advanced,” and 12 responded “expert.” Here, the weighted mean computed is 3.70 which is indicative of “advanced” in the scale.

Meanwhile, the computed area weighted mean is 3.75. This implies that the elementary school teachers perceived that their information literacy level along accessing needed information effectively and efficiently is advanced.

Assessment of the School Heads. The assessment of the school heads on the information literacy level along accessing needed information effectively and efficiently of the elementary school teachers is shown in Table 8.

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TABLE 8
The Assessment of the School Heads on the Information Literacy Level along Accessing Needed Information Effectively and Efficiently of the Elementary School Teachers

Assessment Items	Responses					WM	DE
B. Accessing Needed Information Effectively and Efficiently: My teachers (can/have)	FU	BA	IN	AD	EX		
1. Know effective search terms.	0	1	7	0	0	2.88	IN
2. Refine search operators.	0	1	6	1	0	3.00	IN
3. Know where sources are located.	0	1	6	1	0	3.00	IN
4. Acquire a source.	0	2	5	1	0	2.88	IN
5. Query database.	0	2	5	1	0	2.88	IN
6. Distinguish between databases.	0	1	7	0	0	2.88	IN
7. Search for publications.	0	1	7	0	0	2.88	IN
8. Knowledge of search operators	0	1	6	1	0	3.00	IN
9. Knowledge of finding books in a library.	0	1	6	1	0	3.00	IN
10. Access a publication.	0	1	6	1	0	3.00	IN
11. Knowledge of reference types.	0	1	6	1	0	3.00	IN
12. Knowledge of the bibliography or references (works cited).	0	1	7	0	0	2.88	IN
13. Use data from a table.	0	1	6	1	0	3.00	IN
					AWM	2.94	IN

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advance	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

As shown in Table 8, when questioned as to the level to which the elementary school teachers know effective search terms, one of the school heads claimed “basic” and seven claimed “intermediate.” The weighted mean computed here is 2.88 which is pointing to “intermediate” in the scale.

When asked as to the level to which the elementary school teachers can refine search operators, one of the school heads replied “basic,” six replied “intermediate,” and one replied “advanced.” The weighted mean computed in this item is 3.00 which is leading to “intermediate” in the scale.

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When inquired as to the level to which the elementary school teachers know where sources are located, one of the school heads responded “basic,” six responded “intermediate,” and one responded “advanced.” Here, the weighted mean computed is 3.00 which is indicative of “intermediate” in the scale.

When queried as to the level to which the elementary school teachers can acquire a source, two of the school heads responded “basic,” five responded “intermediate” and one responded “advanced.” The weighted mean computed in this item is 2.88 which is pointing to “intermediate” in the scale of interpretation.

When questioned as to the level to which the elementary school teachers can query database, two of the school heads checked “basic,” five checked “intermediate” and one checked “advanced.” Here, the weighted mean computed is 2.88 which is “intermediate” in the scale.

When asked as to the level to which the elementary school teachers can distinguish between databases, one of the school heads mentioned “basic” and seven mentioned “intermediate.” In this item, the weighted mean computed is 2.88 which is pointing to “intermediate” in the scale.

When questioned as to the level to which the elementary school teachers can search for publications, one of the school heads claimed “basic” and seven claimed “intermediate.” The weighted mean computed here is 2.88 which is pointing to “intermediate” in the scale.

When asked as to the level to which the elementary school teachers have knowledge of search operators, one of the school heads replied “basic,” six replied “intermediate,” and one replied “advanced.” The weighted mean computed in this item is 3.00 which is leading to “intermediate” in the scale.

When inquired as to the level to which the elementary school teachers have knowledge of finding books in a library, one of the school heads responded “basic,” six responded “intermediate,” and one responded “advanced.” Here, the weighted mean computed is 3.00 which is indicative of “intermediate” in the scale.

When questioned as to the level to which the c elementary school teachers can access a publication, one of the school heads checked “basic,” six checked “intermediate” and one checked “advanced.” Here, the weighted mean computed is 3.00 which is “intermediate” in the scale.

When asked as to the level to which the elementary school teachers have knowledge of reference types, one of the school heads mentioned “basic,” six mentioned “intermediate,” and one mentioned “advanced.” In this item, the weighted mean computed is 3.00 which is pointing to “intermediate” in the scale.

When queried as to the level to which the elementary school teachers have knowledge of the bibliography or references (works cited), one of the school heads responded “basic” and seven responded “intermediate.” The weighted mean computed in this item is 2.88 which is pointing to “intermediate” in the scale of interpretation.

And, when inquired as to the level to which the elementary school teachers can use data from a table, one of the school heads responded “basic,” six responded “intermediate” and one replied “advanced.” Here, the weighted mean computed is 3.00 which is indicative of “intermediate” in the scale.

Meanwhile, the computed area weighted mean is 2.94. This implies that the school heads perceived that the information literacy level along accessing needed information effectively and efficiently of the elementary school teachers is intermediate.

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On Evaluating Information and Its Sources Critically and Incorporating Selected Information into One's Knowledge Base and Value System

The elementary school teachers and the school heads assessed the information literacy level along evaluating information and its sources critically and incorporating selected information into one's knowledge base and value system of the elementary school teachers.

Assessment of the Elementary School Teachers. The assessment of the elementary school teachers on their information literacy level along evaluating information and its sources critically and incorporating selected information into one's knowledge base and value system is presented in Table 9.

TABLE 9
The Assessment of the Elementary School Teachers on Their Information Literacy Level along Evaluating Information and Its Sources Critically and Incorporating Selected Information into One's Knowledge Base and Value System

Assessment Items	Responses					WM	DE
C. Evaluating Information and its Sources Critically and Incorporating Selected Information into One's Knowledge Base and Value System. I (can/have) . . .	FU	BA	IN	AD	EX		
1. Know what "peer review" is.	0	0	38	53	12	3.75	AD
2. Knowledge of citing.	0	0	31	59	13	3.83	AD
3. Evaluate a claim.	0	0	28	62	13	3.85	AD
4. Use information.	0	0	28	62	13	3.85	AD
5. Know a source purpose (e.g., stating facts, persuasion, etc.).	0	0	28	58	17	3.89	AD
6. Identify source author.	0	0	21	65	17	3.96	AD
7. Select an appropriate source.	0	0	28	58	17	3.89	AD
8. Distinguish between references.	0	0	38	56	9	3.72	AD
					AWM	3.84	AD

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advance	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

As shown in Table 9, when questioned as to the level to which they know what "peer review" is, 38 of the elementary school teachers claimed "intermediate," and 53 claimed "advanced," and 12 claimed "expert." The weighted mean computed here is 3.75 which is pointing to "advanced" in the scale.

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When asked as to the level to which they have knowledge of citing, 31 of the elementary school teachers replied “intermediate,” 59 replied “advanced,” and 13 replied “expert.” The weighted mean computed in this item is 3.83 which is leading to “advanced” in the scale.

When inquired as to the level to which they can evaluate a claim, 28 of the elementary school teachers responded “intermediate,” 62 responded “advanced,” and 13 responded “expert.” Here, the weighted mean computed is 3.85 which is indicative of “advanced” in the scale.

When queried as to the level to which they can use information, 28 of the elementary school teachers responded “intermediate,” 62 responded “advanced,” and 13 responded “expert.” The weighted mean computed in this item is 3.85 which is pointing to “advanced” in the scale of interpretation.

When questioned as to the level to which they know a source purpose (e.g., stating facts, persuasion, etc.), 28 of the elementary school teachers checked “intermediate,” 58 checked “advanced,” and 17 checked “expert.” Here, the weighted mean computed is 3.89 which is “advanced” in the scale.

When asked as to the level to which they can identify source author, 21 of the elementary school teachers mentioned “intermediate,” 65 mentioned “advanced,” and 17 mentioned “expert.” In this item, the weighted mean computed is 3.96 which is pointing to “advanced” in the scale.

When questioned as to the level to which they can select an appropriate source, 28 of the elementary school teachers claimed “intermediate,” 58 claimed “advanced,” and 17 claimed “expert.” The weighted mean computed here is 3.89 which is pointing to “advanced” in the scale.

And, when asked as to the level to which they can distinguish between references, 38 of the elementary school teachers replied “intermediate,” 56 replied “advanced,” and nine replied “expert.” The weighted mean computed in this item is 3.72 which is leading to “advanced” in the scale.

Furthermore, the computed area weighted mean is 3.84. This implies that the elementary school teachers perceived that their information literacy level along evaluating information and its sources critically and incorporating selected information into one’s knowledge base and value system is advanced.

Assessment of the School Heads. The assessment of the school heads on the information literacy level along evaluating information and its sources critically and incorporating selected information into one’s knowledge base and value system of the elementary school teachers is presented in Table 10.

As shown in Table 10, when questioned as to the level to which the elementary school teachers know what “peer review” is, two of the school heads claimed “basic,” five claimed “intermediate,” and one claimed “advanced.” The weighted mean computed here is 2.88 which is pointing to “intermediate” in the scale.

TABLE 10
The Assessment of the School Heads on the Information Literacy Level along Evaluating Information and Its Sources Critically and Incorporating Selected Information into One’s Knowledge Base and Value System of the Elementary School Teachers

Assessment Items	Responses					WM	DE
C. Evaluating Information and its Sources Critically and Incorporating Selected	FU	BA	IN	AD	EX		

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Information into One's Knowledge Base and Value System. My teachers (can/have) . . .							
1. Know what "peer review" is.	0	2	5	1	0	2.88	IN
2. Knowledge of citing.	0	1	6	1	0	3.00	IN
3. Evaluate a claim.	0	1	7	0	0	2.88	IN
4. Use information.	0	1	7	0	0	2.88	IN
5. Know a source purpose (e.g., stating facts, persuasion, etc.).	0	1	6	1	0	3.00	IN
6. Identify source author.	0	1	6	1	0	3.00	IN
7. Select an appropriate source.	0	0	7	1	0	3.13	IN
8. Distinguish between references.	0	0	7	1	0	3.13	IN
					AWM	2.98	IN

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advance	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

When asked as to the level to which the elementary school teachers have knowledge of citing, one of the school heads replied "basic," six replied "intermediate," and one replied "advanced." The weighted mean computed in this item is 3.00 which is leading to "intermediate" in the scale.

When inquired as to the level to which the elementary school teachers can evaluate a claim, one of the school heads responded "basic" and seven responded "intermediate." Here, the weighted mean computed is 2.88 which is indicative of "intermediate" in the scale.

When queried as to the level to which the elementary school teachers can use information, one of the school heads responded "basic" and responded "intermediate." The weighted mean computed in this item is 2.88 which is pointing to "intermediate" in the scale of interpretation.

When questioned as to the level to which the elementary school teachers know a source purpose (e.g., stating facts, persuasion, etc.), one of the school heads checked "basic," six checked "intermediate," and one checked "advanced." Here, the weighted mean computed is 3.00 which is "intermediate" in the scale.

When asked as to the level to which the elementary school teachers can identify source author, one of the school heads mentioned "basic," six mentioned "intermediate," and one mentioned "advanced." In this item, the weighted mean computed is 3.00 which is pointing to "intermediate" in the scale.

When questioned as to the level to which the elementary school teachers can select an appropriate source, seven of the school heads claimed "intermediate" and one claimed "advanced." The weighted mean computed here is 3.13 which is pointing to "intermediate" in the scale.

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And, when asked as to the level to which the elementary school teachers can distinguish between references, seven of the school heads replied "intermediate" and one replied "advanced." The weighted mean computed in this item is 3.13 which is leading to "intermediate" in the scale.

Moreover, the computed area weighted mean is 2.98. This implies that the school heads perceived that the information literacy level along evaluating information and its sources critically and incorporating selected information into one's knowledge base and value system of the elementary school teachers is intermediate.

On Understanding the Ethical, Legal, and Socio-economic Issues Surrounding Information and Information Technology

The elementary school teachers and the school heads assessed the information literacy level along understanding the ethical, legal, and socio-economic issues surrounding information and information technology of the public elementary school teachers.

Assessment of the Elementary School Teachers. The assessment of the elementary school teachers on their information literacy level along understanding the ethical, legal, and socio-economic issues surrounding information and information technology is presented in Table 11.

TABLE 11
The Assessment of the Elementary School Teachers on Their Information Literacy Level along Understanding the Ethical, Legal, and Socio-economic Issues Surrounding Information and Information Technology

Assessment Items	Responses					WM	DE
D. Understanding the Ethical, Legal, and Socio-economic Issues Surrounding Information and Information Technology: I (can/have) . . .	FU	BA	IN	AD	EX		
1. Knowledge related to source availability and/or access.	0	0	34	60	9	3.76	AD
2. Knowledge of ethical/legal issues of using sources	0	0	38	57	8	3.71	AD
3. Knowledge of ethical/legal issues of using sources tables or graphs.	0	0	35	56	12	3.78	AD
4. Knowledge of creating a reference.	0	0	37	54	12	3.76	AD
5. Knowledge of ethical/legal issues of sharing an audio source.	0	0	32	59	12	3.81	AD
6. Knowledge of citing direct quotes.	0	0	37	49	17	3.81	AD
					AWM	3.77	AD

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

FU = fundamental = 1.00 – 1.49
BA = basic = 1.50 – 2.49
IN = intermediate = 2.50 – 3.49

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AD	=	advance	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

As shown in Table 11, when questioned as to the level to which they knowledge related to source availability and/or access, 34 of the elementary school teachers claimed “intermediate,” 60 claimed “advanced,” and nine claimed “expert.” The weighted mean computed here is 3.76 which is pointing to “advanced” in the scale.

When asked as to the level to which they have knowledge of ethical/legal issues of using sources, 38 of the elementary school teachers replied “intermediate,” 57 replied “advanced,” and eight replied “expert.” The weighted mean computed in this item is 3.71 which is leading to “advanced” in the scale.

When inquired as to the level to which they have knowledge of ethical/legal issues of using sources tables or graphs, 35 of the elementary school teachers responded “intermediate,” 56 responded “advanced,” and 12 responded “expert.” Here, the weighted mean computed is 3.78 which is indicative of “advanced” in the scale.

When queried as to the level to which they have knowledge of creating a reference, 37 of the elementary school teachers responded “intermediate,” 54 responded “advanced,” and 12 responded “expert.” The weighted mean computed in this item is 3.76 which is pointing to “advanced” in the scale of interpretation.

When questioned as to the level to which they have knowledge of ethical/legal issues of sharing an audio source, 32 of the elementary school teachers checked “intermediate,” 59 checked “advanced,” and 12 checked “expert.” Here, the weighted mean computed is 3.81 which is “advanced” in the scale.

And, when asked as to the level to which they have knowledge of citing direct quotes, 37 of the elementary school teachers replied “intermediate,” 49 replied “advanced,” and 17 replied “expert.” The weighted mean computed in this item is 3.81 which is leading to “advanced” in the scale.

Furthermore, the computed area weighted mean is 3.77. This implies that the elementary school teachers perceived that their information literacy level along understanding the ethical, legal, and socio-economic issues surrounding information and information technology is advanced.

Assessment of the School Heads. The assessment of the school heads on the information literacy level along understanding the ethical, legal, and socio-economic issues surrounding information and information technology of the elementary school teachers is presented in Table 12.

As shown in Table 12, when questioned as to the level to which the elementary school teachers have knowledge related to source availability and/or access, one of the school heads claimed “basic,” six claimed “intermediate,” and one claimed “advanced.” The weighted mean computed here is 3.00 which is pointing to “intermediate” in the scale.

When asked as to the level to which the elementary school teachers have knowledge of ethical/legal issues of using sources, two of the school heads replied “basic,” five replied “intermediate,” and one replied “advanced.” The weighted mean computed in this item is 2.88 which is leading to “intermediate” in the scale.

When inquired as to the level to which the elementary school teachers have knowledge of ethical/legal issues of using sources tables or graphs, one of the school heads responded “basic”

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and seven responded "intermediate." Here, the weighted mean computed is 2.88 which is indicative of "intermediate" in the scale.

TABLE 12
The Assessment of the School Heads on the Information Literacy Level along Understanding the Ethical, Legal, and Socio-economic Issues Surrounding Information and Information Technology of the Elementary School Teachers

Assessment Items	Responses					WM	DE
D. Understanding the Ethical, Legal, and Socio-economic Issues Surrounding Information and Information Technology: My teachers (can/have) . . .	FU	BA	IN	AD	EX		
1. Knowledge related to source availability and/or access.	0	1	6	1	0	3.00	IN
2. Knowledge of ethical/legal issues of using sources	0	2	5	1	0	2.88	IN
3. Knowledge of ethical/legal issues of using sources tables or graphs.	0	1	7	0	0	2.88	IN
4. Knowledge of creating a reference.	0	1	6	1	0	3.00	IN
5. Knowledge of ethical/legal issues of sharing an audio source.	0	0	7	1	0	3.13	IN
6. Knowledge of citing direct quotes.	0	1	6	1	0	3.00	IN
					AWM	2.98	IN

Legend:
WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:
FU = fundamental = 1.00 – 1.49
BA = basic = 1.50 – 2.49
IN = intermediate = 2.50 – 3.49
AD = advance = 3.50 – 4.49
EX = expert = 4.50 – 5.00

When queried as to the level to which the elementary school teachers have knowledge of creating a reference, one of the school heads responded "basic," six responded "intermediate," and one responded "advanced." The weighted mean computed in this item is 3.00 which is pointing to "intermediate" in the scale of interpretation.

When questioned as to the level to which the elementary school teachers have knowledge of ethical/legal issues of sharing an audio source, seven of the school heads checked "intermediate" and one checked "advanced." Here, the weighted mean computed is 3.13 which is "intermediate" in the scale.

And, when asked as to the level to which the elementary school teachers have knowledge of citing direct quotes, one of the school heads replied "basic," six replied "intermediate," and one

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replied “advanced.” The weighted mean computed in this item is 3.00 which is leading to “intermediate” in the scale.

Furthermore, the computed area weighted mean is 2.98. This implies that the school heads perceived that the information literacy level along understanding the ethical, legal, and socio-economic issues surrounding information and information technology of the elementary school teachers is intermediate.

A Summary

The information literacy level of the elementary school teachers as perceived by themselves and by their school heads is presented in Table 13.

As can be seen in Table 13, all the computed area weighted means in the assessment of the elementary school teachers have a descriptive equivalent of “advanced” in the scale. Conformably, the computed overall weighted mean of 3.78 also has a descriptive equivalent of “advanced” in the scale. This means that, in general, the elementary school teachers in the private schools in Bayambang, Pangasinan perceived that their information literacy level is advanced. Meanwhile,

TABLE 13
The Information Literacy Level of the Elementary School Teachers

Areas	Assessment of the Elementary School Teachers		Assessment of the School Heads	
	AWM	DE	AWM	DE
Defining and Articulating the Nature and Extent of Information Needed	3.74	AD	3.00	IN
Accessing Needed Information Effectively and Efficiently	3.75	AD	2.94	IN
Evaluating Information and its Sources Critically and Incorporating Selected Information into One’s Knowledge Base and Value System	3.84	AD	2.98	IN
Understanding the Ethical, Legal, and Socio-economic Issues Surrounding Information and Information Technology:	3.77	AD	2.98	IN
OWM	3.78	AD	2.98	IN

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean
OWM = overall weighted mean

Scale:

FU	=	fundamental	=	1.00 – 1.49
BA	=	basic	=	1.50 – 2.49
IN	=	intermediate	=	2.50 – 3.49
AD	=	advance	=	3.50 – 4.49
PR	=	proficient	=	4.50 – 5.00

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all the computed area weighted means in the assessment of the school heads have a descriptive equivalent of "intermediate" in the scale. As such, the computed overall weighted mean of 2.98 also has a descriptive equivalent of "intermediate" in the scale. This implies that, in general, the school heads perceived that the information literacy level of the elementary school teachers is intermediate only.

Relationship between the Profile Variables of the Elementary School Teachers and Their Information Literacy Level

This part of the chapter provides answers to the third sub-problem of the study which is about the significant relationship between the profile variables of the of the elementary school teachers and their information literacy level.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the profile variables of the of the elementary school teachers and their information literacy level. Thereafter, the researcher correlated the profile variables of the elementary school teachers and their information literacy level using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the p value and the chi square value at .05 level of significance. Table 14 presents the results.

TABLE 14
Relationship between the Profile Variables of the Elementary School Teachers and Their Information Literacy Level

Profile Variables	P Value .05 LS	Chi Square Value	Chi Square Critical Value	RM
Educational Attainment	0.00	9.00	3.84	S
Length of Teaching Experience	0.01	6.16	3.84	S
Number of Relevant Trainings Attended	0.02	5.20	3.84	S

Legend:
RM = remarks
S = significant
NS = not significant

As shown in Table 14, when the educational attainment of the elementary school teachers and their information literacy level are correlated, the p value computed is 0.00. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 9.00. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the information literacy level of the elementary school teachers is influenced by their educational attainment.

Secondly, when the length of teaching experience of the elementary school teachers and their information literacy level are correlated, the p value computed is 0.01. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 6.16. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be

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said that the information literacy level of the elementary school teachers is influenced by their length of teaching experience.

Lastly, when the number of relevant trainings of the elementary school teachers and their information literacy level are correlated, the p value computed is 0.02. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 5.20. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the information literacy level of the elementary school teachers is influenced by the number of relevant trainings they attended.

Difference between the Perceptions of the Elementary School Teachers and the School Heads on the Information Literacy Level of the Elementary School Teachers

This part of the chapter discusses answers to the fourth sub-problem of the study which is about the significant difference between the perceptions or assessments of the elementary school teachers and the school heads on the information literacy level of the elementary school teachers.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant difference between the perceptions or assessments of the elementary school teachers and the school heads on the information literacy level of the elementary school teachers. Thereafter, the researcher compared the perceptions or assessments of the elementary school teachers and the school heads on the information literacy level of the elementary school teacher using the t-test. Here, the researcher computed the p value at .05 level of significance. Table 15 presents the results.

As shown in Table 15, when the perceptions or assessments of the elementary school teachers and the school heads on the information literacy level of the elementary school teachers are compared, the p value computed is 0.00. This figure is lower than the .05 level of significance. As such, the null hypothesis is rejected. There is a significant difference between the perceptions or assessments of the elementary school teachers and the school heads on the information literacy level of the elementary school teachers.

TABLE 15
Difference between the Perceptions of the Elementary School Teachers and the School Heads on the Information Literacy Level of the Elementary School Teachers

Areas	Computed p Value	Level of Significance	RM
Information Literacy Level	0.00	0.05	S

Legend:
RM = remarks
S = significant
NS = not significant

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The Proposed Capacity Building Program on Information Literacy for the Elementary School Teachers of private Schools in Bayambang, Pangasinan

This last part of the chapter provides answers to the last sub-problem of the study which is about the proposed capacity building program on information literacy for the elementary school teachers of private schools in Bayambang, Pangasinan.

To answer the sub-problem, the researcher considered the findings that majority of the elementary school teachers have not attended any training/seminar related with information literacy for the past five years, that the school heads perceived that the elementary school teachers only have intermediate information literacy level, and that the number of trainings related with information literacy attended by the elementary school teachers influenced their information literacy level.

. What follows is the proposed capacity building program.

A Capacity Building Program on Information Literacy for the Elementary School Teachers of Private Schools In Bayambang, Pangasinan

Program Description

This is a 4-day school-based capacity building program to improve the information literacy level of the elementary school teachers of private schools in Bayambang, Pangasinan.

Duration

The school-based capacity building program on information literacy is to run for four days.

Management Level of Program

The capacity building program on information literacy is a school-based program which will be implemented by the school heads of the different private schools in Bayambang, Pangasinan.

Delivery Mode

The capacity-building program on information literacy shall be implemented through an interactive, collaborative, and participative approach. The resource speaker will primarily serve as a facilitator. Furthermore, lecture-discussion activities should be limited to a maximum of 30% of the total session time.

Target Personnel

The target personnel for the capacity building program on information literacy are the elementary school teachers of private schools in Bayambang, Pangasinan.

Source of Fund

School fund.

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Rationale

The enormous volume of information accessible online makes it difficult to determine which sources are accurate and reliable. Not all published articles are credible, as some present biased perspectives intended to influence readers' opinions. In addition, fake news, misleading information aimed at discrediting opposing views, and native advertisements disguised as regular content continue to spread across online platforms. Therefore, individuals must remain cautious of unreliable information, think critically about the sources they consult, and carefully evaluate information both for research purposes and for media consumption in general. For this reason, information literacy is highly essential.

Furthermore, in today's digital environment, information literacy also involves the ability to use information and communication technologies and their applications in accessing and creating information. It is therefore undeniable that teachers must possess information literacy skills. As facilitators of learning, teachers should be capable of identifying the nature and scope of the information they need, accessing information effectively and efficiently, critically evaluating information and its sources, and integrating relevant information into their knowledge base and value system. They must also be able to use information effectively for specific purposes and understand the ethical, legal, and socio-economic concerns related to information and information technology. In addition, teachers should know how to locate reliable sources, evaluate the authority and credibility of information, distinguish biased content from unbiased material, utilize appropriate references in research, recognize what constitutes plagiarism, and apply proper citation practices.

Based on the foregoing discussion, this school-based capacity building program on information literacy is designed to enhance the information literacy competencies of elementary school teachers of private schools in Bayambang, Pangasinan.

Objectives

The capacity building program aims to improve the information literacy level of the elementary school teachers of private schools in Bayambang, Pangasinan.

Program Matrix

Session Title	**Training Content**	Duration
Training-Workshop on Defining and Articulating the Nature and Extent of Information Needed	1. Knowing the appropriate resource for a topic. 2. Knowing the appropriate resource based on depth of information needed. 3. Distinguishing between types of sources. 4. Narrowing down information. 5. Distinguishing between sources.	Day 1

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	6. Evaluating source credibility. 7. Knowing resources for proper citation	
Training-Workshop on Accessing Needed Information Effectively and Efficiently	1. Knowing effective search terms. 2. Refining search operators. 3. Knowing where sources are located. 4. Acquiring a source. 5. Querying database. 6. Distinguishing between databases. 7. Searching for publications. 8. Knowing search operators 9. Having knowledge of finding books in a library. 10. Accessing a publication. 11. Knowing reference types. 12. Knowing bibliography or references (works cited). 13. Using data from a table.	Day 2
Training-Workshop on Evaluating Information and its Sources Critically and Incorporating Selected Information into One's Knowledge Base and Value System	1. Knowing what "peer review" is. 2. Having knowledge of citing. 3. Evaluating a claim. 4. Using information. 5. Knowing a source purpose (e.g., stating facts, persuasion, etc.). 6. Identifying source author. 7. Selecting an appropriate source. 8. Distinguishing between references	Day 3
Training-Workshop on	1. Knowing source availability and/or access.	Day 4

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Understanding the Ethical, Legal, and Socio-economic Issues Surrounding Information and Information Technology	2. Knowing ethical/legal issues of using sources. 3. Knowing ethical/legal issues of using sources tables or graphs. 4. Creating a reference. 5. Knowing ethical/legal issues of sharing an audio source. 6. Citing direct quotes.	

CONCLUSIONS

Based on the findings made, the following conclusions were drawn:

1. A typical elementary school teacher of a private school in Bayambang, Pangasinan has no post-graduate degree, has been teaching for one to five 15 years, and has not attended any training/seminar related with information literacy for the past five years.

2. The elementary school teachers perceived that their information literacy level is advanced while the school heads perceived that the information literacy level of the elementary school teachers is intermediate only.

3. The information literacy level of the elementary school teachers is influenced by their educational attainment, length of teaching experience, and the number of relevant trainings attended.

4. The perceptions of the elementary school teachers and the school heads on the information literacy level of the elementary school teachers are significantly different from each other.

5. The proposed capacity building program will improve the information literacy level of the elementary school teachers of private schools in Bayambang, Pangasinan.

RECOMMENDATIONS

Based on the findings made and the conclusions drawn, the following recommendations are offered:

1. The proposed capacity building program be approved for implementation in the public schools in Bayambang, Pangasinan to improve the information literacy level of the elementary school teachers.

2. The implementation of the proposed capacity building program in the private schools in Bayambang, Pangasinan should be monitored and evaluated.

3. Similar study may be conducted by other researchers to validate the findings of the study.

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APPENDICES

THE SURVEY-QUESTIONNAIRE FOR THE TEACHERS

January 30, 2026

Dear Colleagues,

Greetings!

The undersigned is conducting a study entitled **"Assessment of the Information Literacy of the Elementary School Teachers of Private Schools in Bayambang, Pangasinan"** in partial fulfillment of the degree Master of Arts in Education.

In connection with this, and knowing that you are a elementary school teacher in a private school in Bayambang, Pangasinan, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

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Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

(Sgd.) Miguel Martin
Researcher

NAME (Optional): _____

I. Please provide your profile in the following:

1. Highest Educational Attainment:

( ) Bachelor's Degree
( ) Finished academic requirements in the Master's Degree
( ) Master's Degree
( ) Finished academic requirements in the Doctorate Degree
( ) Doctorate Degree

2. Length of Teaching Experience:

( ) 1 – 5 years
( ) 6 – 10 years
( ) 11 – 15 years
( ) 16 - 20 years
( ) more than 20 years

3. Number of trainings related with teaching reading attended for the past five years:

( ) have not attended any trainings/seminars related with information literacy for the past five years
( ) have attended not more than three trainings/seminars related with information literacy for the past five years
( ) have attended not more than three trainings/seminars related with information literacy for the past five years

PART II. Please rate your information literacy level. Please be guided by the following:

1 = fundamental
2 = basic
3 = intermediate

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4 = advanced
5 = expert

Assessment Items	1	2	3	4	5
A. Defining and Articulating the Nature and Extent of Information Needed: I (can/have) . . .					
1. Know the appropriate resource for a topic.					
2. Know the appropriate resource based on depth of information needed.					
3. Distinguish between types of sources.					
4. Narrow down information.					
5. Distinguish between sources.					
6. Evaluate source credibility.					
7. Knowledge of resources for proper citation					
B. Accessing Needed Information Effectively and Efficiently: I (can/have) . . .					
8. Know effective search terms.					
9. Refine search operators.					
10. Know where sources are located.					
11. Acquire a source.					
12. Query database.					
13. Distinguish between databases.					
14. Search for publications.					
15. Knowledge of search operators					
16. Knowledge of finding books in a library.					
17. Access a publication.					
18. Knowledge of reference types.					
19. Knowledge of the bibliography or references (works cited).					
20. Use data from a table.					
C. Evaluating Information and its Sources Critically and Incorporating Selected Information into One's Knowledge Base and Value System. I (can/have) . . .					
21. Know what "peer review" is.					
22. Knowledge of citing.					
23. Evaluate a claim.					
24. Use information.					
25. Know a source purpose (e.g., stating facts, persuasion, etc.).					
26. Identify source author.					
27. Select an appropriate source.					
28. Distinguish between references.					
D. Understanding the Ethical, Legal, and Socio-economic Issues Surrounding Information and Information Technology: I (can/have) . . .					

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29. Knowledge related to source availability and/or access.					
30. Knowledge of ethical/legal issues of using sources					
31. Knowledge of ethical/legal issues of using sources tables or graphs.					
32. Knowledge of creating a reference.					
33. Knowledge of ethical/legal issues of sharing an audio source.					
34. Knowledge of citing direct quotes.					

THE SURVEY-QUESTIONNAIRE FOR THE SCHOOL HEADS

January 30, 2026

Dear School Heads,

Greetings!

The undersigned is conducting a study entitled **"Assessment of the Information Literacy of the Elementary School Teachers of Private Schools in Bayambang, Pangasinan"** in partial fulfillment of the degree Master of Arts in Education.

In connection with this, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

(Sgd.) Miguel Martin
Researcher

NAME (Optional): _____

Please rate the information literacy level of your elementary school teachers. Please be guided by the following:

1 = fundamental
2 = basic
3 = intermediate
4 = advanced
5 = expert

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Assessment Items	1	2	3	4	5
A. Defining and Articulating the Nature and Extent of Information Needed: I (can/have) . . .					
1. Know the appropriate resource for a topic.					
2. Know the appropriate resource based on depth of information needed.					
3. Distinguish between types of sources.					
4. Narrow down information.					
5. Distinguish between sources.					
6. Evaluate source credibility.					
7. Knowledge of resources for proper citation					
B. Accessing Needed Information Effectively and Efficiently: I (can/have) . . .					
8. Know effective search terms.					
9. Refine search operators.					
10. Know where sources are located.					
11. Acquire a source.					
12. Query database.					
13. Distinguish between databases.					
14. Search for publications.					
15. Knowledge of search operators					
16. Knowledge of finding books in a library.					
17. Access a publication.					
18. Knowledge of reference types.					
19. Knowledge of the bibliography or references (works cited).					
20. Use data from a table.					
C. Evaluating Information and its Sources Critically and Incorporating Selected Information into One's Knowledge Base and Value System. I (can/have) . . .					
21. Know what "peer review" is.					
22. Knowledge of citing.					
23. Evaluate a claim.					
24. Use information.					
25. Know a source purpose (e.g., stating facts, persuasion, etc.).					
26. Identify source author.					
27. Select an appropriate source.					
28. Distinguish between references.					
D. Understanding the Ethical, Legal, and Socio-economic Issues Surrounding Information and Information Technology: I (can/have) . . .					
29. Knowledge related to source availability and/or access.					
30. Knowledge of ethical/legal issues of using sources					
31. Knowledge of ethical/legal issues of using sources tables					

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or graphs.					
32. Knowledge of creating a reference.					
33. Knowledge of ethical/legal issues of sharing an audio source.					
34. Knowledge of citing direct quotes.					

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CAPABILITY AND CHALLENGES IN RESEARCH OF ENGLISH TEACHERS OF PUBLIC SECONDARY SCHOOLS IN MALASIQUI I DISTRICT, PANGASINAN

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https://lyceum.edu.ph

Abstract

This study sought to determine the level of research capability of the English teachers of public secondary schools in Malasiqui I District during the School Year 2025-2026 through a quantitative-descriptive-correlational research design. The data used in this study came from the 67 English teachers and seven school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, and the t-test. Results showed that: majority of the English teachers have no post-graduate degree, have been teaching for six to 15 years already, and have attended not more than three trainings related with research; in general, the English teachers perceived that the level of their research capability is advanced as evidenced by the computed overall weighted mean of 3.56 while the school heads perceived that the level of research capability of the English teachers is only competent as evidenced by the computed area weighted mean of 2.93; there is a significant relationship between the highest educational attainment, the length of teaching experience, and the number of relevant trainings attended of the English teachers and the level of their research capability; there is a significant difference between the perceptions of the English teachers and the school heads on the level of research capability of the English teachers; and, the English teachers encountered six challenges in conducting research. Given the findings, the following conclusions were drawn: a typical English teacher of a public secondary school in Malasiqui I District has no post-graduate degree, has been teaching for six to 15 years already, and has attended not more than three trainings/seminars related with research for the past five years; the English teachers perceived that the level of their research capability is advanced while the school heads perceived that the level of research capability of the English teachers is only competent; the level of research capability of the English teachers is influenced by their educational attainment, length of teaching experience, and number of relevant trainings attended; the perceptions of the English teachers and the school heads on the level of research capability of the English teachers are significantly different from each other; and, the challenges encountered by the English teachers in conducting research may be addressed.

Keywords: *Research capabilities, English teachers*

Introduction

Research has long been recognized as a driving force behind the rapid advancements in life and society. Its value is evident in the many groundbreaking discoveries and developments that have contributed not only to the field of education but also to society in general. Research serves as an important source of information in various fields of work and in many aspects of human endeavor. It also helps individuals become familiar with processes necessary for the successful completion of projects. Through systematic procedures, the establishment of facts, and carefully organized and controlled investigations, research enables individuals to test and compare theories

and methods while learning from the experiences of others. Furthermore, it allows researchers to identify, eliminate, or at least consider external factors that may affect the outcomes of their studies (Abinan, 2021).

Meanwhile, Wagaba et al. (2016) asserted that research is characterized by its dual purpose of addressing practical concerns and contributing to the expansion of scientific knowledge. As a result, research has become increasingly valuable in understanding complex social situations, such as enhancing existing business models, addressing marketing concerns, implementing organizational changes, and resolving environmental issues. Likewise, Cortes (2019) highlighted the significant role of research in dealing with various organizational, business, and environmental challenges.

In the field of education, research serves as a significant source of information for reflective practice, provides meaningful insights for classroom instruction, and creates opportunities for the improvement and transformation of educational practices (Cortes, 2019). Conducting research also enhances self-awareness, which may eventually lead to the improvement of a teacher's personal qualities and professional image (Morales et al., 2016). Moreover, research can help address issues related to curriculum, assessment, instruction, policy formulation, program evaluation, and resource allocation, while also contributing to broader institutional and societal goals. As a result, research has become an appealing and valuable undertaking among educational stakeholders in addressing problems encountered in educational settings (Morales, 2016).

Supporting the foregoing ideas, Dignos (2021) emphasized that effective teachers and educational leaders do not depend solely on traditional approaches, the opinions of others, or expert recommendations in solving problems. Rather, they conduct their own investigations to identify issues, analyze classroom and school situations, and develop appropriate solutions. Through this process, they are also able to strengthen their professional competence. Furthermore, Dignos (2021) explained that the Philippine educational system continues to evolve rapidly due to factors such as ASEAN integration, globalization, global competitiveness, the integration of ICT in teaching, and other internal and external influences. In response, significant considerations such as evidence-based policymaking, improved student achievement, enhanced curriculum, instruction and assessment, teacher quality, and teacher professionalism must be prioritized. Consequently, educational institutions need to undertake important initiatives to cope with the demands of a rapidly changing world, and one of the most essential among these is research. Research is considered a powerful tool for professional development and quality teaching, making it imperative for teachers to embrace research as part of their professional practice and to cultivate a culture of research in schools in order to improve educational outcomes and strengthen both local and global competitiveness.

Moreover, teachers are recognized as vital agents in knowledge creation and contributors to sustainable human development. According to Gonzales, Corpuz, and Dellosa (2020), teachers perform multiple roles in delivering quality instruction, where innovation and creativity are inherent in the teaching process. To enhance and sustain professional competence, teachers must engage in research activities. Such engagement does not only involve conducting research itself but also begins with developing concepts and identifying problems that require solutions. In this regard, teachers who conduct research within the context of their own teaching practices can contribute significantly to knowledge on reform-based instruction.

Similarly, Eliver et al. (2023) explained that increasing teachers' proficiency in integrating theory and practice through research enables them to shift from being mere consumers of knowledge to becoming creators of knowledge. In the same way, Hero (2023) emphasized the importance of collaboration among faculty members in developing new classroom strategies and research approaches. Such collaboration helps foster thinking communities, which may eventually rekindle teachers' passion and enthusiasm for their work.

Furthermore, educational institutions and organizations around the world continuously endeavor to uphold their commitment to providing quality education. In striving for excellence, they consistently engage in the development, implementation, and evaluation of academic instruction, policies, and educational programs. These innovations and improvements are largely anchored on findings derived from outcome-based studies and research. As a result, research has become an essential function within educational organizations, particularly in improving teaching and learning processes. It also serves as an important basis for evaluating the extent to which institutions achieve their vision, mission, goals, and objectives (Tolentino, 2021).

In the Philippines, the Department of Education (DepEd) strongly recognizes the significance of research in basic education. The Basic Education Governance Act of 2001 highlights the importance of research in the organization and administration of the basic education system. In support of this mandate, DepEd has continuously undertaken initiatives to strengthen and promote research within the department. Among these efforts are the implementation of the Basic Education System Reform Agenda and the establishment of the Research, Innovation, and Policy Evaluation Secretariat (RIPES) in 2023. Moreover, DepEd institutionalized research-based decision-making through DepEd Order No. 65, series of 2003, which mandates that departmental policies should be grounded in research. This initiative contributed to the promotion of a culture of research in basic education. Likewise, the agency's policy development procedures regulate the utilization of evidence through DepEd Order No. 13, series of 2015. With the implementation of DepEd Order No. 24, series of 2015 and DepEd Order No. 4, series of 2016, DepEd also began extending financial support for research initiatives through the Basic Education Research Fund. Furthermore, DepEd Order No. 16, series of 2017 introduced the Research Management Guidelines, which provide direction in managing research activities at the national, regional, division, and school levels. According to Melloria (2023), the said policy also aimed to strengthen evidence-based decision-making within schools, schools divisions, and even the DepEd Central Office by identifying problems, proposing interventions and strategies, and validating the effectiveness of such interventions in delivering quality basic education to Filipino learners. Collectively, these research programs and policies are expected to further enhance research productivity within DepEd.

With the implementation of various research programs and policies of the Department of Education (DepEd), teachers are encouraged to actively engage in research activities. Through involvement in research, teachers are provided opportunities to strengthen and refine their voices, skills, capabilities, as well as their critical and analytical thinking skills. According to Tamayo et al. (2021), conducting research enables teachers to improve classroom practices and create more conducive and engaging learning environments through the use of evidence-based materials and innovative strategies. In this way, teachers are able to make sound decisions regarding educational experiences and contribute to curriculum development, innovation, and school improvement initiatives. Similarly, Eliver et al. (2023) emphasized that research is important for

teachers because it allows them to explore new and updated teaching strategies as well as modern pedagogical approaches. Through research, teachers can determine which learning strategies are most effective in specific classroom contexts. It also helps address the diverse needs of learners and assists in the selection and evaluation of instructional materials suited to different learning styles. In the same manner, Cochran-Smith and Lytle (2017) underscored the importance of educational research by emphasizing the promising opportunities that emerge when teachers assume the role of researchers and closely examine the complexities of classroom instruction. They pointed out that teacher-conducted research can eventually contribute to the formulation of school policies and enrich broader educational discussions. The strong emphasis on research in education and its implications further suggests that, over time, teachers who engage in research may develop a deeper understanding and appreciation of the true nature and significance of research in the field of education.

Furthermore, teachers gain greater benefits from academic reading when they adopt a more research-oriented perspective. Their ability to understand instructional processes and teaching materials becomes more enhanced. Through a research-oriented approach, teachers can continuously incorporate research findings into their instructional practices by integrating and synthesizing these insights to develop more effective and efficient pedagogical strategies. This integration also enables them to relate research-based knowledge to specific subject areas appropriate for learners at different grade levels. In addition, teachers may utilize the results of research in conducting their own studies and professional inquiries (Kyaw, 2021).

The foregoing discussion provides a comprehensive recognition of the importance of conducting research and actively engaging in research-related activities. Such involvement is viewed as having a significant impact on improving teachers' research skills and competencies, thereby contributing to their professional growth and to the overall performance of the school. In particular, participation in research activities, research training, and the conduct of research equip teachers with relevant skills and capabilities that enable them to critically and systematically address issues within the classroom and the school environment (Ulla, 2018).
Moreover, engagement in research offers teachers opportunities for self-reflection and self-evaluation, allowing them to identify important aspects of their teaching practice that need improvement. Through this reflective process, teachers may gain meaningful insights on how they can further enhance and strengthen their professional practice through continuous involvement in research (Heng, Hamid, & Khan, 2020).

Unfortunately, many teachers remain inadequately engaged in research activities. Abarro and Mariño (2016) revealed that public secondary school teachers demonstrated an average level of research competence in writing the various sections of research proposals and publishable research papers or articles, but showed a low level of competence in using the APA bibliography format. Their study further indicated that teachers' competence in writing research proposals was influenced by their position, while factors such as age, sex, civil status, highest educational attainment, and attendance in research trainings or seminars had no significant effect. The researchers also found that although public secondary school teachers were capable of preparing research proposals and publishable papers, they still lacked the essential research skills needed to conduct classroom-based research. Meanwhile, Shafiee and Sotoudehnama (2019) discovered that teachers possessed low to moderate levels of skills and competencies in reading and conducting research. In the same way, Morales et al. (2016) reported that public school teachers experienced moderate difficulties in several aspects of research, including statistics, data

organization, literature review, and report writing. Moreover, Macabago (2017) found that public elementary school teachers expressed concerns regarding their ability to write research papers.

Anchored on the foregoing discussion, this study sought to determine the level of research capability of the English teachers of public secondary schools in Malasiqui I District, with the ultimate goal of developing a research development plan intended to enhance their research capability

Theoretical and Conceptual Framework

This study was anchored on the Gestation-Expansion-Maturation Theory of the Development of Research Culture initially explored and proposed by Olvido (2021). The theory explains that school personnel undergo three stages in the growth of research culture: the initiation stage, the developing stage, and the flourishing stage. These stages are associated with varying levels of quality research practices and outputs. According to Olvido (2021), gestation refers to the stage in which the fundamental conditions necessary for establishing a research culture among school personnel are developed. Expansion takes place when an institution attains stability and demonstrates sustained growth in conducting quality research activities and producing research outputs. On the other hand, maturation is achieved when an institution consistently engages in research activities, produces high-quality research outputs, and establishes a strong academic reputation. The attainment of these stages is influenced by several factors, including people, resources, and research-related activities, all of which contribute to the development of a research culture.\

This study was also anchored on Albert Bandura's Self-Efficacy Theory, which centers on an individual's beliefs and perceptions regarding his or her ability to perform specific tasks or actions. Albert Bandura, according to Lawrent (2022), emphasized that perceived self-efficacy significantly influences human behavior. A strong sense of efficacy is associated with higher levels of motivation, optimism, and positive behavior. According to Bandura, developing a high level of self-efficacy can positively affect different aspects of an individual's life, particularly in fostering intrinsic motivation to undertake challenging tasks within an organization or institution. Instead of perceiving such tasks as threats, individuals view them as opportunities for personal growth and development. Consequently, individuals with a stronger perception of self-efficacy are more likely to become productive, positive, and better prepared in accomplishing their responsibilities.

In the study of Mok and Moore (2019), among the different beliefs held by teachers, the most influential was their perception of their own abilities, strengths, and competencies in managing the teaching profession. This belief involves both cognitive and affective dimensions that shape how individuals perceive their environment and influence their corresponding responses and behaviors. The findings further revealed that teachers' evaluation of their own efficacy and effectiveness in teaching has a significant and multidimensional influence on their instructional performance.Moreover, in an effort to determine the significant factors related to teachers' self-efficacy, Klassen and Tze (2014), as cited by Deocaris (2025), conducted a meta-analysis that explored how high levels of self-efficacy are reflected in the quality of instruction and performance provided to students. Their study reviewed several published works concerning teacher performance and self-efficacy and found a strong relationship between self-efficacy and

academic performance. The findings further suggested a significant interaction between teachers' sense of self-efficacy and educational achievement. Hence, it may be inferred that teachers' perceived self-efficacy greatly affects the quality of instruction they provide and, consequently, contributes to the overall success of education.

The study is anchored on literature and previous studies concerning research capability, which refers to the knowledge, skills, and abilities necessary to conduct research effectively. According to Insorio (2024), it involves proper planning of data collection, selection of suitable data-gathering instruments, appropriate methods for interpreting and analyzing data, application of statistical techniques, and understanding of the research process. Agatep and Villalobos (2020) identified ten essential research tasks, including locating and critically reviewing literature, generating research ideas, writing research proposals, utilizing quantitative and qualitative research methods, gathering, analyzing and interpreting data, delivering oral presentations, and writing and publishing research outputs. Amirova et al. (2020) emphasized the relationship between research capability and scientific literacy, which is influenced by internet use, basic computer skills, project-based, inquiry-based, context-based and discovery learning, teacher role modeling, and instructional media, and involves identifying scientific issues, explaining scientific phenomena, and utilizing scientific evidence. Caingcoy (2020) described five stages of research capability: theory specification, data specification, data collection, data analysis, and publication. Meanwhile, Wichian, Wongwanich, and Bowarnkitiwong (2019) identified research skills and techniques, research funding, research management, communication skills, and networking and teamwork as major factors affecting research capability, while research productivity is influenced by research capability, researchers' characteristics, researchership, and institutional support. Cagaañan and Gosadan (2018) identified qualifications, position, and interest in research as variables contributing to research engagement and possible predictors of teachers' research capability and aptitude. Finally, writing skill is another important variable in research capability, as effective research requires generating, organizing, and transforming ideas into coherent and readable text; Basilio and Bueno (2019) emphasized the complexity of writing, while Evardo and Abina (2023) noted that there is no single correct approach to teaching writing

Statement of the Problem

This study aimed to propose a research development plan for the English teachers of public secondary schools in Malasiqui I District. Specifically, it sought answers to the following problems:

Main Problem. What research development plan may be proposed for the English teachers of public secondary schools in Malasiqui I District?

Sub-Problems. To answer the major problem fully, the study likewise found answers to the following sub-problems:

1. What is the profile of the English teachers of public secondary schools in Malasiqui I District in terms of:
a. highest educational attainment,
b. length of teaching experience, and
c. number of relevant seminars/trainings attended?

2. What is the level of research capability of the English teachers as perceived by themselves and by their school heads?
3. Is there a significant relationship between the profile variables of the English teachers and the level of their research capability?

4. Is there a significant difference between the perceptions of the English teachers and their school heads on the level of research capability of the English teachers?
5. What are the challenges encountered by the English teachers in conducting research?
6. Based on the findings, what research development plan may be proposed for the English teachers of public secondary schools in Malasiqui I District?

Methods

Research Design

This study employed the quantitative-descriptive method of research. It described the English teachers of public secondary schools in Malasiqui I District in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determined the level of their research capability and the challenges they encountered in research. The study also utilized the correlational research design for it determined if there is a significant relationship between the profile variables of the English teachers and the level of their research capability as well as if there is a significant difference between the perceptions of the English teachers and their school heads on the level of research capability of the English teachers.

Moreover, the developmental method of research was also used for the study came up with a proposed research development plan for the English teachers of public secondary schools in Malasiqui I District.

Participants and Sampling

This study was conducted in public secondary schools in Malasiqui I District during the School Year 2025-2026.Two groups of respondents were involved: English teachers and the school hears of the public secondary schools. In Malasiqui I District, there are 67 English teachers of the public secondary schools. All these English teachers were made as respondent in the study. Hence, no sampling was done. In the case of the school heads, no sampling was also done as all the seven school heads were made as respondents of the study.

The study utilized frequency count and percentage to describe the profile of English teachers in public secondary schools in Malasiqui I District. Weighted mean was used to determine their level of research capability and the seriousness of the challenges they encountered, with results interpreted using the specified five-point scales. To examine relationships and differences, the chi-square test of independence was applied to determine the significant relationship between teachers' profile and research capability, while the t-test was used to identify significant differences between the perceptions of English teachers and school heads regarding the teachers' research capability.

TABLE 1
Distribution of the English Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's degree holder	20	30%
Completed academic requirements in the master's degree	25	37%
Master's degree holder	17	25%
Completed academic requirements in the doctorate degree	2	3%
Doctorate degree holder	3	5%
Total	67	100%

Instrumentation and Data Collection

Instrumentation. The data utilized in this study were gathered through two survey-questionnaire – one for the English teachers and one for the school heads. The survey-questionnaire for the English teachers had three parts. The first part focused on the profile of the English teachers in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended; the second part dwelt on the level of their research capability; and, the third part look into the challenges they encountered in research. On the other hand, the survey-questionnaire for the school heads only concentrated on the level of research capability of the English teachers.

Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the English teachers is common in researches. Hence, no validation is required.With respect to the second part of the survey-questionnaire which is about the level of research capability of the English teachers, the items were based on the survey-questionnaire of Comon and Corpuz (2024) in their study entitled "Teachers' Research Competence and Engagement: Basis for Research Development Plan". The items in this survey-questionnaire were validated by the researchers and, hence, are considered valid and reliable. In relation to the third part of the survey-questionnaire which is about the challenges encountered by the English teachers in research, the items were based on the survey-questionnaire of Domantay (2024) in her study entitled "Research Competence Level of Master Teachers in Selected Public Secondary Schools in the Third Congressional District of Pangasinan". The items in this survey-questionnaire were validated by the researcher and, hence, are considered valid and reliable. Data Collection. In collecting the data needed in the study, the researcher personally administered the survey-questionnaire to the English teachers and school heads giving them two weeks to answer. After two weeks, the researcher retrieved the survey questionnaire.

Ethical Considerations. So as not to violate the data privacy of the English teachers, permission to conduct the study was first secured from the Schools Division Superintendent of Pangasinan I. Thereafter, informed consent was taken from the English teachers and the school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data

Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

Data Analysis

To determine the profile of the English teachers of public secondary schools in Malasiqui I District, the data gathered were subjected to frequency count and percentage employing the formula:

$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage

f = the observed frequency

N = total number of subject cases

To determine the level of research capability of the English teachers and the challenges they encountered in research, the weighted mean was used employing the formula:

$$WM = \frac{\sum wX}{\sum w}$$

where:

WM = weighted mean

∑ = summation

W = weighing factor

X = frequency.

Moreover, the weighted means computed in relation to the level of research capability of the English teachers were interpreted using this scale of interpretation:

novice	=	1.00 – 1.49
beginner	=	1.50 – 2.49
competent	=	2.50 – 3.49
advanced	=	3.50 – 4.49

expert = 4.50 – 5.00.

On the other hand, the weighted means computed in relation to the challenges encountered by the English teachers in research were interpreted using this scale of interpretation:

not serious = 1.00 – 1.49

less serious = 1.50 – 2.49

somewhat serious = 2.50 – 3.49

serious = 3.50 – 4.49

very serious = 4.50 – 5.00.

To determine if there is a significant relationship between the profile variables of the English teachers and the level of their research capability, the chi-square test of independence was used.authors of works used in the study were properly cited and acknowledged.

Results

Profile of the Teachers

This section presents the profile of the English teachers of public elementary schools in Malasiqui I District to answer the first sub-problem of the study.

On Highest Educational Attainment

With respect to the educational attainment, the English teachers were given five choices, namely, "bachelor's degree holder," "completed academic requirements in the master's degree," "master's degree holder," "completed academic requirements in the doctorate degree," and "doctorate degree holder." Table 1 indicates the results.

TABLE 1
Distribution of the English Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's degree holder	20	30%
Completed academic requirements in the master's degree	25	37%
Master's degree holder	17	25%
Completed academic requirements in the doctorate degree	2	3%
Doctorate degree holder	3	5%
Total	67	100%

As presented in Table 1, 20 or 30% of the English teachers are bachelor's degree holders, 25 or 37% have completed the academic requirements for the master's degree, 17 or 25% are master's degree holders, two or 3% have completed the academic requirements for the doctorate degree, and th433 or 5% are doctorate degree holders. It can be noted that majority of the

English teachers of the public secondary schools in Malasiqui I District have no post-graduate degrees.

On Length of Teaching Experience

In relation to the length of teaching experience, the English teachers were provided with five choices to choose from, viz., "one to five years," "six to 10 years," "11 to 15 years," "16 to 20 years," and "more than 20 years." Table 2 shows the results.

TABLE 2
Distribution of the English Teachers in terms of Length of Teaching Experience

Length of Teaching Experience	Frequency	Percentage
1-5 years	6	9%
6-10 years	20	30%
11-15 years	28	42%
16 – 20 years	9	13%
more than 20 years	4	6%
Total	67	100%

As disclosed in Table 2, six or 9% of the English teachers have been teaching for one to five years, 20 or 30% have been teaching for six to 10 years, 28 or 42% have been teaching for 11 to 15 years, nine or 13% have been teaching for 16 to 20 years, and four or 6% have been teaching for more than 20 years already. It can be noted here that majority of the English teachers have been teaching for six to 15 years already.

TABLE 3
Distribution of the English Teachers in terms of Number of Relevant Trainings Attended

Number of Trainings Attended	Frequency	Percentage
Have not attended any training related with research	0	0%
Have attended not more than three trainings related with research	54	81%
Have attended more than three trainings related with research	13	19%
Total	67	100%

As disclosed in Table 3, 54 or 81% of the English teachers have attended not more than three trainings related with research for the past five years and 13 or 19% have attended more than three trainings. It can be seen that majority of the English teachers have attended not more than three trainings related with research. This implies that a training or seminar on the same will greatly benefit them.

The Level of Research Capability of the English Teachers

This section provides answers to the second sub-problem of the study which is about the level of research capability of the English teachers as perceived by themselves and by the school heads.

To provide answers to the sub-problem, the English teachers and their school heads were asked to rate the level of research capability of the English teachers along three areas, namely, farming questions and data collection, identifying literature and theoretical knowledge, and analyzing and presenting research data.

On Framing Questions and Data Collection

The English teachers and the school heads assessed the level of research capability of the English teachers along framing questions and data collection

Assessment of the English Teachers. The assessment of the English teachers on their level of research capability along framing questions and data collection is presented in Table 4.

TABLE 4

The Level of Research Capability along Framing Questions and Data Collection of the English Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
A. Framing Questions and Data Collection: I can -	NO	BE	CO	AD	EX		
1. Formulate a survey questionnaire.	0	0	34	30	3	3.54	AD
2. Identify an appropriate research instrument for my research question.	0	0	35	29	3	3.52	AD
3. Generate information out of my questionnaire.	0	0	34	31	2	3.52	AD
4. Identify researchable questions.	0	0	34	31	2	3.52	AD
5. Conduct the survey instrument in collecting data.	0	0	34	31	2	3.52	AD
6. Do data collection through a questionnaire.	0	0	34	31	2	3.52	AD
7. Collect data through interviews, anecdotal records, journals, group discussion, and others.	0	0	31	33	3	3.58	AD
8. Communicate with others using the e-mail in the data collection.	0	0	30	35	2	3.58	AD
9. Use different means of data collection like interviews, portfolios, questionnaires, journals, surveys, group discussion, and others	0	0	33	32	2	3.54	AD
10. Distinguish primary and secondary data from the sources.	0	0	31	34	2	3.57	AD
AWM						3.54	AD

Legend:
WM = weighted mean
DE = descriptive equivalent

AWM = area weighted mean
Scale:

NO	=	novice	=	1.00 – 1.49
BE	=	beginner	=	1.50 – 2.49
CO	=	competent	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

As provided in Table 4, when asked as to what level they can formulate a survey questionnaire, 34 of the English teachers claimed “competent,” 30 claimed “advanced,” and three claimed “expert.” The weighted mean computed here is 3.54 which is pointing to “advanced” in the scale.

When questioned as to what level they can identify an appropriate research instrument for their research question, 35 of the English teachers said “competent,” 29 said “advanced,” and three said “expert.” In this item, the weighted mean computed is 3.52 which is leading to “advanced” in the scale of interpretation.

When queried as to what level they can generate information out of their questionnaire, 34 of the English teachers mentioned “competent,” 31 mentioned “advanced,” and two mentioned “expert.” The weighted mean computed here is 3.52 which is indicative of “advanced” in the scale.

When inquired as to what level they can identify researchable questions, 34 of the English teachers checked “competent,” 31 checked “advanced,” and two checked “expert.” In this item, the weighted mean computed is 3.52 which is “advanced” in the scale.

Asked as to what level they can conduct the survey instrument in collecting data, 34 of the English teachers claimed “competent,” 31 claimed “advanced,” and two claimed “expert.” Here, the weighted mean computed is 3.52 which is reflective of “advanced” in the scale.

Questioned as to what level they can do data collection through a questionnaire, 34 of the English teachers answered “competent,” 31 answered “advanced,” and two answered “expert.” The weighted mean computed here is 3.52 which is “advanced” in the scale.

Inquired as to what level they can collect data through interviews, anecdotal records, journals, group discussion, and other, 31 of the English teachers replied “competent,” 33 replied “advanced,” and three replied “expert.” Here, the weighted mean computed is 3.58 which is indicative of “advanced” in the scale.

Queried as wo what level they can communicate with others using the e-mail in the data collection, 30 of the English teachers responded “competent,” 35 responded “advanced,” and two responded “expert.” In this item, the weighted mean computed is 3.58 which is pointing to “advanced” in the scale.

When questioned as to what level they can use different means of data collection like interviews, portfolios, questionnaires, journals, surveys, group discussion, and others, 33 of the English teachers ticked “competent,” 32 ticked “advanced,” and two ticked “expert.” Here, the weighted mean computed is 3.54 which is leading to “advanced” in the scale.

And, when asked as to what level they can distinguish primary and secondary data from the sources, 31 of the English teachers claimed “competent,” 34 claimed “advanced,” and two claimed “expert.” Here, the weighted mean computed is 3.57 which is pointing to “advanced” in the scale.

Meanwhile, the area weighted mean computed is 3.54. This implies that the English teachers perceived that the level of their research capability along framing questions and data collection is advanced.

TABLE 5
The Level of Research Capability along Framing Questions and Data Collection of the English Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
A. Framing Questions and Data Collection: The English teachers can -	NO	BE	CO	AD	EX		
1. Formulate a survey questionnaire.	0	1	5	1	0	3.00	CO
2. Identify an appropriate research instrument for their research question.	0	1	5	1	0	3.00	CO
3. Generate information out of their questionnaire.	0	2	5	0	0	2.71	CO
4. Identify researchable questions.	0	2	5	0	0	2.71	CO
5. Conduct the survey instrument in collecting data.	0	1	6	0	0	2.86	CO
6. Do data collection through a questionnaire.	0	1	6	0	0	2.86	CO
7. Collect data through interviews, anecdotal records, journals, group discussion, and others.	0	1	5	1	0	3.00	CO
8. Communicate with others using the e-mail in the data collection.	0	0	6	1	0	3.14	CO
9. Use different means of data collection like interviews, portfolios, questionnaires, journals, surveys, group discussion, and others	0	0	6	1	0	3.14	CO
10. Distinguish primary and secondary data from the sources.	0	1	5	1	0	3.00	CO
					AWM	2.94	CO

Legend:
WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

NO	=	novice	=	1.00 – 1.49
BE	=	beginner	=	1.50 – 2.49
CO	=	competent	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

Asked as to what level their English teachers can conduct the survey instrument in collecting data, one of the school heads claimed “beginner” and six claimed “competent.” Here, the weighted mean computed is 2.86 which is reflective of “competent” in the scale.

Questioned as to what level their English teachers can do data collection through a questionnaire, one of the school heads answered “beginner” and six answered “competent.” The weighted mean computed here is 2.86 which is “competent” in the scale.

Inquired as to what level their English teachers can collect data through interviews, anecdotal records, journals, group discussion, and other, one of the school heads replied “beginner,” five replied “competent,” and one replied “advanced.” Here, the weighted mean computed is 3.00 which is indicative of “competent” in the scale.

Queried as wo what level their English teachers can communicate with others using the e-mail in the data collection, six of the school heads responded “competent” and one responded “advanced.” In this item, the weighted mean computed is 3.14 which is pointing to “competent” in the scale.

When questioned as to what level their English teachers can use different means of data collection like interviews, portfolios, questionnaires, journals, surveys, group discussion, and others, six of the school heads ticked “competent” and one ticked “advanced.” Here, the weighted mean computed is 3.14 which is leading to “competent” in the scale.

And, when asked as to what level their English teachers can distinguish primary and secondary data from the sources, one of the school heads claimed “beginner,” five claimed “competent,” and one claimed “advanced.” Here, the weighted mean computed is 3.00 which is pointing to “competent” in the scale.

Meanwhile, the area weighted mean computed is 2.94. This implies that the school heads perceived that the level of research capability along framing questions and data collection is only competent.

On Identifying Literature and Theoretical Knowledge

The English teachers and the school heads assessed the level of research capability of the English teachers along Identifying literature and theoretical knowledge.

Assessment of the English Teachers. The assessment of the kindergarten teachers on their level of research capability along identifying literature and theoretical knowledge is presented in Table 6.

As provided in Table 6, when asked as to what level they can review literature skillfully and be knowledgeable about, 34 of the English teachers claimed “competent,” 31 claimed “advanced,” and two claimed “expert.” The weighted mean computed here is 3.52 which is pointing to “advanced” in the scale.

TABLE 6
The Level of Research Capability of the English Teachers along Identifying Literature and Theoretical Knowledge as Perceived by Themselves

Assessment Items	Responses					WM	DE
B, Identifying Literature and Theoretical Knowledge: I can -	NO	BE	CO	AD	EX		
1. Review literature skillfully and be knowledgeable about.	0	0	34	31	2	3.52	AD
2. Organize the review of related literature.	0	0	33	31	3	3.55	AD
3. Synthesize and critically review a body of literature.	0	0	29	35	3	3.61	AD
4. Distinguish my authors, references, and other literature cited.	0	0	29	35	3	3.61	AD
5. Locate related literature in library clippings.	0	0	30	34	3	3.60	AD
6. Find research articles from both primary and secondary sources.	0	0	28	36	3	3.63	AD
7. Anchor a study on a theory.	0	0	32	33	2	3.55	AD
8. Analyze what is the best theory to be used.	0	0	29	35	3	3.61	AD
9. Make the conceptual framework.	0	0	33	32	2	3.54	AD
10. Conceptualize my study on a schematic presentation.	0	0	33	32	2	3.54	AD
					AWM	3.58	AD

Legend:
WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

NO	=	novice	=	1.00 – 1.49
BE	=	beginner	=	1.50 – 2.49
CO	=	competent	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

When questioned as to what level they can organize the review of related literature, 33 of the English teachers said “competent,” 31 said “advanced,” and three said “expert.” In this item, the weighted mean computed is 3.55 which is leading to “advanced” in the scale of interpretation.

When queried as to what level they can synthesize and critically review a body of literature, 29 of the English teachers mentioned “competent,” 35 mentioned “advanced,” and three mentioned “expert.” The weighted mean computed here is 3.61 which is indicative of “advanced” in the scale.

When inquired as to what level they can distinguish their authors, references, and other literature cited, 29 of the English teachers checked “competent,” 35 checked “advanced,” and three checked “expert.”. In this item, the weighted mean computed is 3.61 which is “advanced” in the scale.

Asked as to what level they can locate related literature in library clippings, 30 of the English teachers claimed “competent,” 34 claimed “advanced,” and three claimed “expert.” Here, the weighted mean computed is 3.60 which is reflective of “advanced” in the scale.

Questioned as to what level they can find research articles from both primary and secondary sources, 28 of the English teachers answered “competent”, 36 answered “advanced,” and three answered “expert.” The weighted mean computed here is 3.63 which is “advanced” in the scale.

Inquired as to what level they can anchor a study on a theory, 32 of the English teachers replied “competent,” 33 replied “advanced,” and two replied “expert.” Here, the weighted mean computed is 3.55 which is indicative of “advanced” in the scale.

Queried as wo what level they can analyze what is the best theory to be used, 29 of the English teachers responded “competent,” 35 responded “advanced,” and three responded “expert.” In this item, the weighted mean computed is 3.61 which is pointing to “advanced” in the scale.

When questioned as to what level they can make the conceptual framework, 33 of the English teachers ticked “competent,” 32 ticked “advanced,” and two ticked “expert.” Here, the weighted mean computed is 3.54 which is leading to “advanced” in the scale.

Lastly, when inquired as to what level they can conceptualize my study on a schematic presentation, 33 of the English teachers said “competent,” 32 mentioned “advanced,” and two mentioned “expert.” The weighted mean computed here is 3.54 which is pointing to “advanced” in the scale.

Meanwhile, the area weighted mean computed is 3.58. This implies that the English teachers perceived that the level of research capability along identifying literature and theoretical knowledge is advanced.

Assessment of the School Heads. The assessment of the school heads on the level of research capability along identifying literature and theoretical knowledge is presented in Table 7.

As provided in Table 7, when asked as to what level their English teachers can review literature skillfully and be knowledgeable about, one of the school heads claimed “beginner,” five claimed “competent,” and one claimed “advanced.” The weighted mean computed here is 3.00 which is pointing to “competent” in the scale.

TABLE 7
The Level of Research Capability of the English Teachers along Identifying Literature and Theoretical Knowledge as Perceived by the School Heads

Assessment Items	Responses					WM	DE
B, Identifying Literature and Theoretical Knowledge: My English teachers can -	NO	BE	CO	AD	EX		
1. Review literature skillfully and be knowledgeable about.	0	1	5	1	0	3.00	CO
2. Organize the review of related literature.	0	1	6	0	0	2.86	CO

3. Synthesize and critically review a body of literature.	0	1	6	0	0	2.86	CO
4. Distinguish my authors, references, and other literature cited.	0	2	5	0	0	2.71	CO
5. Locate related literature in library clippings.	0	1	5	1	0	3.00	CO
6. Find research articles from both primary and secondary sources.	0	1	5	1	0	3.00	CO
7. Anchor a study on a theory.	0	0	6	1	0	3.14	CO
8. Analyze what is the best theory to be used.	0	0	6	1	0	3.14	CO
9. Make the conceptual framework.	0	1	5	1	0	3.00	CO
10. Conceptualize my study on a schematic presentation.	0	1	5	1	0	3.00	CO
					AWM	2.97	CO

Legend:

WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

NO	=	novice	=	1.00 – 1.49
BE	=	beginner	=	1.50 – 2.49
CO	=	competent	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

When questioned as to what level their English teachers can organize the review of related literature, one of the school heads said “beginner” and six said “competent.” In this item, the weighted mean computed is 2.86 which is leading to “competent” in the scale of interpretation.

When queried as to what level their English teachers can synthesize and critically review a body of literature, one of the school heads mentioned “beginner” and six mentioned “competent.” The weighted mean computed here is 2.86 which is indicative of “competent” in the scale.

When inquired as to what level their English teachers can distinguish their authors, references, and other literature cited, two of the school heads checked “beginner” and five checked “competent.” In this item, the weighted mean computed is 2.71 which is “competent” in the scale.

Asked as to what level their English teachers can locate related literature in library clippings, one of the school heads claimed “beginner,” five claimed “competent,” and one claimed “advanced.” Here, the weighted mean computed is 3.00 which is reflective of “competent” in the scale.

Questioned as to what level their English teachers can find research articles from both primary and secondary sources, one of the school heads answered “beginner”, five answered “competent,” and one answered “advanced.” The weighted mean computed here is 3.00 which is “competent” in the scale.

Inquired as to what level their English teachers can anchor a study on a theory, six of the school heads replied “competent” and one replied “advanced.” Here, the weighted mean computed is 3.14 which is indicative of “competent” in the scale.

Queried as wo what level their teachers can analyze what is the best theory to be used, six of the school heads responded “competent” and one responded “advanced.” In this item, the weighted mean computed is 3.14 which is pointing to “competent” in the scale.

When questioned as to what level their English teachers can make the conceptual framework, one of the school heads ticked “beginner,” five ticked “competent,” and one ticked “advanced.” Here, the weighted mean computed is 3.00 which is leading to “competent” in the scale.

Lastly, when inquired as to what level their English teachers can conceptualize my study on a schematic presentation, one of the school heads said “beginner,” five mentioned “competent,” and one mentioned “advanced.” The weighted mean computed here is 3.00 which is pointing to “competent” in the scale.

Meanwhile, the area weighted mean computed is 2.97. This implies that the school heads perceived that the level of research capability along identifying literature and theoretical knowledge of the English teachers is only competent.

On Analyzing and Presenting Research Data

The English teachers and the school heads assessed the level of research capability along analyzing and presenting research data of the English teachers.

Assessment of the English Teachers. The assessment of the English teachers on their level of research capability along analyzing and presenting research data is presented in Table 8.

As provided in Table 8, when asked as to what level they can develop a data collection plan, 32 of the English teachers claimed “competent,” 33 claimed “advanced,” and two claimed “expert.” The weighted mean computed here is 3.55 which is pointing to “advanced” in the scale.

When questioned as to what level they can summarize collected data dependably and accurately, 31 of the English teachers said “competent,” 34 said “advanced,” and two said “expert.” In this item, the weighted mean computed is 3.57 which is leading to “advanced” in the scale of interpretation.

When queried as to what level they can interpret the underlying meaning or the implication of the data, 32 of the English teachers mentioned “competent,” 33 mentioned “advanced,” and two mentioned “expert.” The weighted mean computed here is 3.55 which is indicative of “advanced” in the scale.

TABLE 8
The Level of Research Capability along Analyzing ang Presenting Research Data of the English Teachers as Perceived by Themselves

Assessment Items	Responses					WM	DE
C. Analyzing and Presenting Research Data: I can -	NO	BE	CO	AD	EX		
1. Develop a data collection plan.	0	0	32	33	2	3.55	AD
2. Summarize collected data dependably and accurately.	0	0	31	34	2	3.57	AD
3. Interpret the underlying meaning or the implication of the data.	0	0	32	33	2	3.55	AD
4. Perform preliminary and iterative steps involving reading, describing, and classifying research data before proceeding to data analysis.	0	0	33	32	2	3.54	AD
5. Identify techniques involved in qualitative data analysis.	0	0	31	34	2	3.57	AD
6. Analyze quantitative data regardless of whether the test involves descriptive or inferential.	0	0	33	32	2	3.54	AD
7. Identify emerging themes in an inductive analysis of qualitative data.	0	0	34	31	2	3.52	AD
8. Analyze both quantitative and qualitative data in mixed-method research designs.	0	0	32	33	2	3.55	AD
9. Make a visual display for the reader to easily understand information.	0	0	32	32	3	3.57	AD
10. Present qualitative data in graphs, charts, and networks when necessary.	0	0	30	34	3	3.60	AD
					AWM	3.56	AD

Legend:
WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

NO	=	novice	=	1.00 – 1.49
BE	=	beginner	=	1.50 – 2.49
CO	=	competent	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

When inquired as to what level they can perform preliminary and iterative steps involving reading, describing, and classifying research data before proceeding to data analysis,

33 of the English teachers checked “competent,” 32 checked “advanced,” and two checked “expert.” In this item, the weighted mean computed is 3.54 which is “advanced” in the scale.

Asked as to what level they can identify techniques involved in qualitative data analysis, 31 of the English teachers claimed “competent,” 34 claimed “advanced,” and two claimed “expert.” Here, the weighted mean computed is 3.57 which is reflective of “advanced” in the scale.

Questioned as to what level they can analyze quantitative data regardless of whether the test involves descriptive or inferential, 33 of the English teachers answered “competent,” 32 answered “advanced,” and two answered “expert.” The weighted mean computed here is 3.54 which is “advanced” in the scale.

When inquired as to what level they can identify emerging themes in an inductive analysis of qualitative data, 34 of the English teachers checked “competent,” 31 checked “advanced,” and two checked “expert.” In this item, the weighted mean computed is 3.52 which is “advanced” in the scale.

Asked as to what level they can analyze both quantitative and qualitative data in mixed-method research designs, 32 of the English teachers claimed “competent,” 33 claimed “advanced,” and two claimed “expert.” Here, the weighted mean computed is 3.55 which is reflective of “advanced” in the scale.

Questioned as to what level they can make a visual display for the reader to easily understand information, 32 of the English teachers answered “competent,” 32 answered “advanced,” and three answered “expert.” The weighted mean computed here is 3.57 which is “advanced” in the scale.

Lastly, inquired as to what level they can present qualitative data in graphs, charts, and networks when necessary, 30 of the English teachers replied “competent,” 34 replied “advanced,” and three replied “expert.” Here, the weighted mean computed is 3.60 which is indicative of “advanced” in the scale.

Meanwhile, the area weighted mean computed is 3.56. This implies that the English teachers perceived that the level of their research capability along analyzing and presenting research data is advanced.

Assessment of the School Heads. The assessment of the school heads on the level of research capability along analyzing and presenting research data of the English teachers is presented in Table 9.

As provided in Table 9, when asked as to what level their English teachers can develop a data collection plan, one of the school heads claimed “beginner” and six claimed “competent.” The weighted mean computed here is 2.86 which is pointing to “competent” in the scale.

When questioned as to what level their English teachers can summarize collected data dependably and accurately, one of the school heads said “beginner” and six said “competent.” In this item, the weighted mean computed is 2.86 which is leading to “competent” in the scale of interpretation.

TABLE 9
The Level of Research Capability along Analyzing ang Presenting Research Data of the English Teachers as Perceived by the School Heads

Assessment Items	Responses					WM	DE
C. Analyzing and Presenting Research Data: My English teachers can -	NO	BE	CO	AD	EX		
1. Develop a data collection plan.	0	1	6	0	0	2.86	CO
2. Summarize collected data dependably and accurately.	0	1	6	0	0	2.86	CO
3. Interpret the underlying meaning or the implication of the data.	0	2	5	0	0	2.71	CO
4. Perform preliminary and iterative steps involving reading, describing, and classifying research data before proceeding to data analysis.	0	2	5	0	0	2.71	CO
5. Identify techniques involved in qualitative data analysis.	0	1	5	1	0	3.00	CO
6. Analyze quantitative data regardless of whether the test involves descriptive or inferential.	0	1	5	1	0	3.00	CO
7. Identify emerging themes in an inductive analysis of qualitative data.	0	1	5	1	0	3.00	CO
8. Analyze both quantitative and qualitative data in mixed-method research designs.	0	1	5	1	0	3.00	CO
9. Make a visual display for the reader to easily understand information.	0	1	6	0	0	2.86	CO
10. Present qualitative data in graphs, charts, and networks when necessary.	0	1	6	0	0	2.86	CO
					AWM	2.89	CO

Legend:
WM = weighted mean
DE = descriptive equivalent
AWM = area weighted mean

Scale:

NO	=	novice	=	1.00 – 1.49
BE	=	beginner	=	1.50 – 2.49
CO	=	competent	=	2.50 – 3.49
AD	=	advanced	=	3.50 – 4.49
EX	=	expert	=	4.50 – 5.00

When queried as to what level their English teachers can interpret the underlying meaning or the implication of the data, two of the school heads mentioned “beginner” and five

mentioned “competent.” The weighted mean computed here is 2.71 which is indicative of “competent” in the scale.

When inquired as to what level their English teachers can perform preliminary and iterative steps involving reading, describing, and classifying research data before proceeding to data analysis, two of the school heads checked “beginner” and five checked “competent.” In this item, the weighted mean computed is 2.71 which is “competent” in the scale.

Asked as to what level their English teachers can identify techniques involved in qualitative data analysis, one of the school heads claimed “beginner,” five claimed “competent,” and one claimed “advanced.” Here, the weighted mean computed is 3.00 which is reflective of “competent” in the scale.

Questioned as to what level their English teachers can analyze quantitative data regardless of whether the test involves descriptive or inferential, one of the school heads answered “beginner,” five answered “competent,” and one answered “advanced.” The weighted mean computed here is 3.00 which is “competent” in the scale.

When inquired as to what level their English teachers can identify emerging themes in an inductive analysis of qualitative data, one of the school heads checked “beginner,” five checked “competent,” and one checked “advanced.” In this item, the weighted mean computed is 3.00 which is “competent” in the scale.

Asked as to what level their English teachers can analyze both quantitative and qualitative data in mixed-method research designs, one of the school heads claimed “beginner,” five claimed “competent,” and one claimed “advanced.” Here, the weighted mean computed is 3.00 which is reflective of “competent” in the scale.

Questioned as to what level their English teachers can make a visual display for the reader to easily understand information, one of the school heads answered “beginner” and six answered “competent.” The weighted mean computed here is 2.86 which is “competent” in the scale.

Lastly, inquired as to what level their English teachers can present qualitative data in graphs, charts, and networks when necessary, one of the school heads replied “beginner” and six replied “competent.” Here, the weighted mean computed is 2.86 which is indicative of “competent” in the scale.

Meanwhile, the area weighted mean computed is 3.89. This implies that the school heads perceived that the level of research capability along analyzing and presenting research data of the English teachers is only competent.

The Level of Research Capability of the English Teachers

The level of research capability of the English teachers of public secondary schools in Malasiqui I District is presented in Table 10

TABLE 10
Level of Research Capability
of the English Teachers

Research Capability Areas	English Teachers		School Heads	
	AWM	DE	AWM	DE
Framing Questions and Data Collection	3.54	AD	2.94	CO
Identifying Literature and	3.58	AD	2.97	CO

Theoretical Knowledge				
Analyzing and Presenting Research Data	3.56	AD	2.89	CO
OWM	3.56	AD	2.93	CO

Legend:

AWM = area weighted mean
DE = descriptive equivalent
OWM = overall weighted mean

Scale:

NO = novice = 1.00 – 1.49
BE = beginner = 1.50 – 2.49
CO = competent = 2.50 – 3.49
AD = advanced = 3.50 – 4.49
EX = expert = 4.50 – 5.00

As can be noted in Table 10, the English teachers perceived that the level of their research capability is advanced as evidenced by the computed overall weighted mean of 3.56. However, the school heads perceived that the level of research capability of the English teachers is only competent. as evidenced by the computed overall weighted mean of 2.93.

Relationship between the Profile Variables of the English Teachers and the Level of Their Research Capability

This part of the chapter provides answers to the third sub-problem of the study which is about the significant relationship between the profile variables of the English teachers and the level of their research capability.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship between the profile variables of the English teachers and the level of their research capability. Thereafter, the researcher correlated the profile variables of the English teachers and the level of their research capability using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the p value and the chi square value at .05 level of significance. Table 11 presents the results.

TABLE 11
Relationship between the Profile Variables of the English Teachers and the Level of Their Research Capability

Profile Variables	P Value .05 LS	Chi Square Value	Chi Square Critical Value	RM
Highest Educational Attainment	0.01	6.43	3.84	S
Length of Teaching Experience	0.01	6.81	3.84	S
Number of Relevant Trainings	0.03	4.99	3.84	S

Legend:

RM = remarks
S = significant
NS = not significant

As shown in Table 11, when the highest educational attainment of the English teachers and the level of their research capability are correlated, the p value computed is 0.01. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 6.43. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the level of research capability of the English teachers is influenced by their highest educational attainment.

Secondly, when the length of teaching experience of the English teachers and the level of their research capability are correlated, the p value computed is 0.01. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 6.81. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the level of research capability of the English teachers is influenced by their length of teaching experience.

Lastly, when the number of relevant trainings of the English teachers and the level of their research capability are correlated, the p value computed is 0.03. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 4.99. This figure is higher than the chi square critical value of 3.84. This means that there is a significant relationship between the two. Being so, the null hypothesis is rejected. Conformably, it can be said that the level of research capability of the English teachers is influenced by the number of relevant trainings they attended.

Conclusion and Recommendations

Conclusion

Based on the findings made, the following conclusions were drawn:

1. A typical English teacher of a public secondary school in Malasiqui I District has no post-graduate degree, has been teaching for six to 15 years already, and has attended not more than three trainings/seminars related with research for the past five years.

2. The English teachers perceived that the level of their research capability is advanced while the school heads perceived that the level of research capability of the English teachers is only competent.
3. The level of research capability of the English teachers is influenced by their educational attainment, length of teaching experience, and number of relevant trainings attended.
4. The perceptions of the English teachers and the school heads on the level of research capability of the English teachers are significantly different from each other.
5. The challenges encountered by the English teachers in conducting research may be addressed.
6. The proposed research development plan will enhance the level of research capability of the English teachers of public secondary schools in Malasiqui I District.

Recommendations

Based on the findings made and the conclusions drawn, the following recommendations are offered:

1. The proposed research development plan be approved for implementation in the public secondary schools in Malasiqui I DIstrict to enhance the level of research capability of the English teachers.

2. The implementation of the proposed research development plan in the public secondary schools in Malasiqui I District should be monitored and evaluated.

3. Similar study may be conducted by other researchers to validate the findings of the study.

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UTILIZATION OF PROBLEM-BASED LEARNING OF SCIENCE TEACHERS OF SELECTED PUBLIC ELEMENTARY SCHOOLS IN MALASIQUI II DISTRICT

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Abstract

This study sought to determine the extent of utilization of problem-based learning of the science teachers of selected public elementary schools in Malasiqui Il District during the School Year 2025-2026 through a descriptive-correlational-developmental research design. The data used in this study came from the 170 science teachers and 14 school heads which were subjected to frequency count, percentage, weighted mean, and the chi-square test of independence. Results showed that: majority of the science teachers have no post-graduate degrees, have been teaching for more than 10 years already, and have attended not more than three trainings related with problem-based learning for the past five years; the science teachers perceived that they are almost always utilizing problem-based learning as evidenced by the computed overall weighted mean of 4.11 while the school heads perceived that the science teachers are only sometimes utilizing problem-based learning as evidenced by the computed overall weighted mean of 2.77; there is a significant difference between the perceptions of the science teachers and the school heads on the extent of utilization of problem-based learning of the science teachers; and, there is a significant relationship between the highest educational attainment, length of teaching experience, number of trainings related with problem-based learning attended of the science teachers and the extent of their utilization of problem-based learning. Given the findings, the following conclusions were drawn: a typical science teacher of the selected public elementary schools in Malasiqui II District has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with problem-based learning for the past five years; the science teachers perceived that they are almost always utilizing problem-based learning while their school heads perceived that they are only sometimes utilizing it; the science teachers and the school heads have significantly different perceptions on the extent of utilization of problem-based learning of the science teachers; and, the extent of utilization of problem-based learning of the science teachers is influenced by their highest educational attainment, the length of teaching experience, and the number of trainings related with problem-based learning attended for the past five years.

Keywords: *problem-based learning, science teachers*

Introduction

The increasing emphasis on developing twenty-first-century skills has transformed the landscape of science education, requiring teachers to adopt instructional approaches that promote critical thinking, collaboration, creativity, and problem-solving. As educational reforms continue

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to encourage learner-centered teaching, science teachers are expected to move beyond traditional lecture-based instruction and engage learners in meaningful, inquiry-driven experiences. Among the strategies recognized for achieving these goals is Problem-Based Learning, which provides learners with authentic and contextualized problems that stimulate active participation and deeper understanding. However, despite its recognized effectiveness, the successful implementation of problem-based learning depends largely on teachers' knowledge, readiness, and ability to integrate it into everyday classroom instruction.

In public elementary schools, science teachers are encouraged to adopt learner-centered instructional approaches that promote active participation and meaningful learning. However, the implementation of Problem-Based Learning may be influenced by various classroom realities, including limited instructional resources, time constraints, teachers' readiness, and the diverse learning needs of pupils. These factors may affect how Problem-Based Learning is integrated into science instruction. In the context of public elementary schools in Malasiqui II District, there is limited local information regarding the extent to which science teachers utilize Problem-Based Learning in their classrooms. Examining its use within this setting is essential to gain a clearer understanding of current instructional practices and identify areas for improvement.

This study seeks to examine the use of Problem-Based Learning among science teachers in public elementary schools in Malasiqui II District to gain a better understanding of its current implementation and the factors that influence its utilization. By generating localized empirical evidence, the study aims to contribute to the existing body of knowledge on learner-centered science instruction and serve as a basis for strengthening instructional practices and teacher professional development. Ultimately, the findings are expected to support science teachers, school administrators, and education leaders in promoting the effective integration of Problem-Based Learning to improve the quality of science education and foster meaningful learning experiences among elementary learners.

METHODOLOGY

Research Design

This study employed the quantitative-descriptive method of research. It described the science teachers of the selected public elementary schools in Malasiqui II District in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as determine the extent of their utilization of problem-based learning. The study also utilized the correlational research design for it determined if there is a significant difference between the perceptions of the science teachers and their school heads on the extent of usage of problem-based learning of the science teachers and if there is a significant relationship between the profile variables of the science teachers and the extent of their usage of problem-based learning.

Moreover, the developmental method of research was also used for the study came up with a proposed innovative training program on problem-based learning for the science teachers of the selected public elementary schools in Malasiqui II District.

Sources of Data

Research Setting. This study was conducted in selected public elementary schools in Malasiqui II District during the School Year 2025-2026.

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Sampling. There were two groups of respondents in this study, namely, the science teachers and the school heads of the selected public elementary schools in Malasiqui II District. All the 170 science teachers and 14 school heads of the selected public elementary schools in Malasiqui II District were made as respondents. Accordingly, no sampling was done. The distribution of the science teachers in the selected public elementary schools is presented un Table 1.

TABLE 1
Distribution of the Science Teachers per the Selected Public Elementary School

Public Elementary Schools	Number of Teachers	Percentage
Aliaga Elementary School	14	8%
Bakitiw Elementary School	12	7%
BIBA Elementary School	12	7%
Bongar Elementary School	9	5%
Cabatling Elementary School	9	5%
Canan Elementary School	15	9%
Don Pedro Elementary School	12	7%
Malimpec Elementary School	14	8%
Nalsian Tomiling Elementary School	15	9%
Olea Elementary School	12	7%
Talospatang Elementary School	21	13%
Tobor Elementary School	10	6%
IBA Elementary School	6	4%
Bernabe Q. Jimenez Elementary School	9	5%
Total	170	100%

Research Participants. As mentioned, all the 170 science teachers and 14 school heads of the selected public elementary schools in Malasiqui II District were made as respondents of the study. The science teachers provided data relative to their highest educational attainment, length of teaching experience, number of relevant trainings they attended, and the extent of their utilization of problem-based learning. Meanwhile, the school heads provided data with respect to the extent of utilization of problem-based learning of the science teachers.

Instrumentation and Data Collection

Instrumentation. The data utilized in this study were gathered through two survey-questionnaires, one for the science teachers and one for the school heads.

The survey-questionnaire for the science teachers had two parts. The first part focused on the profile of the science teachers of the selected public elementary schools in Malasiqui II District in terms of the highest educational attainment, length of teaching experience, and the number of relevant trainings attended; and, the second part focused on the extent of utilization of problem-based learning of the science teachers.

On the other hand, the survey-questionnaire for the school heads simply focused on the extent of utilization of problem-based learning of the science teachers.

Trustworthiness. The items in the first part of the survey-questionnaire which is about the profile of the science teachers is common in research. Hence, no validation is required.

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With respect to the second part of the survey-questionnaire which is about the extent of utilization of problem-based learning of the science teachers, the items were based from the survey-questionnaire of Borromeo (2025) in his study entitled "Utilization of Problem-Based Learning in Mathematics in Malasiqui II District." The items in this survey-questionnaire were validated by the researcher and, hence, are considered valid and reliable.

Data Collection. In collecting the data needed in the study, the researcher personally administered the survey-questionnaire to the science teachers and school heads giving them three weeks to answer. After three weeks, the researcher retrieved the survey-questionnaire.

Ethical Considerations. So as not to violate the data privacy of the science teachers and the school heads, permission to conduct the study was first secured from the Schools Division Superintendent of Pangasinan I. Thereafter, informed consent was taken from the science teachers and the school heads.

Moreover, the researcher treated the data gathered with utmost confidentially and were used only for the purpose of answering the research questions of the study in accordance with the Data Privacy Act of the Philippines. Likewise, authors of researches, articles, and other scholar works used in this study were cited, properly acknowledged, and documented.

Tools for Data Analysis

To determine the profile of the science teachers of the selected public elementary schools in Malasiqui II District, the data gathered were subjected to frequency count employing the formula:

$$P = \frac{f}{N} \times 100$$

where:

P = the computed percentage
f = the observed frequency
N = total number of subject cases

To determine the extent of utilization of problem-based earning of the science teachers, the weighted mean was used employing the formula:

$$WM = \frac{\sum wX}{\sum w}$$

where:

WM = weighted mean
$\sum$ = summation
W = weighing factor
X = frequency.

Moreover, the weighted means computed were interpreted using this scale of interpretation:

never	=	1.00 – 1.49
almost never	=	1.50 – 2.49
sometimes	=	2.50 – 3.49
almost always	=	3.50 – 4.49
always	=	4.50 – 5.00.

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To determine if there is a significant difference between the perceptions of the science teachers and the school heads on the extent of utilization of problem-based learning of the science teachers, the t-test was utilized.

Lastly, to determine the relationship between the profile variables of the science teachers and the extent of their utilization of problem-based learning, the chi square test of independence was used.

RESULTS AND DISCUSSION

The Profile of the Intermediate Teachers

This section presents the profile of the science teachers in the selected public elementary schools in Malasiqui II District to answer the first problem of the study.

On Highest Educational Attainment

In relation to highest educational attainment, the science teachers were provided with five choices: "bachelor's degree," "completed academic requirements in the master's degree," "master's degree," "completed academic requirements in the doctorate degree," and "doctorate degree." Table 2 indicates the results.

TABLE 2
Distribution of the Science Teachers in terms of Highest Educational Attainment

Educational Attainment	Frequency	Percentage
Bachelor's Degree	63	37%
Completed academic requirements in the Master's Degree	49	29%
Master's Degree	45	26%
Completed academic requirements in the Doctorate Degree	7	4%
Doctorate Degree	6	4%
Total	170	100

As revealed in Table 2, 63 or 37% of the science teachers are bachelor's degree holders, 49 or 29% have completed the academic requirements in the master's degree, 45 or 26% are master's degree holders, seven or 4% have completed the academic requirements for in doctorate degree, and six or 4% are doctorate degree holders. As can be noted, majority of the science teachers have no post-graduate degree.

On Length of Teaching Experience

As regards the length of teaching experience, the science teachers were provided with four choices, scilicet, "1 to 5 years," "6 to 10 years," "11 to 15 years," and "more than 15 years." Table 3 presents the results.

TABLE 3
Distribution of the Science Teachers in terms of Length of Teaching Experience

Length of Experience	Frequency	Percentage

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1 to 5 years	25	15%
6 to 10 years	41	24%
10 to 15 years	48	28%
more than 15 years	56	33%
Total	170	100%

As presented in Table 3, 25 or 15% of the science teachers have been teaching for one to five years already, 41 or 24% have been teaching for five to ten years already, 48 or 28% have been teaching for 11 to 15 years already, and 56 or 33% have been teaching for more than 15 years already. As noted, majority of the science teachers have been teaching for more than 10 years already.

On Number of Trainings Related with Problem-Based Learning Attended

In relation to the number of trainings related with problem-based learning attended by the science teachers for the past five years, the science teachers were provided with three choices, scilicet, "have not attended any trainings related with problem-based learning for the past five years," "have attended not more than three trainings related with problem-based learning for the past five years," and "have attended more than three trainings related with problem-based learning for the past five years." Table 4 presents the results.

TABLE 4
Distribution of the Science Teachers in terms of Number of Relevant Trainings Attended

Number of Trainings Attended	Frequency	Percentage
Have not attended any training related with problem-based learning for the past five years	0	0%
Have attended not more than three trainings related with problem-based learning for the past five years	127	75%
Have attended more than three trainings related with problem-based learning for the past five years	43	25%
Total	170	100%

As revealed in Table 4, 127 or 75% of the science teachers have attended not more than three trainings related with problem-based learning for the past five years and 43 or 25% have attended more than three trainings for the past five years. As can be noted, majority of the science teachers have attended not more than three trainings related with problem-based learning for the past five years.

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The Extent of Utilization of Problem-Based Learning of the Science Teachers

This section provides answers to the second sub-problem of the study which is about the extent of utilization of problem-based learning of the science teachers as perceived by the science teachers themselves and the school heads.

To provide answers to the sub-problem, the science teachers and the school heads were asked to rate the extent of utilization of problem-based learning of the science teachers.

Assessment of the Science Teachers

The assessment of the science teachers on the extent of their utilization of problem-based learning is presented in Table 5.

As shown in Table 5, when inquired as to the extent to which, in class, they create problems which pupils may encounter in the future, 25 of the science teachers replied "sometimes," 101 replied "almost always," and 44 replied "always." The weighted mean computed here is 4.11 which is leading to "almost always" in the scale.

When queried as to the extent to which they let their pupils examine and define problems, 24 of the science teachers said "sometimes," 92 said "almost always," and 54 said "always." Here, the weighted mean computed is 4.18 which is pointing to "almost always."

TABLE 5
The Assessment of the Science Teachers on the Extent of Their Utilization of Problem-Based Learning

Assessment Items	Responses					WM	DE
	NE	AN	SO	AA	AL		
1. In class, I create problems which pupils may encounter in the future.	0	0	25	101	44	4.11	AA
2. I let my pupils examine and define problems.	0	0	24	92	54	4.18	AA
3. In group works, I assign a leader who acts as referee for each of the group.	0	0	19	92	59	4.24	AA
4. I provide real-world problems which my pupils have to solve in groups.	0	0	18	103	49	4.18	AA
5. I articulate the learning outcomes in any class activity.	0	0	20	111	39	4.11	AA
6. I let my pupils explore what they already know about underlying issues related to it	0	0	24	112	34	4.06	AA
7. I let the groups in my class to work independently in solving problems.	0	0	27	102	41	4.08	AA
8. I make it sure that members of the groups will critically examine problems and articulate solutions to them.	0	0	25	101	44	4.11	AA

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9. In groups, I let my pupils make friendly communication with other pupils through sharing their ideas with each other in the group discussion.	0	0	25	105	40	4.09	AA
10. I establish ground rules at the beginning to prepare students to work effectively in groups.	0	0	25	114	31	4.04	AA
11. I let pupils determine what they need to learn and where they can acquire the information and tools necessary to solve problems.	0	0	23	115	32	4.05	AA
12. I let my pupils in groups to research on information to solve problems.	0	0	25	108	37	4.07	AA
13. I introduce students to group processes.	0	0	27	106	37	4.06	AA
14. I let my pupils evaluate possible ways to solve problems.	0	0	25	108	37	4.07	AA
15. The problems I use in class make my pupils motivated to seek out a deeper understanding of the concepts.	0	0	23	101	46	4.14	AA
16. I make and use rubric to assess assignments of pupils.	0	0	22	88	60	4.22	AA
17. I let my pupils solve problems.	0	0	22	92	56	4.20	AA
18. I make my pupils work in teams to solve problems.	0	0	20	91	59	4.23	AA
19. The problems I give in class provide pupils with some clues to make reasoned decisions and fit into the key of problem-solving.	0	0	27	93	50	4.14	AA
20. I do some warm up exercises to allow pupils to practice assessing both their own work and that of their peers.	0	0	24	107	39	4.09	AA
21. I let my pupils report on their findings.	0	0	27	102	41	4.08	AA
22. The problems I give in class have relevant content in such a way as to connect it to the pupils' lives, experiences, or prior knowledge.	0	0	15	111	44	4.17	AA
23. While in group, I make it sure that pupils strongly cooperate as a team to solve problems.	0	0	28	107	35	4.04	AA
24. I make pupils take on different roles or divide up the work up among themselves.	0	0	22	118	30	4.05	GE

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25. In groups, I require my pupils to assume require various perspectives, such as those of government officials, local business owners, and others to solve problems.	0	0	24	112	34	4.06	AA
26. The problem I give to my class are complex enough to ensure that the pupils can work together to solve it.	0	0	23	117	30	4.04	AA
27. I explain the problems and introduce in some steps so that it will help students to identify the learning issues.	0	0	21	111	38	4.10	AA
					OWM	4.11	AA

Legend:

WM = weighted mean
DE = descriptive equivalent
OWM = overall weighted mean

Scale:

NE	=	never	=	1.00 – 1.49
AN	=	almost never	=	1.50 – 2.49
SO	=	sometimes	=	2.50 – 3.49
AA	=	almost always	=	3.50 – 4.49
AL	=	always	=	4.50 – 5.00

When asked as to the extent to which, in group works, they assign a leader who acts as referee for the group, 19 of the science teachers responded "sometimes," 92 responded "almost always," and 59 responded “always.” In this item, the weighted mean computed is 4.24 which is indicative of “almost always” in the scale.

When questioned as to the extent to which they provide real-world problems which their pupils have to solve in groups, 18 of the science teachers claimed “sometimes," 103 claimed “almost always,” and 49 claimed “always.” The weighted mean computed here is 4.18 which has a descriptive equivalent of “almost always.”

Questioned as to the extent to which they articulate the learning outcomes in any class activity, 20 of the science teachers checked “sometimes,” 111 checked “almost always,” and 39 checked “always.” Here, the weighted mean computed is 4.11 which is “almost always” in the scale.

Queried as to the extent to which they let their pupils explore what they already know about underlying issues related to it, 24 of the science teachers mentioned “sometimes,” 112 mentioned “almost always,” and 34 mentioned “always.” In this item, the weighted mean computed is 4.06 which is leading to “almost always.”

Asked as to the extent to which they let the groups in their class to work independently in solving problems, 27 of the science teachers responded “sometimes,” 102 responded “almost always,” and 41 responded “always.” The weighted mean computed here is 4.08 which is pointing to “almost always.”

Inquired as to the extent to which they make it sure that members of the groups will critically examine problems and articulate solutions to them, 25 of the science teachers said

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"sometimes," 101 said "almost always," and 44 said "always." In this item, the weighted mean computed is 4.11 which is indicative of "almost always" in the scale.

When questioned as to the extent to which, in groups, they let their pupils make friendly communication with other pupils through sharing their ideas with each other in the group discussion, 25 of the science teachers claimed "sometimes," 105 claimed "almost always," and 40 claimed "always." The weighted mean computed here is 4.09 which is leading to "almost always."

When inquired as to the extent to which they establish ground rules at the beginning to prepare students to work effectively in groups, 25 of the science teachers replied "sometimes," 114 replied "almost always," and 31 replied "always." In this item, the weighted mean computed is 4.04 which has a descriptive equivalent of "almost always" in the scale.

When asked as to the extent to which they let pupils determine what they need to learn and where they can acquire the information and tools necessary to solve problems, 23 of the science teachers indicated "sometimes," 115 indicated "almost always," and 32 indicated "always." The weighted mean computed here is 4.05 which is leading to "almost always" in the scale.

When questioned as to the extent to which they let their pupils in groups to research on information to solve problems, 25 of the science teachers said "sometimes," 108 said "almost always," and 37 said "always." The weighted mean computed in this item is 4.07 which is indicative of "almost always."

Queried as to the extent to which they introduce students to group processes, 27 of the science teachers ticked "sometimes," 106 ticked "almost always," and 37 ticked "always." The weighted mean computed here is 4.06 which is pointing to "almost always" in the scale.

Inquired as to the extent to which they let their pupils evaluate possible ways to solve problems, 25 of the science teachers said "sometimes," 108 said "almost always," and 37 said "always." In this item, the weighted mean computed is 4.07 which has a descriptive equivalent of "almost always."

Queried as to the extent to which the problems t use in class make their pupils motivated to seek out a deeper understanding of the concepts, 23 of the science teachers responded "sometimes," 101 responded "almost always," and 46 responded "always." Here, the weighted mean computed is 4.14 which is reflective of "almost always" in the scale.

Asked as to the extent to which they make and use rubric to assess assignments of pupils, 22 of the science teachers checked "sometimes," 88 checked "almost always," and 60 checked "always." The weighted mean computed in this item is 4.22 which is indicative of "almost always" in the scale.

When questioned as to the extent to which they let their pupils solve problems, 22 of the science teachers mentioned "sometimes," 92 mentioned "almost always," and 56 mentioned "always." Here, the weighted mean computed is 4.20 which is leading to "almost always."

When asked as to the extent to which they make their pupils work in teams to solve problems, 20 of the science teachers claimed "sometimes," 91 claimed "almost always," and 59 claimed "always." The weighted mean computed in this item is 4.23 which is "almost always" in the scale.

When queried as to the extent to which the problems they give in class provide pupils with some clues to make reasoned decisions and fit into the key of problem-solving, 27 of the science teachers replied "sometimes," 93 replied "almost always," and 50 replied "always." The weighted mean computed here is 4.14 which is pointing to "almost always" in the scale.

When inquired as to the extent to which they do some warm up exercises to allow pupils to practice assessing both their own work and that of their peers, 24 of the science teachers

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responded “sometimes,” 107 responded “almost always,” and 39 responded “always.” Here, the weighted mean computed is 4.09 which is moving towards “almost always.”

When queried as to the extent to which they let their pupils report on their findings, 27 of the science teachers ticked “sometimes,” 102 ticked “almost always,” and 41 ticked “always.” In this item, the weighted mean computed is 4.08 which is pointing to “almost always” in the scale.

Questioned as to the extent to which the problems they give in class have relevant content in such a way as to connect it to the pupils’ lives, experiences, or prior knowledge, 15 of the science teachers claimed “sometimes,” 111 claimed “almost always,” and 44 claimed “always.” The weighted mean computed here is 4.17 which is leading to “almost always” in the scale.

Queried as to the extent to which, while in group, they make it sure that pupils strongly cooperate as a team to solve problems, 28 of the science teachers said “sometimes,” 107 said “almost always,” and 35 said “always.” The weighted mean computed in this item is 4.04 which is pointing to “almost always” in the scale.

Inquired as to the extent to which they make pupils take on different roles or divide up the work up among themselves, 22 of the science teachers indicated “sometimes,” 118 indicated “almost always,” and 30 indicated “always.” Here, the weighted mean computed is 4.05 which is indicative of “almost always” in the scale.

Questioned as to the extent to which, in groups, they require their pupils to assume require various perspectives, such as those of government officials, local business owners, and others to solve problems, 24 of the science teachers claimed “sometimes,” 112 claimed “almost always,” and 34 claimed “always.” Here, the weighted mean computed is 4.06 which is leading to “almost always” in the scale.

Asked as to the extent to which the problem they give to their class are complex enough to ensure that the pupils can work together to solve it, 23 of the science teachers mentioned “sometimes,” 117 mentioned “almost always,” and 30 mentioned “always.” In this item, the weighted mean computed is 4.04 which is “almost always” in the scale.

Finally, when questioned as to the extent to which they explain the problems and introduce in some steps so that it will help students to identify the learning issues, 21 of the science teachers checked “sometimes,” 111 checked “almost always,” and 38 checked “always.” The weighted mean computed here is 4.10 which is reflective of “almost always” in the scale.

Moreover, the computed overall weighted man is 4.11 which has a descriptive equivalent of “almost always.” This implies that the science teachers perceived that they are almost always utilizing problem-based learning.

Assessment of the
School Heads

The assessment of the school heads on the extent of utilization of problem-based learning of the science teachers is presented in Table 6.

As shown in Table 6, when inquired as to the extent to which, in class, their science teachers create problems which pupils may encounter in the future, two of the school heads replied “almost never,” 11 replied “sometimes,” and one replied “almost always.” The weighted mean computed here is 2.93 which is leading to “sometimes” in the scale.

TABLE 6
The Assessment of the School Heads on the Extent of Utilization of Problem-Based Learning of the Science Teachers

Assessment Items	Responses	WM	DE

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My science teachers, ….	NE	AN	SO	AA	AL		
1. in class, create problems which pupils may encounter in the future.	0	2	11	1	0	2.93	SO
2. let their pupils examine and define problems.	0	4	8	2	0	2.86	SO
3. in group works, assign a leader who acts as referee for each of the group.	0	5	9	0	0	2.64	SO
4. provide real-world problems which their pupils have to solve in groups.	0	3	9	2	0	2.93	SO
5. articulate the learning outcomes in any class activity.	0	3	10	1	O	2.86	SO
6. let their pupils explore what they already know about underlying issues related to it.	0	2	11	1	0	2.93	SO
7. let the groups in their class to work independently in solving problems.	0	4	8	2	0	2.86	SO
8. make it sure that members of the groups will critically examine problems and articulate solutions to them.	0	5	7	2	0	2.79	SO
9. in groups, let their pupils make friendly communication with other pupils through sharing their ideas with each other in the group discussion.	0	5	7	2	0	2.79	SO
10. establish ground rules at the beginning to prepare students to work effectively in groups.	0	5	7	2	0	2.79	SO
11. let pupils determine what they need to learn and where they can acquire the information and tools necessary to solve problems.	0	5	8	1	0	2.71	SO
12. let their pupils in groups to research on information to solve problems.	0	4	9	1	0	2.79	SO
13. introduce students to group processes.	0	5	9	0	0	2.64	SO
14. let their pupils evaluate possible ways to solve problems.	0	5	9	0	0	2.64	SO
15. use problems in class that make their pupils motivated to seek out a deeper understanding of the concepts.	0	4	10	0	0	2.71	SO
16. make and use rubric to assess assignments of pupils.	0	4	8	2	0	2.86	SO
17. let their pupils solve problems.	0	5	7	2	0	2.79	SO
18. make their pupils work in teams to solve problems.	0	5	7	2	0	2.79	SO

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19. give problems in class that provide pupils with some clues to make reasoned decisions and fit into the key of problem-solving.	0	5	7	2	0	2.79	SO
20. do some warm up exercises to allow pupils to practice assessing both their own work and that of their peers.	0	4	8	2	0	2.86	SO
21. let their pupils report on their findings.	0	6	7	1	0	2.64	SO
22. give problems in class that have relevant content in such a way as to connect it to the pupils' lives, experiences, or prior knowledge.	0	5	8	1	0	2.71	SO
23. while in group, make it sure that pupils strongly cooperate as a team to solve problems.	0	4	9	1	0	2.79	SO
24. make pupils take on different roles or divide up the work up among themselves.	0	6	8	0	0	2.57	SO
25. in groups, require their pupils to assume require various perspectives, such as those of government officials, local business owners, and others to solve problems.	0	5	9	0	0	2.64	SO
26. give problems in class that are complex enough to ensure that the pupils can work together to solve it.	0	6	8	0	0	2.57	SO
27. explain the problems and introduce in some steps so that it will help students to identify the learning issues.	0	3	9	2	0	2.93	SO
					OWM	2.77	SO

Legend:

WM = weighted mean
DE = descriptive equivalent
OWM = overall weighted mean

Scale:

NE	=	never	=	1.00 – 1.49
AN	=	almost never	=	1.50 – 2.49
SO	=	sometimes	=	2.50 – 3.49
AA	=	almost always	=	3.50 – 4.49
AL	=	always	=	4.50 – 5.00

When queried as to the extent to which their science teachers let their pupils examine and define problems, four of the school heads said "almost never," eight said "sometimes," and two said "almost always." Here, the weighted mean computed is 2.86 which is pointing to "sometimes."

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When asked as to the extent to which, in group works, their science teachers assign a leader who acts as referee for the group, five of the school heads responded "almost never" and nine responded "sometimes." In this item, the weighted mean computed is 2.64 which is indicative of "sometimes" in the scale.

When questioned as to the extent to which their science teachers provide real-world problems which their pupils have to solve in groups, three of the school heads claimed "almost never," nine claimed "sometimes," and two claimed "almost always." The weighted mean computed here is 3.93 which has a descriptive equivalent of "sometimes."

Questioned as to the extent to which their science teachers articulate the learning outcomes in any class activity, three of the school heads checked "almost never," ten checked "sometimes," and one checked "almost never." Here, the weighted mean computed is 2.86 which is "sometimes" in the scale.

Queried as to the extent to which their science teachers let their pupils explore what they already know about underlying issues related to it, two of the school heads mentioned "almost never," 11 mentioned "sometimes," and one mentioned "almost always." In this item, the weighted mean computed is 2.93 which is leading to "sometimes."

Asked as to the extent to which their science teachers let the groups in their class to work independently in solving problems, four of the school heads responded "almost never," eight responded "sometimes," and two responded "almost always." The weighted mean computed here is 2.86 which is pointing to "sometimes."

Inquired as to the extent to which their science teachers make it sure that members of the groups will critically examine problems and articulate solutions to them, five of the school heads said "almost never," seven said "sometimes," and two said "almost always." In this item, the weighted mean computed is 2.79 which is indicative of "sometimes" in the scale.

When questioned as to the extent to which, in groups, their science teachers let their pupils make friendly communication with other pupils through sharing their ideas with each other in the group discussion, five of the school heads claimed "almost never," seven claimed "sometimes," and two claimed "almost always." The weighted mean computed here is 2.79 which is leading to "sometimes."

When inquired as to the extent to which their science teachers establish ground rules at the beginning to prepare students to work effectively in groups, five of the school heads replied "almost never," seven replied "sometimes," and two replied "almost always." In this item, the weighted mean computed is 2.79 which has a descriptive equivalent of "sometimes" in the scale.

When asked as to the extent to which their science teachers let pupils determine what they need to learn and where they can acquire the information and tools necessary to solve problems, five of the school heads indicated "almost never," eight indicated "sometimes," and one indicated "almost always." The weighted mean computed here is 2.71 which is leading to "sometimes" in the scale.

When questioned as to the extent to which their science teachers let their pupils in groups to research on information to solve problems, four of the school heads said "almost never," nine said "sometimes," and one said "almost always." The weighted mean computed in this item is 2.79 which is indicative of "sometimes."

Queried as to the extent to which their science teachers introduce students to group processes, five of the school heads ticked "almost never" and 9 ticked "sometimes." The weighted mean computed here is 2.64 which is pointing to "sometimes" in the scale.

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Inquired as to the extent to which their science teachers let their pupils evaluate possible ways to solve problems, five of the school heads said "almost never" and nine said "sometimes." In this item, the weighted mean computed is 2.64 which has a descriptive equivalent of "sometimes."

Queried as to the extent to which the problems their science teachers use in class make their pupils motivated to seek out a deeper understanding of the concepts, four of the school heads responded, "almost never" and 10 responded "sometimes." Here, the weighted mean computed is 2.71 which is reflective of "sometimes" in the scale.

Asked as to the extent to which their science teachers make and use rubric to assess assignments of pupils, four of the school heads checked "almost never," eight checked "sometimes," and two checked "almost always." The weighted mean computed in this item is 2.86 which is indicative of "sometimes" in the scale.

When questioned as to the extent to which their science teachers let their pupils solve problems, five of the school heads mentioned "almost never," seven mentioned "sometimes," and two mentioned "almost always." Here, the weighted mean computed is 2.79 which is leading to "sometimes."

When asked as to the extent to which their science teachers make their pupils work in teams to solve problems, five of the school heads claimed "almost never," seven claimed "sometimes," and two claimed "almost always." The weighted mean computed in this item is 2.79 which is "sometimes" in the scale.

When queried as to the extent to which the problems their science teachers give in class provide pupils with some clues to make reasoned decisions and fit into the key of problem-solving, five of the school heads replied "almost never," seven replied "sometimes," and two replied "almost always." The weighted mean computed here is 2.79 which is pointing to "sometimes" in the scale.

When inquired as to the extent to which their science teachers do some warm up exercises to allow pupils to practice assessing both their own work and that of their peers, four of the school heads responded "almost never," eight responded "sometimes," and two responded "almost always." Here, the weighted mean computed is 2.86 which is moving towards "sometimes."

When queried as to the extent to which their science teachers let their pupils report on their findings, six of the school heads ticked "almost never," seven ticked "sometimes," and one ticked "almost always." In this item, the weighted mean computed is 2.64 which is pointing to "sometimes" in the scale.

Questioned as to the extent to which the problems their science teachers give in class have relevant content in such a way as to connect it to the pupils' lives, experiences, or prior knowledge, five of the school heads claimed, "almost never," eight claimed "sometimes," and one claimed "almost always." The weighted mean computed here is 2.71 which is leading to "sometimes" in the scale.

Queried as to the extent to which, while in group, their science teachers make it sure that pupils strongly cooperate as a team to solve problems, four of the school heads said "almost never," nine said "sometimes, and one said "almost always." The weighted mean computed in this item is 2.79 which is pointing to "sometimes" in the scale.

Inquired as to the extent to which their science teachers make pupils take on different roles or divide up the work up among themselves, six of the school heads indicated "almost never" and eight also indicated "sometimes." Here, the weighted mean computed is 2.57 which is indicative of "sometimes" in the scale.

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Questioned as to the extent to which, in groups, their science teachers require their pupils to assume require various perspectives, such as those of government officials, local business owners, and others to solve problems, five of the school heads claimed "almost never" and nine claimed "sometimes." Here, the weighted mean computed is 2.64 which is leading to "sometimes" in the scale.

Asked as to the extent to which the problem their science teachers give to their class are complex enough to ensure that the pupils can work together to solve it, six of the school heads mentioned "almost never" and eight mentioned "sometimes." In this item, the weighted mean computed is 2.57 which is "sometimes" in the scale.

Finally, when questioned as to the extent to which their science teachers explain the problems and introduce in some steps so that it will help students to identify the learning issues, three of the school heads checked "almost never," nine checked "sometimes," and two checked "almost always." The weighted mean computed here is 2.93 which is reflective of "sometimes" in the scale.

Moreover, the computed overall weighted man is 2.77 which has a descriptive equivalent of "sometimes." This implies that the school heads perceived that their science teachers are only sometimes utilizing problem-based learning.

Difference between the Perceptions of the Science Teachers and the School Heads on the Extent of Utilization of Problem-Based Learning of the Science Teachers

This part of the chapter discusses answers to the third sub-problem of the study which is about the significant difference between the perceptions of the science teachers and the school heads on the extent of utilization of problem-based learning of the science teachers.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant difference between the perceptions of the science teachers and their school heads on the extent of utilization of problem-based learning of the science teachers. Thereafter, the researcher compared the perceptions of the science teachers and their school heads on the extent of utilization of problem-based learning of the science teachers using the t-test. Here, the researcher computed the p value at .05 level of significance. Table 7 presents the results.

TABLE 7
Difference between the Perceptions of the Science Teachers and the School Heads

	Computed p Value	Level of Significance	RM
The Extent of Utilization of Problem-Based Learning of the Science Teachers	0.00	.05	S

Legend:
RM = remarks
S = significant
NS = not significant

As shown in Table 7, when the perceptions of the science teachers and their school heads on the extent of utilization of problem-based learning of the science teachers are compared, the p value computed is 0.00. This figure is lower than the .05 level of significance. As such, the null hypothesis is rejected. There is a significant difference between the perceptions of the science

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teachers and their school heads on the extent of utilization of problem-based learning of the science teachers.

Relationship between the Profile Variables of the Science Teachers and the Extent of Their Utilization of Problem-Based Learning

This section provides answers to the third sub-problem of the study which is about the significant relationship between the profile variables of the science teachers and the extent of their utilization of problem-based learning.

To provide answers to the sub-problem, the researcher worked on the null hypothesis that there is no significant relationship the profile variables of the science teachers and the extent of their utilization of problem-based learning. Thereafter, the researcher correlated the profile variables of science teachers and the extent of their utilization of problem-based learning using the chi-square test of independence in the Microsoft Excel. Here, the researcher computed for the p value and the chi square value at .05 level of significance. Table 8 provides the results.

TABLE 8
Relationship between the Profile Variables of the Science Teachers and the Extent of Their Utilization of Problem-Based Learning

Profile Variable	P Value .05 LS	Chi Square Value	Chi Square Critical Value	R M
Highest Educational Attainment	0.00	8.71	3.84	S
Length of Teaching Experience	0.01	6.18	3.84	S
Number of Related Trainings Attended	0.01	7.66	3.84	S

Legend:
RM = remarks
S = significant
NS = not significant

As shown in Table 8, when the highest educational attainment of the science teachers and the extent of their utilization of problem-based learning are correlated, the p value computed is 0.00. This figure is lower than the .05 level of significance. In the same way, the chi square value computed is 8.71. This figure is higher than the computed chi square critical value of 3.84. This means that there is a significant relationship between the two. As such, the null hypothesis is rejected. Conformably, it can be said that the extent of utilization of problem-based learning of the science teachers is influenced by their highest educational attainment.

Secondly, when the length of teaching experience of the science teachers and the extent of their utilization of problem-based learning are correlated, the p value computed is 0.01. This figure is lower than the .05 level of significance. Moreover, the computed chi square value is 6.18. This figure is higher than the computed chi square critical value of 3.84. This means that there is a significant relationship between the two. As such, the null hypothesis is rejected. Thus, it can be said that the extent of utilization of problem-based learning of the science teachers is influenced by their length of teaching experience.

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Lastly, when the number of trainings related with problem-based learning attended of the science teachers and the extent of their utilization of problem-based learning are correlated, the p value computed is 0.01. This figure is lower than the .05 level of significance. In the same way, the chi square value computed is 7.66. This figure is higher than the computed chi square critical value of 3.84. This means that there is a significant relationship between the two. As such, the null hypothesis is rejected. Conformably, it can be said that the extent of utilization of problem-based learning of the science teachers is influenced by the number of trainings related with problem-based learning they attended.

The Proposed Innovative Training Program on Problem-based Learning

This section provides answers to the last problem which is about the proposed innovative training program on problem-based learning for the science teachers of the selected public elementary schools in Malasiqui II District.

To provide answers to the problem, the findings previously presented that the school heads perceived that the science teachers are only sometimes utilizing problem-based learning and that the extent of utilization of problem-based learning of the science teachers is influenced by the number of trainings related with problem-based learning were taken into consideration.

What follows is the proposed innovative training program on problem-based learning for the science teachers of selected public elementary schools in Malasiqui II District.

AN INNOVATIVE TRAINING PROGRAM ON PROBLEM-BASED LEARNING FOR THE SCIENCE TEACHERS OF SELECTED PUBLIC ELEMENTARY SCHOOLS IN MALASIQUI II DISTRICT

Rationale:

Two of the primary goals of science in basic education are to develop critical thinking and problem-solving skills. According to the curriculum guide, critical thinking refers to a disciplined intellectual process that involves actively and skillfully conceptualizing, applying, analyzing, synthesizing, and evaluating information derived from observation, experience, reflection, reasoning, or communication to guide beliefs and actions. In contrast, problem solving involves identifying ways to overcome challenges or obstacles and arriving at solutions to unfamiliar problems. Furthermore, these goals are achieved through well-structured and rigorous curriculum content, a clearly defined set of advanced skills, the cultivation of positive values and attitudes, and the use of appropriate tools, all while considering the diverse contexts of Filipino learners.

The preceding emphasizes the importance of science and the key content that learners need to master. However, teaching science is a complex task, as it requires teachers to consider many factors. To help students develop science proficiency, teachers must have a clear understanding of instructional goals and what proficiency entails for the specific content they are teaching. They must also possess a strong grasp of the subject itself, including its broader applications and how it connects to students' future learning pathways.

There are three essential types of knowledge needed in teaching science, one of which is knowledge of instructional practices. This includes understanding the curriculum, being familiar with appropriate tasks and tools for teaching key science concepts, knowing how to design and

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facilitate meaningful classroom discussions, and establishing classroom norms that promote science proficiency. This suggests that science teachers must be equipped with and apply effective teaching strategies.

Research indicates that problem-based learning is an effective instructional strategy in teaching science. For instance, Bron and Prudente (2024) found that this approach is associated with the development of learners' creative thinking in mathematics. As a process-oriented method, it uses problems to promote learning through both independent and collaborative inquiry. Similarly, Garil (2023) reported that all reviewed studies demonstrated that problem-based learning has a significant positive impact on students' problem-solving and critical thinking skills, suggesting its strong value for integration into the teaching-learning process.

With the preceding, this innovative training program on problem-based learning was crafted to enhance the utilization of problem-based learning by the science teachers.

Prerequisite Program: None

Duration:	This program shall run for two days.
Management Level of the Program:	This program is a district-based program for the science teachers of selected public elementary schools in Malasiqui II District.
Delivery Mode:	Depending on the specific activity, but preferably interactive-collaborative activities (one with mentoring, coaching, professional learning session, peer discussion, workshop, and others) and will focus on enhancing the utilization of problem-based learning.
Target Personnel:	Science teachers of selected public elementary schools in Malasiqui II District
Budget Requirement:	The cost of the program shall come from the local fund.
Program Description:	The innovative training program will be a seminar-workshop on problem-based learning.

CONCLUSIONS

Based on the findings made, the following conclusions were drawn:

1. A typical science teacher of the selected public elementary schools in Malasiqui II District has no post-graduate degree, has been teaching for more than 10 years already, and has attended not more than three trainings related with problem-based learning for the past five years.
2. The science teachers perceived that they are almost always utilizing problem-based learning while their school heads perceived that they are only sometimes utilizing it.
3. The science teachers and the school heads have significantly different perceptions on the extent of utilization of problem-based learning of the science teachers.

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4. The extent of utilization of problem-based learning of the science teachers is influenced by their highest educational attainment, the length of teaching experience, and the number of trainings related with problem-based learning attended for the past five years.

5. The proposed innovative training program will improve the extent of utilization of problem-based learning of the science teachers of the selected public elementary school in Malasiqui II District.

RECOMMENDATIONS

Based on the findings made and the conclusions drawn, the following recommendations are offered:

1. The proposed innovative training program on problem-based learning be implemented in the selected public elementary schools in Malasiqui II District to enhance the extent of utilization of problem-based learning of the science teachers.

2. The implementation of the proposed innovative training program on problem-based learning in the selected public elementary schools in Malasiqui II District to enhance the extent of utilization of problem-based learning of the science teachers. should be monitored and evaluated.

3. Similar study may be conducted by other researchers to validate the findings of the study.

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APPENDICES

THE SURVEY-QUESTIONNAIRE FOR THE SCIENCE TEACHERS

April 10, 2026

Dear Colleagues,

Greetings!

The undersigned is conducting a study entitled **"Utilization of Problem-Based Learning of Science Teachers of Selected Public Elementary Schools in Malasiqui II District"** in partial fulfillment of the degree Master of Arts in Education.

In connection with this, and knowing that you are a science teacher in one of the selected public elementary school in Malasiqui II District, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

(Sgd.) Roselle Nevado
Researcher

NAME (Optional): _____

I. Please provide your profile in the following:

1. Highest Educational Attainment:

   ( ) Bachelor's Degree
   ( ) Finished academic requirements in the Master's Degree
   ( ) Master's Degree
   ( ) Finished academic requirements in the Doctorate Degree
   ( ) Doctorate Degree

2. Length of Teaching Experience:

   ( ) 1 – 5 years

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( ) 6 – 10 years
( ) 11 – 15 years
( ) more than 15 years

3. Number of trainings related with problem-based learning attended for the past five years:

( ) have not attended any trainings/seminars related with problem-based learning for the past five years
( ) have attended not more than three trainings/seminars related with problem-based learning for the past five years
( ) have attended not more than three trainings/seminars related with problem-based learning for the past five years

PART II. Please rate the extent to which you are using problem-based learning. Please be guided by the following:

1 = never
2 = almost never
3 = sometimes
4 = almost always
5 = always

Assessment Items	Responses				
	1	2	3	4	5
1. In class, I create problems which pupils may encounter in the future.					
2. I let my pupils examine and define problems.					
3. In group works, I assign a leader who acts as referee for each of the group.					
4. I provide real-world problems which my pupils have to solve in groups.					
5. I articulate the learning outcomes in any class activity.					
6. I let my pupils explore what they already know about underlying issues related to it.					
7. I let the groups in my class to work independently in solving problems.					
8. I make it sure that members of the groups will critically examine problems and articulate solutions to them.					
9. In groups, I let my pupils make friendly communication with other pupils through sharing their ideas with each other in the group discussion.					
10. I establish ground rules at the beginning to prepare students to work effectively in groups.					
11. I let pupils determine what they need to learn and where they can acquire the information and tools necessary to solve problems.					

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12. I let my pupils in groups to research on information to solve problems.					
13. I introduce students to group processes.					
14. I let my pupils evaluate possible ways to solve problems.					
15. The problems I use in class make my pupils motivated to seek out a deeper understanding of the concepts.					
16. I make and use rubric to assess assignments of pupils.					
17. I let my pupils solve problems.					
18. I make my pupils work in teams to solve problems.					
19. The problems I give in class provide pupils with some clues to make reasoned decisions and fit into the key of problem-solving.					
20. I do some warm up exercises to allow pupils to practice assessing both their own work and that of their peers.					
21. I let my pupils report on their findings.					
22. The problems I give in class have relevant content in such a way as to connect it to the pupils' lives, experiences, or prior knowledge.					
23. While in group, I make it sure that pupils strongly cooperate as a team to solve problems.					
24. I make pupils take on different roles or divide up the work up among themselves.					
25. In groups, I require my pupils to assume require various perspectives, such as those of government officials, local business owners, and others to solve problems.					
26. The problem I give to my class are complex enough to ensure that the pupils can work together to solve it.					
27. I explain the problems and introduce in some steps so that it will help students to identify the learning issues.					

THE SURVEY-QUESTIONNAIRE FOR THE SCHOOL HEADS

April 10, 2026

Dear School Heads,

Greetings!

The undersigned is conducting a study entitled **"Utilization of Problem-Based Learning of Science Teachers of Selected Public Elementary Schools in Malasiqui II District"** in partial fulfillment of the degree Master of Arts in Education.

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In connection with this, may I respectfully ask you to answer the accompanying sheet honestly and objectively?

Rest assured that your responses will be treated with utmost confidentiality.

Thank you so much.

Respectfully,

(Sgd.) Roselle Nevado
Researcher

NAME (Optional): _____

PART I. Please rate the extent of utilization of problem-based learning of your science teachers. Please be guided by the following:

1 = never
2 = almost never
3 = sometimes
4 = almost always
5 = always

Assessment Items	Responses				
My science teachers, ….	1	2	3	4	5
1. in class, create problems which pupils may encounter in the future.					
2. let their pupils examine and define problems.					
3. in group works, assign a leader who acts as referee for each of the group.					
4. provide real-world problems which their pupils have to solve in groups.					
5. articulate the learning outcomes in any class activity.					
6. let their pupils explore what they already know about underlying issues related to it.					
7. let the groups in their class to work independently in solving problems.					
8. make it sure that members of the groups will critically examine problems and articulate solutions to them.					
9. in groups, let their pupils make friendly communication with other pupils through sharing their ideas with each other in the group discussion.					
10. establish ground rules at the beginning to prepare students to work effectively in groups.					

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11. let pupils determine what they need to learn and where they can acquire the information and tools necessary to solve problems.					
12. let their pupils in groups to research on information to solve problems.					
13. introduce students to group processes.					
14. let their pupils evaluate possible ways to solve problems.					
15. use problems in class that make their pupils motivated to seek out a deeper understanding of the concepts.					
16. make and use rubric to assess assignments of pupils.					
17. let their pupils solve problems.					
18. make their pupils work in teams to solve problems.					
19. give problems in class that provide pupils with some clues to make reasoned decisions and fit into the key of problem-solving.					
20. do some warm up exercises to allow pupils to practice assessing both their own work and that of their peers.					
21. let their pupils report on their findings.					
22. give problems in class that have relevant content in such a way as to connect it to the pupils' lives, experiences, or prior knowledge.					
23. while in group, make it sure that pupils strongly cooperate as a team to solve problems.					
24. make pupils take on different roles or divide up the work up among themselves.					
25. in groups, require their pupils to assume require various perspectives, such as those of government officials, local business owners, and others to solve problems.					
26. give problems in class that are complex enough to ensure that the pupils can work together to solve it.					
27. explain the problems and introduce in some steps so that it will help students to identify the learning issues.					

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INVOLVEMENT OF PROFESSIONALS IN ALTERNATIVE LEARNING SYSTEM PROGRAMS IN THE DISTRICT OF AGUILAR, PANGASINAN

by: Rufo F. Dela Cruz

Abstract

This Action Research underscored the important role that professionals can play in ensuring the effectiveness and success of the projects and programs of the Alternative Learning System (ALS), in its quest to reach out and benefit more residents of Aguilar, Pangasinan.

This research noted their very minimal and insignificant involvement in the programs and projects of the ALS. It determined how the ALS program preferences of the professionals relate with the reasons why they hardly involve themselves with the activities of the ALS.

Moreover, this research determined the effectiveness of the measures which can encourage their active participation and involvement in all the facets of ALS.

Hence, this research developed an Action Plan which when consistently implemented, is envisioned to effectively encourage the professionals of Aguilar, Pangasinan to actively participate and involve themselves in the various programs and projects of the ALS.

Chapter I

INTRODUCTION

Background of the Study

Professionals play important roles in the community, particularly in the advancement of literacy in education among the youth and the adults, who were unfortunate and were not able to pursue higher education.

But because the professionals are very busy in earning a living for their respective families and in enhancing their careers, they overlook their other obligation to assist the marginalized sector of the community to improve their economic plight. It is also unfortunate to know that they fail to recognize and give attention to programs which were developed and designed for the purpose.

The failure of the professionals to join the quest towards this direction can not be construed as arrogance nor insensitivity on their part. Rather, this can be attributed to their absence of awareness to clearly identify which programs of the government can be best suited for them to join and actively participate in, so these can effectively serve the community residents, by providing them the knowledge and skills they need to improve their economic status.

The programs and projects of the Alternative Learning System, which are sponsored and implemented by the public elementary and high schools, are among the programs of the government which are expected to serve the grassroots. These are so important and the assistance of the professionals to make these successful is equally significant, because this can be made possible through the support and assistance of the professionals.

Ultimately, this study developed an Action Plan which is envisioned to encourage the active participation of the professionals in all the programs and projects of the ALS. The very aim of which is to ensure that every such program or project is a success and will serve its very purpose for being.

Statement of the Problem

This Action Research determined the involvement of the professionals of Aguilar, Pangasinan in the various programs and projects of the Alternative Learning System, under the sponsorship and implementation of the public elementary and secondary schools in the said municipality.

Specifically, this Action Research answered the following questions:

1) What is the extent of involvement of the professionals in Aguilar, Pangasinan in the various programs and projects of the Alternative Learning System?

2) What programs and projects of the ALS are preferred by the professionals?

3) What are the frequent reasons why the professionals hardly involve themselves in the programs and projects of the ALS?

4) What is the degree of effectiveness of the measures that can encourage the professionals to actively participate and involve themselves in the programs and projects of the ALS?

5) Based on the findings of this study, what Action Plan can be formulated and then proposed for implementation by the Department of Education, to encourage the professionals to actively participate and involve themselves in the various programs and projects of the ALS?

Significance of the Study

There have been many studies conducted in the past on the various aspects of Alternative Learning System. However, this study is very significant since it would pave the way towards the active participation of the professionals in Aguilar, Pangasinan in the various programs and projects of ALS.

Specifically, this Action Research and its results would benefit the following:

The Department of Education Alternative Learning System so it can initiate activities that would encourage the active of more professionals in the various programs and projects of the ALS;

The professionals themselves who would be better informed on the need for them to actively participate and involve in the various programs and projects of the ALS, by sharing their knowledge and skills and by providing financial support for the success of the said programs and projects.

The public elementary and secondary school teachers who can do their best to effectively implement the programs and projects of the ALS, so more professionals will opt to participate in these programs and projects of the ALS;

The learners and beneficiaries of the ALS who would be better educated and benefited by enrolling in the programs and projects of the ALS;

The researcher himself, in his capacity as school head, so he can effectively encourage the professionals in Aguilar, Pangasinan to actively participate and involve themselves in the implementation of the programs and projects of the ALS; and

The research enthusiasts who can consider this research and its results as vital material in a similar study, in another locale and in a wider scope.

Chapter II

THE SAMPLE

This Action Research had as respondents all kinds of the professionals of Aguilar, Pangasinan who are residents of the said municipality at the time of the survey.

However, the professional who served as respondents did not include the teachers in the public elementary and high schools in Aguilar district.

The estimated population of two hundred five (205) professionals was determined from the local barangay council office of the-sixteen (16) barangays of Municipality of Aguilar.

At the time of the survey, only one hundred (100) of the accounted professionals, were available and served as respondents of this research.

They were requested to accomplish the questionnaire that was constructed for the purpose, after an appropriate permit to administer the said questionnaire was secured from the mayor's office.

Table A presents the distribution of the actual respondents.

Table A

Distribution of Respondents

Professionals	Total Population*	Actual Respondents	Percentage
1. Doctor of Medicine	17	5	5.00
2. Lawyers	12	8	8.00
3. Certified Public Accountants	14	6	6.00
4. Registered Nurses	56	28	28.00
5. Pharmacists	23	4	4.00
6. Dentists	4	4	4.00
7. Midwives	28	20	20.00
8. Engineers	31	17	17.00
9. Nutritionists	7	3	3.00
10. Agriculturists	9	5	5.00
Total	**205**	**100**	**100.00**

* Source of Data: Barangay Council of Each of the-sixteen (16) Barangays of Aguilar Pangasinan

Chapter III

METHODOLOGY

Research Design

This study was descriptive developmental in design. It described to some extent the involvement of professionals of Aguilar, Pangasinan in the various programs and projects of Alternative Learning System which are implemented under the auspices of the Department of Education.

This research was also developmental since it designed and developed an Action Plan which stipulates measures on how the professionals can be encouraged to actively participate, involve and assist in the various programs and projects of the ALS.

Data Gathering Tool

The questionnaire that was constructed for the purpose was the main data gathering tool of this research. It was augmented by sporadic and unstructured interviews of the professionals who are willing to give their insights on aspects relative in the ALS, particularly its programs and projects.

The constructed questionnaire consisted of four (4) parts which gathered information on the: a) extent of involvement of the professionals of Aguilar, Pangasinan in the various programs and projects of the ALS; b) level of preference of the programs and projects of the ALS by the professionals; c) frequent reasons why they hardly involve themselves in the programs and projects of the ALS; and, d) degree of effectiveness of the measures that can encourage them to actively participate, involve and assist in the programs and projects of the ALS.

Reliability and Validity of the Questionnaire

The questionnaire was pre-tested to ten (10) professionals who were other than the actual respondents. The responses of the pre-test respondents were tabulated, processed and subjected to Kuder- Richardson instrument reliability equation (Downie: 1984).

It was declared as valid for administration to the target respondents since its coefficient of reliability of 0.93 had a descriptive equivalent of "very highly reliable", and after re-structuring its parts where the pre-test respondents had difficulty in answering.

The following coefficients of reliability range were used as points of reference to describe the validated questionnaire:

Coefficient of Reliability Range	Descriptive Equivalent	Symbol
0.91-1.00	Very Highly Reliable	VHR
0.81-0.90	Highly Reliable	HR
0.71-0.80	Moderately Reliable	MR
0.61-0.70	Slightly Reliable	SR
0.00-0.60	Not Reliable	NR

Treatment of Data

The Likert-Type five-point scale (Drucker:1983) was used to quantify to perceptions of the professionals on the various issues that were raised in this study.

Thus, to address issue number 1 on the extent of involvement of the professionals of Aguilar, Pangasinan on the various programs and projects of the Alternative Learning System, the following relative values were used:

Relative Value	Statistics Limit	Descriptive Equivalent	Symbol
5	4.21 - 5.00	Always Preferred	AP
4	3.41 - 4.20	Often Preferred	OP
3	2.61 – 3.40	Moderately Preferred	MP
2	1.81 – 2.60	Least Preferred	LP
1	1.00 – 1.80	Not Preferred	NP

To quantify the perceptions of the professionals on the programs and projects of the ALS that they prefer, the following relative values were used:

Relative Value	Statistics Limit	Descriptive Equivalent	Symbol
5	4.21 - 5.00	Always Preferred	AP
4	3.41 - 4.20	Often Preferred	OP
3	2.61 – 3.40	Moderately Preferred	MP
2	1.81 – 2.60	Least Preferred	LP
1	1.00 – 1.80	Not Preferred	NP

To address the reasons why the professionals hardly involve themselves in the programs and projects of the ALS, the following relative values were used:

Relative Value	Statistics Limit	Descriptive Equivalent	Symbol
5	4.21 - 5.00	Always	A

4	3.41 - 4.20	Often	O
3	2.61 – 3.40	Sometimes	S
2	1.81 – 2.60	Seldom	Sm
1	1.00 – 1.80	Never	N

The degree of effectiveness of measures that can encourage the professionals to actively participate in the programs and projects of the ALS were quantified with the following relative values:

Relative Value	**Statistics Limit**	**Descriptive Equivalent**	**Symbol**
5	4.21 - 5.00	Very Highly Effective	VHE
4	3.41 - 4.20	Highly Effective	HE
3	2.61 – 3.40	Moderately Effective	ME
2	1.81 – 2.60	Slightly Effective	SE
1	1.00 – 1.80	Very Slightly Effective	VSE

Chapter IV

RESULTS AND FINDINGS

Extent of Involvement of Professionals in ALS Programs and Projects

The professionals of Aguilar, Pangasinan are slightly involved in the programs and projects of the Alternative Learning System which are sponsored and implemented by public elementary and high schools in the said municipality. This is proven by the average weighted mean of 2.55, as shown in table 1.0.

Table 1.0

Extent of Involvement of Professionals in the Programs and Projects of Alternative Learning System

Programs/Projects of ALS	Mean	Frequency	Rank
1. Literary Program			
a) Adult Education	3.01	MI	6.3
b) Out-of-school youth education	3.02	MI	4.5

2. Livelihood Program			
a) Backyard gardening	3.18	MI	1
b) Animal raising/husbandry	3.01	MI	6.3
c) Fish Culture	1.92	SI	14
d) Cottage Industry	1.83	SI	15.5
e) Retailing	2.13	SI	11
f) Farming	2.43	SI	10
g) Land management	3.11	MI	2
3. Skills Building/Management			
a) Computer literacy	2.02	SI	13
b) Computer repair	3.01	MI	6.3
c) Carpentry	2.92	MI	9
d) Furniture making	1.83	SI	15.5
e) Welding	1.73	VSI	17
f) Car-repair and servicing	3.02	MI	4.5
g) Tailoring	2.11	SI	12
h) Beauty parlor operation management	3.03	MI	3
Average Weighted Mean	**2.55**	**SI**	

Relative Value	**Statistics Limit**	**Descriptive Equivalent**	**Symbol**
5	4.21 - 5.00	Very Highly Involved	VHI
4	3.41 - 4.20	Highly Involved	HI
3	2.61 – 3.40	Moderately Involved	MI

2	1.81 – 2.60	Slightly Involved	SI
1	1.00 – 1.80	Very Slightly Involved	VSI

Legend:

The moderate involvement of the professionals can be explained by the reality that most of them are aware that their backyards are best utilized for food production and that it is healthier and safer to eat vegetables which are grown naturally and right beside their homes. Thus, most professionals are into backyard gardening, even without them learning or getting instructions from the trainers of the Alternative Learning System programs and projects.

Most of the professionals are fortunate to have tracts of lands which make them interested in having direct supervision in managing said real estate to ensure their utmost productivity.

The women professionals need to look their best at all times. Most of them are directly or indirectly involved in beauty parlor operation and management either as owners themselves or as clients.

Most professionals have vehicles of their own, thus are either owners or clients of motor vehicle servicing and repair shop.

Majority of the women professionals are involved in civic-oriented activities. Some are members of the Catholic Women's League and other civic-oriented organizations which are either directly or indirectly sponsoring programs on the education of the out-of-school youth, and even adults.

Conversely, the very minimal involvement of the professionals in welding, cottage industry, furniture-making, fish culture and computer literacy can be attributed to the reality that they consider these programs to be better ear-marked for blue-collar workers of Aguilar, Pangasinan. This concept was arrived at based on the sporadic interviews conducted by the researcher.

ALS Programs and Projects Preferred by the Professionals

The date in Table 2.0 indicated the least preference, on the average, of the programs and projects of the Alternative Learning System. This is proven by the average weighted mean of 2.38.

More specifically, the professionals most prefer the training programs on computer literacy (x = 3.37), animal raising and husbandry.

Table 2.0

Programs and Projects of the Alternative Learning System Preferred by the Professionals

Programs/Projects of ALS	Mean	Frequency	Rank
1. Literary Program			
a) Adult Education	2.07	LP	11
b) Out-of-school youth education	1.93	LP	12.5
2. Livelihood Program			
a) Backyard gardening	2.17	LP	8.5
b) Animal raising/husbandry	3.14	MP	2
c) Fish Culture	3.06	MP	5
d) Cottage Industry	2.11	LP	10
e) Retailing	1.93	LP	12.5
f) Farming	1.82	LP	15
g) Land management	1.81	LP	16
3. Skills Building/Management			
a) Computer literacy	3.37	MP	1
b) Computer repair	2.17	LP	8.5
c) Carpentry	3.08	MP	4

d) Furniture making	3.12	MP	3
e) Welding	1.89	LP	14
f) Car-repair and servicing	2.51	LP	7
g) Tailoring	3.02	MP	6
h) Beauty parlor operation management	1.32	NP	17
Average Weighted Mean	**2.38**	**LP**	

Legend:

Relative Value	Statistics Limit	Descriptive Equivalent	Symbol
5	4.21 - 5.00	Always Preferred	AP
4	3.41 - 4.20	Often Preferred	OP
3	2.61 – 3.40	Moderately Preferred	MP
2	1.81 – 2.60	Least Preferred	LP
1	1.00 – 1.80	Not Preferred	NP

The findings indicated that the preference of the professionals in the programs and projects of the ALS is not synonymous to their involvement in the said programs and projects. While they most preferred the training programs on computer literacy, animal raising and husbandry, furniture-making, carpentry and fish culture, they believed that these are best suited for them to sponsor and support for full and continuous implementation as these can best benefit the majority of the residents in Aguilar, Pangasinan. This is considering that such crafts and skills are best used by the middle-income group in earning a living.

The least preference of the professionals of training programs are beauty parlor operations and management, land management, farming, welding, out-of-school youth education and retailing. This can be attributed to their notion that these have been handled and offered extensively in the past until presently.

Reasons Why Professionals Rarely Involve in ALS Programs and Projects

The message of the professionals is clear they need to know where and how to come in and participate in the programs and projects of the ALS. And unless the program implementers launch a massive information dissemination on ALS and the details of its various programs, and invite the professionals in its meetings and fora, the participation and involvement of the professionals will remain as is - very minimal and insignificant.

Table 3.0

Frequency of Reasons Why Professionals Rarely Involve in the Programs/Projects of Alternative Learning System

Reasons	Mean	Descriptive Equivalent	Rank
1. Programs/projects are unknown to the professionals	4.18	O	6
2. Details of programs/projects are not clear	4.32	A	4
3. Poor information dissemination	4. 53	A	3
4. Professional participation is not identified nor clear.	4.72	A	2
5. Professionals are not invited to			

activities such as meetings/ conferences.	4.86	A	1
6. Inadequate facilities and equipment for programs/projects implementation	4.26	A	5
Average Weighted Mean	**4.48**	**A**	

Legend:

Relative Value	Statistics Limit	Descriptive Equivalent	Symbol
5	4.21 - 5.00	Always	A
4	3.41 - 4.20	Often	O
3	2.61 – 3.40	Sometimes	SE
2	1.81 – 2.60	Seldom	Sm
1	1.00 – 1.80	Never	N

Degree of Effectiveness of Measures that can Encourage the Professionals to Actively Involve in ALS Programs and Projects

The professionals can be best invited in the meetings, brainstorming and conferences (x = 4.51) where they can share their insights on how the ALS, its programs and projects can be further enhanced to benefit more residents of Aguilar, Pangasinan, by way of improving their economic plight (x = 4.40).

The results of the analysis implied that the professionals are more than willing to involve and extend assistance, in many ways, to make all

Table 4.0

Degree of Effectiveness of Measures that Encourage Active Involvement of Professionals in the Alternative Learning System Programs and Projects

Measures	Mean	Descriptive Equivalent	Rank
1. There must be massive information dissemination thru media and fliers on Alternative Learning System:			
a) purposes and goals	4.32	VHE	7
b) programs and projects sponsored	4.37	VHE	4
c) schedule and time of program activity	4.35	VHE	5.5
d) target participants and beneficiaries	4.35	VHE	5.5
2. Professionals can be:			
a) invited in meetings/brainstorming/ conference of ALS	4.51	VHE	2
b) sent letters to inform the contribution/ participation of their choices	4.23	VHE	8
c) informed of the possible beneficiary/ ies they can sponsor for assistance	4.56	VHE	1
d) invited to give their insights on how the ALS can be further enhanced to benefit more residents of Aguilar, Pangasinan	4.49	VHE	3
Average Weighted Mean	**4.40**	**VHE**	

Legend:

Relative Value	Statistics Limit	Descriptive Equivalent	Symbol
5	4.21 - 5.00	Very Highly Involved	VHI
4	3.41 - 4.20	Highly Involved	HI
3	2.61 – 3.40	Moderately Involved	MI
2	1.81 – 2.60	Slightly Involved	SI
1	1.00 – 1.80	Very Slightly Involved	VSI

The ALS programs and projects successful. There is a need to inform them exhaustively on all the facets of the ALS and how they can share their knowledge, skills, insights and resources for them to effectively assist in the successful implementation of the ALS programs and projects.

Action Plan to Encourage the Professionals to Actively Participate and Involve in ALS Programs and Projects

This Action Research developed and designed the following Action Plan which is envisioned to effectively encourage the professionals of Aguilar, Pangasinan to actively and consistently participate and involve in the various programs and projects of the Alternative Learning System, which are presently sponsored and implemented by the public elementary and high schools in the said municipality.

Action Plan to Encourage Professionals to Actively

Involve in ALS Programs and Projects

Activity	Details	Time Frame	Person Responsible/ Activity Implementers
1. Massive Information dissemination	1. Announcement of program details through the following: a) local radio station b) fliers in the streets, market, church, plaza, barangay halls and school campuses	1. At the start of program/training implementation	1. School Principals with the assistance of the barangay council officials
2. Quarterly meeting/conference	2. Specific discussions on the following aspects	2. Second week of January, April,	2. School Principals with the assistance of

on ALS	of ALS: a) mission and vision b) objectives c) each training program d) who can join/participate e) trainers f) duration of training program	July, and October	the barangay council officials and trainer in each training program
3. Open house	3. Training venue visitation by the professionals and the community residents to introduce to them the instructional facilities, equipment and materials used in each training program	3. Immediately after the quarterly meeting/conference	3. Trainers with the assistance of the barangay council officials
4. Graduation exercises	4. Encouraging the professionals and community residents to attend graduation exercises of program beneficiaries/learners of the training programs	4. To be determined based on the duration of the training program	4.School principals and trainors, with the assistance of the barangay council officials

Chapter V

CONCLUSIONS

The following conclusions were drawn from the salient findings of this study:

1. The professionals of Aguilar, Pangasinan are slightly involved in the programs and projects of the Alternative Learning System, which are sponsored and implemented by the public elementary and high schools.

2. Majority of the ALS programs and projects are least preferred by the professionals, six (6) are moderately preferred while one (1) is not preferred by them.

3. Most of the reasons, considered for analysis in this research, are rated by the professionals as the always causes why they slightly involve themselves in the ALS programs and projects.

4. There are very highly effective measures that can encourage the professionals to actively involve and participate in the ALS programs and projects to make them effective and successful.

5. The Action Plan prepared and developed, based on the findings of this Action Research when reviewed, refined and subsequently implemented can be effective in encouraging the professionals to actively involve and participate in the various ALS programs and projects to make them successful in helping improve the economic plight of the residents of Aguilar, Pangasinan.

Chapter VI

RECOMMENDATIONS

The following are the recommendations and insights based on the conclusions drawn in this Action Research.

Recommendations

1. The school administrators of the public elementary and high schools should map out measures, that should include the following, to effectively and successfully encourage the involvement of the professionals in the ALS programs and projects:

a) massive information and dissemination;

b) regular meetings and conference where all professionals and community residents must be invited;

c) invitations of professionals to visit venues of program trainings and activities.

2. The school administrators, together with the program trainers, should develop and prepare fliers, that will give details on each program and project, which will be subsequently distributed to every able resident of Aguilar, Pangasinan, including the professionals, to enable them to correctly choose the program/projects which they can actively involve and participate in.

3. The school administrators, the program trainers and the barangay council officials should work in concerted efforts to minimize to some negligible level the reasons why the professionals rarely involve in the ALS programs and projects.

4. The school administrators, together with the program trainers and the barangay council officials, should consistently implement the measures which are proven very effective in encouraging the professionals to involve themselves in the ALS programs and projects.

5. The school administrators, the program trainers and the barangay council officials should review the Action Plan prepared by the researcher, based on the findings of this Action Research and then subsequently:

a) make/introduce revisions and/or addendum to further refine the attributes/ parts of the Action Plan;

b) test-run the Action Plan to determine whether its activities are pertinent and applicable in the programs and projects of the ALS, to elicit the interest and participation of the professionals; and,

c) implement the Action Plan fully and consistently to serve its very purpose for being to enhance the active involvement of community residents in the various programs and projects of the Alternative Learning System which are being implemented by public elementary and high schools in Aguilar, Pangasinan.

LEVEL OF 21ST CENTURY TEACHING SKILLS OF PRIVATE JUNIOR HIGH SCHOOL TEACHERS IN BAYAMBANG, PANGASINAN

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Abstract

This study sought to determine the level of 21st century teaching skills of the private junior high school teachers in Bayambang, Pangasinan during the School Year 2026-2027 through a quantitative-descriptive-correlational research design. The data used in this study came from the 30 private junior high school teachers and three school heads which were subjected to frequency count, percentage, weighted mean, the chi-square test of independence, and the t-test. Results showed that: majority of the private junior high school teachers have no post graduate degrees, have been teaching one to ten years, and have not attended any training related with 21st century teaching skills; in general, the private junior high school teachers perceived that the level of their 21st century teaching skills is proficient as evidenced by the computed overall weighted mean of 3.98 while the school heads perceived that the level of 21st century teaching skills of the private junior high school teachers is only moderately proficient as evidenced by the computed overall weighted mean of 3.00; there is a significant relationship between the highest educational attainment, the length of teaching experience, and the number of relevant trainings attended of the private junior high school teachers and the level of their 21st century teaching skills; and, there is a significant difference between the perceptions of the private junior high school teachers and their schools on the level of 21st century teaching skills of the private junior high school teachers. Based from the findings, the following conclusions were drawn: a typical private junior high school teacher in Bayambang, Pangasinan has no post-graduate degree, has been teaching for one to ten years, and has not attended any training related with 21st century teaching skills for the past five years; the level of 21st century teaching skills of the private junior high school teachers may still be enhanced; the level of 21st century teaching skills of the private junior high school teachers is influenced by their educational attainment, length of teaching experience, and the number of relevant trainings attended; and, the perceptions of the private junior high school teachers and the school heads on the level of 21st century teaching skills of the private junior high school teachers are significantly different from each other.

Keywords: *Professional Development Program, school heads, junior high school teachers, teaching skills*

Introduction

The stability of the global economy and the prospects for future growth depend largely on the capacity of education systems to equip learners with the competencies needed for employment and to help them attain greater success. Education serves as a vital instrument for promoting

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sustainable development by enabling individuals to work toward societal goals. This perspective supports the promotion of education for sustainability, which focuses on cultivating skills necessary for building sustainable communities at both local and global levels. It also advocates for equitable access to quality education and encourages the adoption of values, behaviors, and lifestyles that foster social advancement and a sustainable future (UNESCO, 2016).

In the Philippines, advancements in literacy and the improvement of quality education for sustainable development are influenced by several interconnected factors. These include efforts to alleviate poverty, promote peace and development, preserve past accomplishments founded on respect and shared values, recognize and value cultural diversity, ensure access to sufficient food for healthy and productive lives, safeguard and restore the health of the planet, and strive for a safer, fairer, and more equitable society that encourages active participation in local, national, and global communities. Despite these efforts, the country continues to encounter substantial challenges in implementing lifelong learning initiatives that align with the demands of 21st-century education, as evidenced by existing programs, future directions, and persistent limitations (Jiao, 2024).

Meanwhile, the increasing complexity of modern society and the rapid growth of a technology-driven economy have introduced new and substantial challenges for schools and communities alike. Consequently, educational systems across the globe are being encouraged to develop frameworks that prioritize the cultivation of the knowledge, skills, and dispositions necessary for success in the 21st century. Employers and policymakers worldwide have raised concerns that many schools are not sufficiently preparing graduates to compete and prosper in an increasingly interconnected and complex global environment beyond the classroom (Martinez, 2022).

To address these educational challenges, the Philippine government enacted Republic Act No. 10533, or the Enhanced Basic Education Act of 2013. Under Section 2 of the Act, the state is mandated to develop, sustain, and enhance an integrated and responsive education system capable of meeting the needs of learners, the country, and society as a whole. The legislation seeks to establish a functional basic education program that nurtures productive and accountable citizens equipped with the competencies, values, and skills required for lifelong learning and professional growth. In pursuing these goals, the government aims to provide all learners with access to quality education supported by a curriculum that adheres to sound pedagogical principles and international

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standards. Furthermore, the Act expands the scope of secondary education to prepare students for college, technical and vocational pathways, entrepreneurship, sports, and the arts, reflecting the realities of a rapidly changing global environment. It likewise promotes learner-centered education that adapts to the diverse needs, capacities, cultural backgrounds, and contexts of learners and communities, while utilizing suitable languages of instruction, including the mother tongue, to enhance learning outcomes (Tan, 2022).

Notwithstanding these initiatives, enhancing student achievement and responding effectively to the challenges of the global economy necessitate strengthening the teaching workforce through the provision of educators who demonstrate both extensive content knowledge and sound instructional practices that relate classroom learning to real-life contexts. According to Darling-Hammond and Oakes (2019), education systems that aim to foster deep and relevant learning geared toward the requirements of 21st-century work, citizenship, and everyday life depend heavily on the development of strong human capital. In this regard, students must be equipped with 21st-century skills, and schools play a central role in ensuring their acquisition. The Partnership for 21st Century Skills (2017) identified these competencies as vital for achieving economic advancement in an increasingly dynamic economy. Similarly, Martinez (2022) maintained that 21st-century skills are essential for learners to succeed in the future, underscoring the importance of integrating these competencies into educational practice. Rogayan et al. (2021) added that the contemporary global environment increasingly values conceptual thinking, creativity, and innovation as key determinants of success. Furthermore, higher levels of educational attainment are progressively becoming a crucial means of achieving security and resilience in this rapidly changing world.

In addition, the advancement of 21st-century skills has prompted educational systems to embed technology more extensively within teaching and learning processes. According to Chen (2021), the use of technology in education contributes to improved academic performance, supports the development of competencies required in the 21st century, and equips educators with valuable tools to facilitate and reinforce these skills. It also expands learners' capacities for exploration, analytical thinking, and self-expression.

Furthermore, while efforts to build 21st-century capacities continue to be accompanied by uncertainties and unresolved questions concerning the impact of technology on sectors such as healthcare and finance, the importance of critical thinking remains undeniable. Therefore, students

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should be equipped with the ability to think critically by developing mental processes and dispositions that enable them to use evidence in planning, organizing, and achieving goals; search for meaning and explanations; reflect on their own thought processes; and apply logical reasoning to question assumptions and make well-informed decisions (Pa-alisbo, 2017).

Based on the preceding discussion, it can be inferred that schools have the responsibility not only to prepare students to adapt to future challenges but also to empower them to shape the future proactively. As institutions that contribute significantly to the development of society's workforce, schools must uphold both educational excellence and sustainable practices. Consequently, they should equip learners with the competencies necessary to utilize digital technologies effectively while fostering critical thinking, problem-solving abilities, and other essential 21st-century skills.

Because the work of schools is carried out through teachers, the responsibility of fulfilling these educational goals ultimately rests with educators. Therefore, teachers are challenged to identify and employ appropriate technological tools that facilitate the integration of 21st-century skills into classroom instruction. Educators in the 21st century must adopt a forward-looking perspective by remaining informed about emerging technological developments and understanding their implications for education. They should also stay aware of evolving career opportunities available to learners and continuously advocate for innovative practices that promote inclusive education. Ultimately, teachers must implement instructional approaches that prepare students to thrive in the future environments they are likely to encounter (Tan, 2022).

Based on the foregoing discussion, this study sought to determine the level of 21st-century teaching skills of private junior high school teachers in Bayambang, Pangasinan.

Theoretical and Conceptual Framework

This study was guided by the network learning theory, the constructivist theory, problem-based learning theory, the social learning theory, and the cognitive flexibility theory. The network learning theory maintains that learning takes place through developing and maintaining connections with people, information, and resources, and communicating in such a way so as to support one another's learning. (Ryberg, Dohn, & De Laat, 2025). The constructivist theory asserts that learners actively construct knowledge through their experiences and interactions with their environment. Within this perspective, education should emphasize critical thinking and problem-

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solving by encouraging students to relate new information to their existing knowledge and experiences (McLeod, 2025). The problem-based learning (PBL) theory shares several underlying principles with constructivism; however, it places stronger emphasis on learners' active engagement with specific and complex problems or real-world challenges. In contrast to broader constructivist approaches, this theory requires students to investigate and resolve clearly defined, multifaceted issues through a structured process of inquiry. This instructional approach highlights the importance of deliberate planning and continuous assessment over an extended period to facilitate the development of authentic, high-quality products and presentations (Yew & Goh, 2016). Meanwhile, the social learning theory posits that learning occurs through observation, imitation, and modeling. According to this perspective, individuals acquire knowledge and behaviors by watching others, identifying both effective and ineffective actions, and adopting those that result in favorable outcomes. The learning process is influenced by the dynamic interaction among cognitive processes, environmental factors, and the behaviors observed in others (Cherry, 2025). Lastly, cognitive flexibility theory highlights the significance of learning within complex domains by promoting adaptive thinking and the capacity to apply knowledge and skills across diverse situations. The theory advocates for the use of varied instructional methods to represent information from multiple perspectives, thereby enabling learners to actively construct meaning and develop their own understanding (Cheng & Koszalka, 2020). All these theories foster effective learning by providing students with multiple opportunities for interaction and engagement. Effective learning occurs when learners understand and derive meaning from their experiences while recognizing the purpose of goals, practices, explanations, interpretations, and feedback that contribute to the learning process.

Related literature further enriches this framework. 21st-century skills, said Kelley et al. (2019) are collections of essential competencies that individuals need to develop in order to adapt successfully to the rapidly changing demands of the contemporary world. Likewise, Studycorgi.com (2023) characterized these skills as an extensive set of knowledge, habits, and personal attributes that educators, employers, and other stakeholders regard as critical for achieving success in modern society. Similarly, Buckle (2024) described 21st-century skills as an integration of knowledge, life skills, dispositions, and character traits that support students' successful transition to higher education, employment, and adulthood. Meanwhile, the Partnership for 21st Century Skills (2017) opined that 21st-century skills comprise a broad range of competencies essential for success in

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contemporary society. These include accountability and adaptability, effective communication, creativity and intellectual curiosity, critical and systems thinking, information and media literacy, problem identification and resolution, self-direction, and social responsibility. To provide a clearer framework, the Partnership for 21st Century Skills (2017) organized these competencies into three major categories: learning skills, life skills, and literacy skills. Learning skills include critical thinking, which focuses on analyzing situations and solving problems; communication, or the ability to convey ideas clearly and effectively; collaboration, which involves working constructively with others; and creativity, defined as the capacity to generate innovative ideas and approaches. Life skills encompass flexibility, or the ability to adapt to changing circumstances; initiative, which refers to taking independent action and pursuing goals proactively; social skills, involving the development of productive relationships and networks; productivity, or the ability to remain efficient and focused despite challenges and distractions; and leadership, which entails inspiring and guiding others toward the achievement of common objectives. Meanwhile, literacy skills consist of information literacy, or the ability to understand and evaluate facts, statistics, and data; media literacy, which involves recognizing how information is created, interpreted, and distributed; and technology literacy, referring to an understanding of the tools and systems that characterize the digital age.

This study was anchored in the positivist paradigm, which holds that reality exists as an objective and consistent entity that can be understood through systematic observation and measurement. Consequently, the positivist perspective emphasizes objectivity, empirical evidence, and the use of quantitative research methods in the investigation of phenomena (Keong, Husin, & Kamarudin, 2023). Guided by the positivist paradigm, this study looked into the profile of the private junior high school teachers in Bayambang, Pangasinan, the level of their 21st century teaching skills as perceived by themselves and the school heads, if there is a significant relationship between the profile variables of the private junior high school teachers and the level of their 21st century teaching skills, and if there is a significant difference between the perceptions or assessments of the private junior high school teachers and the school heads on the level of 21st century teaching skills of the private junior high school teachers. The data gathered were analyzed, examined and interpreted. Thereafter, a school-based professional development program was crafted to enhance the level of 21st century teaching skills of the private junior high school teachers in Bayambang, Pangasinan.

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Statement of the Problem

This study aimed to propose a school-based professional development program to enhance the 21st century teaching skills of the private junior high school teachers in Bayambang, Pangasinan. Specifically, it found answers to the following problems:

1. What is the profile of the private junior high school teachers in terms of (a) highest educational attainment, (b) length of teaching experience, and (c) number of trainings attended related with 21st century teaching skills for the past 5 years?

2. What is the level of the 21st century teaching skills of the private junior high school teacher as perceived by themselves and the school heads?

3. Is there a significant relationship between the profile variables of the private junior high school teachers and the level of their 21st century teaching skills?

4. Is there a significant difference between the perceptions of the private junior high school teachers and the school heads on the level of 21st century teaching skills of the private junior high school teachers?

5. Based on the findings, what school-based professional development program may be proposed to enhance the 21st century teaching skills of the private junior high school teachers in Bayambang, Pangasinan?

Correspondingly, the study tested the following hypotheses at the .05 level of significance: (1) there is a significant relationship between the profile variables of the private junior high school teachers and the level of their 21st century teaching skills; and (2) there is a significant difference between the perceptions of the private junior high school teachers and the school heads on the level of 21st century teaching skills of the private junior high school teachers.

Methods

Research Design

This study utilized the quantitative-descriptive method of research to describe the private junior high school teachers in Bayambang, Pangasinan in terms of highest educational attainment, length of teaching experience, and number of relevant seminars/trainings attended as well as will

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determined the level of their 21st century teaching skills as perceived by themselves and the school heads. The study was also correlational for it determined if there is a significant relationship between the profile variables of the private junior high school teachers and the level of their 21st century teaching skills and if there is a significant difference between the perceptions of the private junior high school teachers and the school heads on the level of 21st century teaching skills of the private junior high school teachers. Moreover, the developmental method of research was also employed for the study will come up with a school-based professional development program to enhance the 21st century teaching skills of the private junior high school teachers.

Participants and Sampling

This study was conducted in the different private junior high schools in Bayambang, Pangasinan during the School Year 2026-2027. There were two groups of respondents in this study, namely, the private junior high school teachers and the school heads. All the 30 teachers and three school heads of the private junior high schools in Bayambang, Pangasinan were made as respondents of the study. Hence, there was no sampling done. The private junior high school teachers provided data relative to their highest educational attainment, length of teaching experience, number of relevant trainings attended, and the level of their 21st century teaching skills. Table 1 presents the distribution of the teachers per the different private junior high schools.

Table 1
Distribution of the Teachers per Private Junior High School

Private Junior High Schools	Total Number of Teachers	Percentage (%)
St. Vincent's Catholic School of Bayambang, Inc.	15	30
St. Alexander M. Sauli Catholic School, Inc.	10	33
Asiana Learning Institute	5	17
Total	30	**100**

Meanwhile, the school heads provided data relative to the level of 21st century teaching skills of the private junior high school teachers.

Instrumentation and Data Collection

Data were gathered using two researcher-administered survey questionnaires — one for the teachers and one for the school heads. The teachers' questionnaire had two parts: profile (highest educational attainment, length of teaching experience, and number of relevant seminars/trainings

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attended) and the level of their 21st century teaching skills. The school heads' questionnaire focused solely on their assessment of the teachers' level of 21st century teaching skills. The items here were the same with the second part of the survey-questionnaire for the private junior high school teachers. The items in the first part of the survey-questionnaire which is about the profile of the private junior high school teachers is common in researches. Hence, no validation is required. In relation to the second part of the survey-questionnaire which is about the level of 21st century teaching skills of the private junior high school teachers, the items were based on the survey-questionnaire of Jiao (2024) in his study entitled "Assessment of the 21st Century Teaching Skills of the Intermediate Teachers of Public Elementary Schools in Calasiao I District." The survey-questionnaire was validated by the researcher. Accordingly, the survey-questionnaire is considered valid and reliable.

The researcher personally administered the questionnaires to the teachers and school heads, allowing three weeks for completion before retrieval. Permission to conduct the study was first secured from the school heads of the different private junior high schools in Bayambang, Pangasinan. Thereafter, informed consent was taken from the private junior high school teachers and the school heads. Data were treated with utmost confidentiality and used solely to answer the research questions, in accordance with the Data Privacy Act of the Philippines. All authors of works used in the study were cited, properly acknowledged and documented.

Data Analysis

Frequency count and percentage were used to describe the profile of the teachers. The weighted mean was used to determine the level of their 21st century teaching skills, with the following scales of interpretation — not proficient (1.00–1.49), slightly proficient (1.50–2.49), moderately proficient (2.50–3.49), proficient (3.50–4.49), and highly proficient (4.50–5.00). The chi-square test of independence was used to determine the significance of the relationship between the profile variables of the private junior high school teachers and the level of their 21st century teaching skills, while the t-test was used to determine the significant difference between the perceptions of the private junior high school teachers and the school heads. All tests were computed at the .05 level of significance.

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Results

Profile of the Private Junior High School Teachers

Of the 30 teacher-respondents, twenty (67%) were bachelor's degree holders, seven (23%) had completed academic requirements for the master's degree, three (10%) were master's degree holders, none had completed academic requirements for the doctorate degree, and none were doctorate degree holders — indicating that the majority of the teachers have no post-graduate degree. In terms of teaching experience, 8 (27%) had taught for one to five years, 12 (40%) for six to ten years, 7 (23%) for 11 to 15 years, 3 (10%) for 16 to 20 years, and none for more than 20 years, showing that the majority have been teaching for six to ten years. With respect to trainings/seminars related with 21st century teaching skills, 22 (73%) of the teachers had attended no training at all; 8 (27%) had attended not more than three trainings/seminars related with 21st century teaching skills in the past five years, while none had attended more than three, indicating that most teachers would greatly benefit from further training.

Table 2
Profile of the Teachers (N = 30)

Profile Variable	f	%
Highest Educational Attainment		
Bachelor's degree holder	20	67%
Completed academic requirements, master's degree	7	23%
Master's degree holder	3	10%
Completed academic requirements, doctorate degree	0	0%
Doctorate degree holder	0	0%
Length of Teaching Experience		
1 to 5 years	8	27%
6 to 10 years	12	40%
11 to 15 years	7	23%
16 to 20 years	3	10%
More than 20 years	0	0%
Number of Relevant Trainings Attended (past 5 years)		
None	22	73%
Not more than three trainings	8	27%
More than three trainings	0	0%

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Level of 21st Century Teaching Skills of the Private Junior High School Teachers

The level of the 21st century teaching skills of private junior high school teachers was assessed by the teachers themselves and by their school heads across eight categories: Critical Thinking Skills, Collaboration Skills, Communication Skills, Creativity & Innovation Skills, Self-Direction Skills, Global Connection Skills, Local Connection Skills, and Technology Skills. Table 3 summarizes the results.

Under Critical Thinking Skills, the private junior high school teachers rated themselves highest (WM = 4.09) on their ability to allow pupils to analyze competing arguments, perspectives, or solutions to a problem, as well as on developing their pupils' critical thinking skills. Conversely, they rated themselves lowest (WM = 3.93) on their ability to let pupils compare information from different sources before completing a task or assignment, draw their own conclusions based on the analysis of numbers, facts, or relevant information, summarize or create their own interpretations of what they have read or been taught, and effectively assess pupils' critical thinking skills. Overall, this section yielded an area weighted mean (AWM) of 3.97, described as proficient. In contrast, the school heads' ratings across the same items ranged from 2.67 to 3.33, yielding an AWM of 3.11, described as moderately proficient. The lowest-rated items among school heads were the teachers' ability to encourage pupils to analyze competing arguments, perspectives, or solutions to a problem, and to effectively assess pupils' critical thinking skills, both receiving a WM of 2.67.

Under Collaboration Skills, the private junior high school teachers rated themselves highest (WM = 4.00) on their ability to allow pupils to present their group work to the class, teacher, or others, encourage pupils to work as a team to incorporate feedback on group tasks or products, develop pupils' collaboration skills, and help most pupils learn collaboration skills while in their class. Conversely, they rated themselves lowest (WM = 3.93) on their ability to encourage pupils to give feedback to peers or assess another pupils' work, as well as to effectively assess pupils' collaboration skills. Overall, this section yielded an area weighted mean (AWM) of 3.97, described as proficient. In contrast, the school heads' ratings across the same items ranged from 2.67 to 3.33, yielding an AWM of 2.96, described as moderately proficient. The lowest-rated items (WM = 2.67) among school heads were the teachers' ability to encourage pupils to work in pairs or small groups to complete a task together, let pupils create joint products using contributions from each

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of them, help pupils give feedback to peers or assess another pupils' work, and develop pupils' collaboration skills.

Under Communication Skills, the private junior high school teachers rated themselves highest (WM = 4.00) on their ability to allow pupils to convey their ideas using media other than a written paper (e.g., posters, videos, blogs), require pupils to structure data for use in written products or oral presentations (e.g., creating charts, tables, or graphs), help pupils learn communication skills while in class, and effectively assess pupils' communication skills. Conversely, they rated themselves lowest (WM = 3.93) on their ability to encourage pupils to answer questions in front of an audience. Overall, this section yielded an area weighted mean (AWM) of 3.98, described as proficient. In contrast, the school heads' ratings across the same items ranged from 2.67 to 3.33, yielding an AWM of 3.04, described as moderately proficient. The lowest-rated items (WM = 2.67) among school heads were the teachers' abilities to require pupils to structure data for use in written products or oral presentations (e.g., creating charts, tables, or graphs), develop pupils' communication skills, and help pupils learn communication skills while in class.

Under Creativity and Innovation Skills, the private junior high school teachers rated themselves highest (WM = 4.03) on their ability to encourage pupils to use idea creation techniques such as brainstorming or concept mapping, as well as on helping them develop pupils' creativity and innovation skills. Conversely, they rated themselves lowest (WM = 3.93) on their ability to allow pupils to invent a solution to a complex, open-ended question or problem. Overall, this section yielded an area weighted mean (AWM) of 4.00, described as proficient. In contrast, the school heads' ratings across the same items ranged from 2.67 to 3.33, yielding an AWM of 3.00, described as moderately proficient. The lowest-rated items (WM = 2.67) among school heads were the teachers' abilities to allow pupils to test out different ideas and work to improve them, guide them to invent a solution to a complex open-ended question or problem, and enable pupils to create an original product or performance to express their ideas.

Under Self-Direction Skills, the private junior high school teachers rated themselves highest (WM = 4.03) on their ability to allow pupils to choose for themselves what examples to study or resources to use, guide them to monitor their own progress toward completing a complex task and modify their work accordingly, develop pupils' self-direction skills, and help most pupils learn self-direction skills while in class. Conversely, they rated themselves lowest (WM = 3.93) on their

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ability to allow pupils to choose their own learning topics or questions to pursue, as well as guide them to plan the steps needed to accomplish a complex task. Overall, this section yielded an area weighted mean (AWM) of 3.99, described as proficient. In contrast, the school heads' ratings across the same items ranged from 2.67 to 3.33, yielding an AWM of 3.03, described as moderately proficient. The lowest-rated items (WM = 2.67) among school heads were the teachers' abilities to encourage pupils to take initiative when confronted with a difficult problem or question, allow pupils to choose their own learning topics or questions to pursue, and guide pupils to plan the steps needed to accomplish a complex task.

Under Global Connection Skills, the private junior high school teachers rated themselves highest (WM = 4.03) on their ability to guide pupils to study information about other countries or cultures, develop pupils' skills in making global connections, and help most pupils learn to make global connections while in class. Conversely, they rated themselves lowest (WM = 3.93) on their ability to encourage pupils to discuss issues related to global interdependency (e.g., global environmental trends, global market economy). Overall, this section yielded an area weighted mean (AWM) of 3.99, described as proficient. In contrast, the school heads' ratings across the same items ranged from 2.67 to 3.33, yielding an AWM of 3.03, described as moderately proficient. The lowest-rated items (WM = 2.67) among school heads were the teachers' abilities to guide pupils to study information about other countries or cultures, enable pupils to use information or ideas from people in other countries or cultures, encourage pupils to discuss issues related to global interdependency (e.g., global environmental trends, global market economy), and foster pupils' understanding of the life experiences of people from cultures other than their own.

Under Local Connection Skills, the private junior high school teachers rated themselves highest (WM = 4.03) on their ability to guide pupils to respond to a question or task in a way that weighs the concerns of different community members or groups, develop pupils' skills in making local connections, and effectively assess pupils' skills in making local connections. Conversely, they rated themselves lowest (WM = 3.97) on their ability to allow pupils to investigate topics or issues relevant to their family or community, enable pupils to apply what they are learning to local situations, issues, or problems, encourage pupils to talk to one or more members of the community about a class project or activity, and guide pupils to analyze how different stakeholder groups or community members view an issue. Overall, this section yielded an area weighted mean (AWM)

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of 3.99, described as proficient. In contrast, the school heads' ratings across the same items ranged from 2.67 to 3.00, yielding an AWM of 2.83, described as moderately proficient. The lowest-rated items (WM = 2.67) among school heads were the teachers' abilities to allow pupils to investigate topics or issues relevant to their family or community, enable pupils to apply what they are learning to local situations, issues, or problems, encourage pupils to talk to one or more members of the community about a class project or activity, and guide pupils to respond to a question or task in a way that weighs the concerns of different community members or groups.

Under Technology Skills, the private junior high school teachers rated themselves highest (WM = 4.03) on their ability to allow students to use technology or the Internet for self-instruction, guide students to use technology to share information (e.g., multimedia presentations with audio or video, presentation software, blogs, podcasts), enable students to use technology to interact directly with experts or members of local and global communities, and help students use technology to track their work on extended tasks or assignments. Conversely, they rated themselves lowest (WM = 3.93) on their ability to guide students to use technology to analyze information (e.g., databases, spreadsheets, graphics programs) and develop students' skills in using technology as a learning tool. Overall, this section yielded an area weighted mean (AWM) of 3.98, described as proficient. In contrast, the school heads' ratings across the same items ranged from 2.67 to 3.33, yielding an AWM of 3.03, described as moderately proficient. The lowest-rated items (WM = 2.67) among school heads were the teachers' abilities to allow students to use technology or the Internet for self-instruction, guide students to select appropriate technology tools or resources to complete a task, and train students to evaluate the credibility and relevance of online resources.

Table 3
The Level of 21st Century Teaching Skills of the Private Junior High School Teachers

Assessment Areas	Teachers		School Heads	
	AWM	DE	AWM	DE
Critical Thinking Skills	3.97	PR	3.11	MP
Collaboration Skills	3.97	PR	2.96	MP
Communication Skills	3.98	PR	3.04	MP
Creativity and Innovation Skills	4.00	PR	3.00	MP
Self-Direction Skills	3.99	PR	3.03	MP

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Global Connection Skills	3.99	PR	3.03	MP
Local Connection Skills	3.99	PR	2.83	MP
Technology Skills	3.98	PR	3.03	MP
Overall Weighted Mean (OWM)	**3.98**	**PR**	**3.00**	**MP**

Note. PR = proficient (3.50–4.49); MP = moderately proficient (2.50–3.49); AWM = area weighted mean.

As shown in Table 3, the private junior high school teachers perceived their overall level of 21st century teaching skills to be proficient (OWM = 3.98) across all eight categories, while the school heads perceived the teachers' overall level of 21st century teaching skills to be only moderately proficient (OWM = 3.00), with the local connection skills receiving the lowest rating (AWM = 2.83) among them and the critical thinking skills the highest (AWM = 3.11).

Relationship between the Profile Variables of the Private Junior High School Teachers and the Level of Their 21st Century Teaching Skills

The profile variables of the private junior high school teachers were correlated with the level of their 21st century teaching skills using the chi-square test of independence at the 0.05 level of significance. As shown in Table 4, all three profile variables — highest educational attainment ($\chi^2 = 8.44$, $p = 0.00$), length of teaching experience ($\chi^2 = 6.14$, $p = 0.01$), and number of relevant trainings attended ($\chi^2 = 6.14$, $p = 0.01$) — yielded computed chi-square values greater than the critical value of 3.84 and p-values below 0.05. The null hypothesis was therefore rejected for all three variables, indicating that the level of 21st century teaching skills of the private junior high school teachers is significantly influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended.

Table 4
Relationship between the Profile Variables of the Private Junior High School Teachers and the Level of Their 21st Century Teaching Skills

Profile Variable	p-value (0.05 LS)	Computed χ^2	Critical χ^2	Remarks
Highest Educational Attainment	0.00	8.44	3.84	Significant
Length of Teaching Experience	0.01	6.14	3.84	Significant
Number of Relevant Trainings Attended	0.01	6.14	3.84	Significant

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Difference between the Perceptions of the Private Junior High School Teachers and the School Heads on the Level of 21st Century Teaching Skills of the Private Junior High School Teachers

The perceptions of the private junior high school teachers and the school heads on the level of 21st century teaching skills of the private junior high school teachers were compared using the t-test at the 0.05 level of significance. As shown in Table 5, the computed p-value of 0.00 is lower than the 0.05 level of significance; hence, the null hypothesis was rejected. There is a significant difference between the perceptions of the private junior high school teachers and the school heads on the level of 21st century teaching skills of the private junior high school teachers, consistent with the pattern observed in Table 3, where teachers consistently rated their own level of 21st century teaching skills considerably higher than their school heads did across all eight categories.

Table 5
Difference between the Perceptions of the Private Junior High School Teachers and the School Heads on the Level of 21st Century Teaching Skills of the Private Junior High School Teachers

Variable	Computed p-value	Level of Significance	Remarks
Level of 21st Century Teaching Skills of the Private Junior High School Teachers	0.00	0.05	Significant

Discussion

The findings that the majority of teachers hold no post-graduate degree, have taught for six to ten years, and have not attended any training related with 21st century teaching skills points to a workforce that, while seasoned, remains under-resourced in technology integration. These results echo Jiao (2024), who noted that despite continuous efforts to promote quality education for sustainable development, there remains an urgent need for enhanced structural support, motivation, and professional opportunities tailored to the educational demands of the society in 21st century.

The consistently higher self-ratings of teachers relative to the ratings given by their school heads across all eight categories of 21st century teaching skills — resulting in an overall proficient self-perception (OWM = 3.98) against a moderately proficient external perception (OWM = 3.00) — corroborates established literature regarding self-observer rating discrepancies. This variance can be attributed to distinct observational lenses: self-ratings measure perceived familiarity and intent, whereas administrator ratings assess tangible classroom execution. This pattern aligns with the findings of Martinez (2022), who reported that while beginning teachers display basic

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technological fluency, their skills often fall short of advanced pedagogical integration. External evaluators are positioned to identify these nuances, reinforcing the critical imperative for educational systems to build robust frameworks that systematically cultivate 21st century competencies in response to modern economic and technological demands.

The significant relationships found between the private junior high school teachers' profile variables — highest educational attainment, length of teaching experience, and number of relevant trainings attended — and the level of their 21st century teaching skills reinforce the idea that teaching competency is dynamic and continually shaped by ongoing education and targeted professional growth. These results align with Martinez (2022), who observed that advanced educational qualifications significantly impact teachers' 21st-century teaching skills, as well as Tilbury (2016), who identified specialized seminars and training as key drivers of teacher competence, despite demographic factors like age, gender, and job position showing no effect. Considering that 73% of teacher-respondents had not attended a single training or seminar related with 21st-century teaching skills in five years, the strong link between professional development and skill mastery highlights training programs as one of the most practical and high-impact interventions school leaders can leverage to enhance teacher performance.

The significant difference between private junior high school teachers' and school heads' perceptions demonstrates a clear gap in perception. While private junior high school teachers rated their overall 21st century teaching skills as proficient (OWM = 3.98), their school heads evaluated them as only moderately proficient (OWM = 3.00), further highlighting the underlying deficiencies in actual classroom execution or skill application.

Taken together, these findings point to the value of a structured, school-based professional development program. Anchored on the eight categories of 21st century teaching skills — Critical Thinking Skills, Collaboration Skills, Communication Skills, Creativity & Innovation Skills, Self-Direction Skills, Global Connection Skills, Local Connection Skills, and Technology Skills — such a program, delivered through an interactive and participative eight-session, district-based approach, would directly address the training gap identified in the teachers' profile while reinforcing the specific competency areas rated lowest by school heads, particularly within the Local Connection Skills and Collaboration Skills.

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Conclusion and Recommendations

Conclusion

Based on the findings, it is concluded that a typical teacher of a private junior high school in the Municipality of Bayambang, Pangasinan is a bachelor's degree holder who has been teaching for six to ten years and has not attended any trainings/seminars related with 21st century teaching skills in the past five years. The teachers perceive their level of 21st century teaching skills to be proficient, while their school heads perceive it to be only at moderately proficient — a statistically significant difference. The level of 21st century teaching skills is significantly influenced by their highest educational attainment, length of teaching experience, and number of relevant trainings attended. A school-based professional development program, anchored on the eight categories of 21st century education, is likely to improve the level of 21st century teaching skills teachers of private junior high schools in the Municipality of Bayambang, Pangasinan.

Recommendations

1. The proposed school-based professional development program be approved for implementation in the private junior high schools in Bayambang, Pangasinan to enhance the level of 21st century teaching skills of teachers.

2. The implementation of the proposed school-based professional development program in the private junior high schools in Bayambang, Pangasinan to enhance the level of 21st century teaching skills of teachers should be monitored and evaluated.

3. Similar study may be conducted by other researchers to validate the findings of the study.

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EFFECTIVENESS OF TASK-BASED LEARNING IN IMPROVING THE PUBLIC SPEAKING SKILLS OF GRADE TWELVE LEARNERS AT SEÑOR SANTIAGO LEARNING CENTER

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Abstract

Public speaking is a critical senior high school communication skill because learners are expected to express ideas clearly, organize messages logically, use verbal and non-verbal cues effectively, and communicate with confidence in academic, workplace, and civic contexts (National Association of Colleges and Employers, 2025). This study determined the effectiveness of Task-Based Learning in improving the public speaking skills of Grade Twelve learners at Señor Santiago Learning Center. Specifically, it assessed learners' public speaking skills before and after Task-Based Learning, focusing on content organization, clarity of speech, verbal and non-verbal delivery, confidence, audience engagement, and overall presentation. The study employed a quasi-experimental one-group pretest–posttest research design. The participants were Grade Twelve learners who completed the pretest, participated in Task-Based Learning activities, completed the posttest, and responded to a survey on challenges encountered. The use of Task-Based Learning in terms of content organization, clarity of speech, verbal and non-verbal delivery, confidence, audience engagement, and overall presentation. The study employed a quasi-experimental one-group pretest–posttest research design. The participants were Grade Twelve learners who completed the pretest, participated in Task-Based Learning activities, completed the posttest, and responded to a survey on challenges encountered. The main instruments used were a public speaking performance rubric and a survey questionnaire on challenges encountered. The intervention consisted of structured speaking tasks, including role-playing, interviews, group presentations, debates, simulations, problem-solving activities, and impromptu speaking exercises. Recent evidence indicates that Task-Based Language Teaching can enhance speaking proficiency, confidence, motivation, engagement, and willingness to communicate when tasks are authentic, collaborative, and communicative (Guo et al., 2026). Results showed that before the use of Task-Based Learning, learners had an overall mean of 2.56, interpreted as Fair, with overall presentation as the highest indicator and confidence as the lowest. After the intervention, the learners obtained an overall mean of 4.16, interpreted as Very Good, with overall presentation, clarity of speech, and content organization as the highest-rated indicators. The paired-samples t-test showed a significant difference between pretest and posttest scores, with a mean difference of 1.60, t-value of 18.26, and p-value of less than .001. Learners moderately encountered challenges during the intervention, with nervousness when speaking in front of classmates, difficulty organizing ideas, and difficulty finding the right words as the most common concerns. Based on the findings, the study proposed SPEAK-UP: A Task-Based Public Speaking Enhancement Plan for Grade Twelve Learners to strengthen confidence-building, idea organization, vocabulary development, clear and concise speaking, feedback, reflection, and performance monitoring.

Keywords: Task-Based Learning, Public Speaking Skills, Grade Twelve Learners, Oral Communication, Speaking Performance Results, Instruments, Intervention Activities, Challenges, And SPEAK-UP

1. Introduction

Public speaking is an essential senior high school communication skill because learners are expected to express ideas clearly, organize thoughts logically, and communicate meaningfully in academic, professional, and social contexts (Department of Education, 2025). At the senior high school level, learners are prepared to participate in spoken, written, and multimodal communicative events that require clarity, confidence, cultural sensitivity, and ethical responsibility (Department of Education, 2025). Public speaking is, therefore, not merely a classroom activity but a life skill that prepares learners for oral reports, interviews, research presentations, workplace communication, entrepreneurship, and civic participation (National Association of Colleges and Employers, 2025). The National Association of Colleges and Employers identifies communication as a career-readiness competency involving verbal, written, and non-verbal abilities, active listening, persuasion, and clear organization of ideas (National Association of Colleges and Employers, 2025).

For Grade Twelve learners, public speaking becomes especially important as they approach graduation and prepare for higher education, employment, entrepreneurship, or community engagement (National Association of Colleges and Employers, 2025). These learners are expected to present outputs, defend viewpoints, respond to questions, participate in interviews, and collaborate with different audiences in formal and informal settings (Department of Education, 2025). Effective public speaking requires more than speaking loudly; learners must organize content, use appropriate language, control their voice and pacing, apply gestures and eye contact, and maintain audience attention (Department of Education, 2025). Thus, public speaking instruction must address both the content of the message and the manner in which it is delivered (National Association of Colleges and Employers, 2025).

Despite its importance, public speaking remains a challenging task for many learners because it often involves anxiety, fear of negative evaluation, and lack of confidence (ul Huda et al., 2024). Public speaking anxiety can affect learners' ability to perform well in oral presentations and group discussions because fear may interfere with voice control, fluency, organization, and willingness to speak (ul Huda et al., 2024). Learners may understand the lesson but hesitate to speak because they fear mistakes, embarrassment, laughter, or judgment from classmates (ul Huda et al., 2024). This concern shows that public speaking difficulty is not only a language issue but also an emotional and performance-related challenge that requires supportive instructional intervention (ul Huda et al., 2024).

Learners may also experience difficulty organizing ideas when preparing and delivering oral presentations (Department of Education, 2025). A speech becomes less effective when the introduction is unclear, the main points are disconnected, the supporting details are weak, and the conclusion does not reinforce the message (Department of Education, 2025). Clarity of speech is another important concern because pronunciation, articulation, voice projection, pacing, and word choice influence whether the audience understands the speaker's message (National Association of Colleges and Employers, 2025). Verbal and non-verbal delivery also affects public speaking, as tone, gestures, posture, facial expressions, eye contact, and movement contribute to audience connection and overall presentation quality (Department of Education, 2025).

Given these concerns, public speaking instruction should provide learners with meaningful opportunities to speak, interact, receive feedback, and improve through repeated practice (Guo et al., 2026). Task-Based Learning offers a relevant instructional approach because it allows learners to use language while completing purposeful speaking tasks that resemble real communication situations (Guo et al., 2026). Instead of relying only on memorized speeches or scripted reports, learners engage in role-playing, interviews, group presentations, debates, simulations, problem-solving activities, and impromptu speaking exercises (Guo et al., 2026). These tasks help learners practice speaking for authentic purposes, such as explaining ideas, persuading listeners, defending opinions, answering questions, and collaborating with peers (Guo et al., 2026).

Recent evidence supports the value of Task-Based Language Teaching in improving speaking instruction (Guo et al., 2026). A 2026 systematic review found that Task-Based Language Teaching is effective in enhancing overall speaking proficiency and specific linguistic competencies across diverse educational contexts (Guo et al., 2026). The same review emphasized that authentic and collaborative tasks can foster supportive learning environments that improve learners' confidence, motivation, engagement, and willingness to communicate (Guo et al., 2026). This evidence supports the use of Task-Based Learning as an intervention for public speaking because learners improve when they actively use language, interact with others, and refine their performance through meaningful practice (Guo et al., 2026).

In the present study, Task-Based Learning was examined as an instructional strategy for improving the public speaking skills of Grade Twelve learners at Señor Santiago Learning Center. The study focused on six indicators of public speaking performance: content organization, clarity of speech, verbal and non-verbal delivery, confidence, audience engagement, and overall presentation. These indicators are aligned with the communication competencies expected of learners who need to express information, ideas, facts, and perspectives clearly and effectively in academic and future workplace contexts (National Association of Colleges and Employers, 2025). They are also consistent with the need for learners to participate in communicative events with clarity, confidence, audience awareness, and appropriate language use (Department of Education, 2025).

Accordingly, this study determined the effectiveness of Task-Based Learning in improving the public speaking skills of Grade Twelve learners at Señor Santiago Learning Center. Specifically, it assessed learners' public speaking performance before and after Task-Based Learning, tested for a significant difference between pretest and posttest performance scores, identified challenges encountered during task-based speaking activities, and proposed an instructional enhancement plan based on the findings. The study is significant because it provides school-based evidence on whether structured speaking tasks can help learners become more organized, clearer, more confident, more audience-aware, and more effective in oral communication. By examining public speaking through task-based instruction, the study contributes to the improvement of senior high school communication instruction and supports learners' preparation for graduation, higher education, employment, entrepreneurship, and civic participation (Department of Education, 2025; National Association of Colleges and Employers, 2025; Guo et al., 2026).

2. Method

2.1 Research Design

The study employed a quantitative quasi-experimental research design, specifically the one-group pretest–posttest design, to determine the effectiveness of Task-Based Learning in improving the public speaking skills of Grade Twelve learners at Señor Santiago Learning Center (Creswell & Creswell, 2023). This design was appropriate because the study assessed the same group of learners before and after their exposure to the instructional intervention (Creswell & Creswell, 2023). The pretest was administered before the use of Task-Based Learning to determine the learners' initial level of public speaking skills in terms of content organization, clarity of speech, verbal and non-verbal delivery, confidence, audience engagement, and overall presentation (Creswell & Creswell, 2023). After the pretest, the learners participated in structured Task-Based Learning activities, including role-playing, interviews, group presentations, debates, simulations, problem-solving activities, and impromptu speaking exercises (Guo et al., 2026). These activities were designed to provide learners with meaningful opportunities to speak, collaborate, respond, receive feedback, and improve their oral communication through authentic, purposeful tasks (Guo et al., 2026). The posttest was administered after the intervention using the same or a parallel public speaking performance rubric to determine whether learners' public

speaking skills improved after exposure to Task-Based Learning (Creswell & Creswell, 2023). The comparison between the pretest and posttest results served as the basis for determining whether there was a significant difference in learners' public speaking performance before and after the intervention (Field, 2024). The study was quasi-experimental because the learners were not randomly assigned to separate experimental and control groups, but were assessed as one intact classroom group under actual school conditions (Creswell & Creswell, 2023). This design was suitable for classroom-based intervention research because it allowed the researcher to evaluate the measurable effect of an instructional strategy within a natural learning environment (Creswell & Creswell, 2023). The study also included a descriptive component to identify the challenges learners encountered during the implementation of Task-Based Learning (Creswell & Creswell, 2023). These challenges provided additional insights into learners' experiences, particularly regarding nervousness, difficulty organizing ideas, limited vocabulary, lack of confidence, unclear pronunciation, weak audience engagement, and ineffective verbal and non-verbal delivery (Guo et al., 2026). The findings from the pretest, posttest, significance test, and challenges survey served as the empirical basis for developing an instructional enhancement plan to improve public speaking instruction among Grade Twelve learners (Creswell & Creswell, 2023; Field, 2024).

2.2 Participants

The study involved Grine Twelve learners of Señor Santiago Learning Center who were officially enrolled at the time of the study and directly participated in the Task-Based Learning intervention. They were considered appropriate respondents because Grade Twelve learners are expected to demonstrate communication readiness as they prepare for graduation, higher education, employment, entrepreneurship, and community participation (National Association of Colleges and Employers, 2025). The study used purposive sampling because the respondents were selected based on specific criteria aligned with the research's purpose, particularly their grade level, participation in public speaking activities, and exposure to Task-Based Learning (Creswell & Creswell, 2023). The inclusion criteria covered learners who were enrolled in Grade Twelve, available during the intervention period, participated in the pretest and posttest, joined the task-based speaking activities, and completed the survey on challenges encountered (Creswell & Creswell, 2023). Learners who were absent during key phases of data collection or who were unable to complete the required speaking assessments were excluded from the final analysis to maintain data completeness and consistency (Creswell & Creswell, 2023). The same group of learners participated in both the pretest and posttest, allowing their public speaking performance before and after the intervention to be compared using related measures (Field, 2024). This procedure was appropriate because the study sought to determine whether learners' public speaking skills improved after exposure to structured speaking tasks such as role-playing, interviews, group presentations, debates, simulations, problem-solving activities, and impromptu speaking exercises (Guo et al., 2026). The respondents' speaking performances were assessed on content organization, clarity of speech, verbal and nonverbal delivery, confidence, audience engagement, and overall presentation (National Association of Colleges and Employers, 2025). These indicators were relevant because effective communication requires learners to express information, ideas, facts, and perspectives clearly and appropriately across different audiences and situations (National Association of Colleges and Employers, 2025). Since Task-Based Learning emphasizes authentic, collaborative, and meaningful speaking activities, the selected learners were suitable participants for determining how task-based instruction may improve public speaking performance (Guo et al., 2026). The participants' responses to the challenges survey also provided additional information on their experiences during the intervention, including nervousness, difficulty organizing ideas, limited vocabulary, lack of confidence, unclear pronunciation, weak audience engagement, and ineffective verbal and non-verbal delivery (ul Huda et al., 2024). Overall, the participant selection was appropriate because it focused on the

actual learner group that experienced the intervention and generated classroom-based evidence on the effectiveness of Task-Based Learning in improving public speaking skills (Creswell & Creswell, 2023; Guo et al., 2026).

2.3 Instrumentation

The study used a public speaking performance rubric and a survey questionnaire on challenges encountered as the main instruments for data collection (Creswell & Creswell, 2023). The public speaking performance rubric was used to determine the level of public speaking skills of the Grade Twelve learners before and after the implementation of Task-Based Learning (Creswell & Creswell, 2023). The rubric assessed learners' public speaking performance in terms of content organization, clarity of speech, verbal and non-verbal delivery, confidence, audience engagement, and overall presentation (National Association of Colleges and Employers, 2025). These indicators were appropriate because effective communication requires learners to express information, ideas, facts, and perspectives clearly, organize messages effectively, use verbal and non-verbal communication appropriately, and communicate with respect for audience differences (National Association of Colleges and Employers, 2025). The rubric was administered during both the pretest and posttest to ensure that learners' speaking performance was evaluated using the same criteria before and after the intervention (Creswell & Creswell, 2023). The pretest established the learners' initial public speaking performance, while the posttest measured their performance after exposure to Task-Based Learning activities (Field, 2024). The use of a rubric was appropriate because public speaking is a performance-based skill that must be assessed through observable behaviors such as organization of ideas, speech clarity, voice quality, gestures, posture, eye contact, confidence, audience connection, and overall delivery (Department of Education, 2025). The performance descriptors in the rubric helped ensure that the assessment of learners' oral performance was systematic, consistent, and aligned with the target communication competencies (Creswell & Creswell, 2023). The study also used a survey questionnaire to identify the challenges learners encountered when using Task-Based Learning (Creswell & Creswell, 2023). The questionnaire included items related to nervousness, fear of speaking before an audience, difficulty organizing ideas, limited vocabulary, lack of confidence, unclear pronunciation, weak audience engagement, difficulty speaking spontaneously, and ineffective verbal and non-verbal delivery (ul Huda et al., 2024). These challenge indicators were relevant because public speaking difficulty is often connected with anxiety, fear of negative evaluation, confidence issues, and performance-related concerns (ul Huda et al., 2024). The survey questionnaire helped describe learners' experiences during task-based speaking activities and provided additional data for identifying areas that needed instructional support (Creswell & Creswell, 2023). The instruments were aligned with the intervention because Task-Based Learning requires learners to participate in meaningful speaking tasks such as role-playing, interviews, group presentations, debates, simulations, problem-solving activities, and impromptu speaking exercises (Guo et al., 2026). These task-based activities were consistent with recent evidence showing that Task-Based Language Teaching can improve speaking proficiency, confidence, engagement, motivation, and willingness to communicate when tasks are authentic and collaborative (Guo et al., 2026). The rubric and questionnaire were validated by appropriate experts to ensure clarity, relevance, suitability for Grade Twelve learners, and alignment with the statement of the problem (Creswell & Creswell, 2023). The validation process strengthened the content quality of the instruments and helped ensure that the items measured the intended public speaking skills and learner challenges (Creswell & Creswell, 2023). Overall, the public speaking performance rubric and the survey questionnaire provided the necessary data for determining learners' public speaking performance before and after the intervention, identifying challenges encountered during Task-Based Learning, and developing an instructional enhancement plan for Grade Twelve public speaking instruction (Creswell & Creswell, 2023; Guo et al., 2026).

2.4 Data Analysis

The data gathered from the public speaking performance rubric and the survey questionnaire on challenges encountered were checked, scored, tabulated, organized, analyzed, and interpreted in accordance with the specific research problems of the study (Creswell & Creswell, 2023). Descriptive statistics were used to determine the level of public speaking skills of the Grade Twelve learners before and after the implementation of Task-Based Learning (Creswell & Creswell, 2023). The mean was computed to determine the learners' average performance in content organization, clarity of speech, verbal and non-verbal delivery, confidence, audience engagement, and overall presentation before and after the intervention (Creswell & Creswell, 2023). The standard deviation was used to determine the extent of variation or consistency in the learners' pretest and posttest public speaking performance scores (Field, 2024). The pretest results served as the baseline measure of learners' initial public speaking performance, while the posttest results served as the measure of learners' performance after exposure to Task-Based Learning activities (Creswell & Creswell, 2023). The descriptive interpretation of the mean scores was used to classify learners' level of public speaking skills across the six performance indicators (Creswell & Creswell, 2023). To determine whether a significant difference existed between the pretest and posttest public speaking performance scores of the same group of learners, the paired-samples t-test was employed at the 0.05 level of significance (Field, 2024). This test was appropriate because the study compared two related sets of scores obtained from the same learners before and after the instructional intervention (Field, 2024). The result of the paired-samples t-test served as the basis for determining whether Task-Based Learning significantly improved learners' public speaking skills (Creswell & Creswell, 2023). To address challenges encountered during Task-Based Learning implementation, frequency counts and percentages were used to determine how many learners experienced each difficulty and the proportion of the group that encountered the same concern (Creswell & Creswell, 2023). A weighted mean was used to determine the extent to which learners encountered each challenge during task-based speaking activities (Creswell & Creswell, 2023). Ranking was applied to arrange the challenges from most to least encountered based on learners' responses (Creswell & Creswell, 2023). The interpretation of learner challenges was important because public speaking development may be affected by nervousness, fear of negative evaluation, difficulty organizing ideas, limited vocabulary, unclear delivery, weak audience engagement, and lack of confidence (ul Huda et al., 2024). The findings from the pretest, posttest, significance test, and challenges survey served as the empirical basis for developing the proposed instructional enhancement plan to improve public speaking instruction among Grade Twelve learners (Creswell & Creswell, 2023). Overall, the statistical tools provided a systematic basis for determining whether meaningful, authentic, collaborative, and task-based speaking activities contributed to measurable improvement in learners' public speaking performance (Guo et al., 2026).

3. Results

Before the implementation of Task-Based Learning, the Grade Twelve learners obtained an overall mean of 2.56, interpreted as Fair, indicating that their public speaking skills were already developing but still required structured instructional support and repeated practice. Among the indicators, overall presentation obtained the highest pretest mean of 2.73, followed by audience engagement, content organization, clarity of speech, verbal and non-verbal delivery, and confidence, which obtained the lowest mean of 2.36 and was interpreted as Poor. These results showed that learners had basic ability to present ideas but still experienced difficulty in speaking with confidence, organizing ideas, delivering messages clearly, and using effective verbal and non-verbal communication. This finding is consistent with recent literature indicating that public speaking performance is often affected by anxiety, fear of negative evaluation, confidence issues, and performance pressure (ul Huda et al., 2024). The low confidence result

further suggests that learners needed a supportive learning environment where speaking practice, feedback, and gradual exposure to audience-based tasks could help reduce fear and improve oral performance (Guo et al., 2026).

After implementing Task-Based Learning, the learners' overall mean increased to 4.16, indicating Very Good. Overall presentation had the highest posttest mean of 4.25, followed by clarity of speech (4.21) and content organization (4.18). Audience engagement had a mean of 4.16, verbal and non-verbal delivery had a mean of 4.09, and confidence had the lowest posttest mean of 4.05, although all indicators were still interpreted as Very Good. These results showed that learners improved in organizing ideas, speaking more clearly, delivering messages more effectively, engaging the audience, and presenting with greater confidence after participating in meaningful speaking tasks. This improvement supports recent evidence that Task-Based Language Teaching enhances speaking proficiency, confidence, motivation, engagement, and willingness to communicate when tasks are authentic, collaborative, and communicative (Guo et al., 2026).

The comparison of pretest and posttest results revealed a statistically significant improvement in learners' public speaking skills. The overall pretest mean of 2.56 increased to an overall posttest mean of 4.16, producing a mean difference of 1.60. The computed overall t-value of 18.26 with a p-value of less than .001 indicated that the improvement was statistically significant at the 0.05 level. Therefore, the null hypothesis was rejected, confirming a significant difference in learners' public speaking performance before and after the use of Task-Based Learning. This result indicates that the task-based intervention contributed to measurable improvement in learners' public speaking performance. The significant increase may be explained by the nature of Task-Based Learning, which gives learners repeated opportunities to plan, speak, collaborate, receive feedback, reflect, and improve through purposeful speaking tasks (Guo et al., by the nature of Task-Based Learning, which gives learners repeated opportunities to plan, speak, collaborate, receive feedback, reflect 2026). A paired-samples comparison was appropriate because the same learners were assessed before and after the instructional intervention (Field, 2024).

The learners also encountered challenges during the use of Task-Based Learning, with an overall mean of 3.05, interpreted as Moderately Encountered. The highest-rated challenge was feeling nervous when speaking in front of classmates, with a mean of 3.42, followed by difficulty organizing ideas during speaking tasks (3.31) and struggling to find the right words while speaking (3.26). Other challenges included a lack of confidence, difficulty speaking spontaneously during impromptu activities, unclear pronunciation, difficulty maintaining eye contact, difficulty using appropriate gestures and body movement, pressure during debates or group presentations, and difficulty engaging the audience. These findings imply that although Task-Based Learning improved public speaking performance, learners still needed support in managing anxiety, organizing thoughts, expanding vocabulary, developing confidence, and speaking spontaneously. This interpretation is supported by recent research showing that public speaking anxiety and fear of negative evaluation can affect learners' academic speaking performance (ul Huda et al., 2024).

Based on the findings, the study proposed SPEAK-UP: A Task-Based Public Speaking Enhancement Plan for Grade Twelve Learners. The proposed plan was designed to sustain the improvements achieved through Task-Based Learning and address the remaining challenges faced by learners. It focused on confidence-building, organization of ideas, vocabulary development, clarity of speech, verbal and non-verbal delivery, audience engagement, spontaneous speaking, feedback, reflection, and performance monitoring. The plan was appropriate because learners improved significantly after the intervention but still encountered moderate difficulties with nervousness, idea organization, vocabulary retrieval, confidence, and spontaneous speaking. Overall, the results demonstrated that Task-Based Learning served as an effective instructional strategy for improving public speaking skills when implemented through structured, meaningful, interactive, collaborative, and feedback-supported speaking activities

(Guo et al., 2026). The findings also support the broader communication-readiness goal of preparing learners to express information, ideas, facts, and perspectives clearly and effectively in academic, workplace, and real-life contexts (National Association of Colleges and Employers, 2025).

4. Discussion

The findings revealed that Task-Based Learning significantly improved the public speaking skills of Grade Twelve learners at Señor Santiago Learning Center. Before the intervention, the learners had an overall mean of 2.56, indicating Fair, which suggested that their public speaking skills were developing but still needed structured support. After implementing Task-Based Learning, the learners' overall mean increased to 4.16, indicating Very Good performance and a notable improvement in their speaking performance. This result supports recent evidence that Task-Based Language Teaching enhances speaking proficiency, confidence, engagement, motivation, and willingness to communicate when learners participate in authentic and collaborative speaking tasks (Guo et al., 2026).

The improvement in content organization suggests that learners became more capable of arranging ideas logically and presenting messages with clearer structure. Through task-based activities such as group presentations, debates, interviews, simulations, and problem-solving tasks, learners practiced preparing introductions, developing key points, supporting their ideas, and ending presentations effectively. This finding is consistent with the communication competency expected of learners and future workers, which includes the ability to exchange information, ideas, facts, and perspectives clearly and effectively (National Association of Colleges and Employers, 2025). The result implies that speaking tasks become more effective when learners are required to plan, organize, deliver, and refine their ideas through repeated practice.

The improvement in speech clarity also indicates that Task-Based Learning helped learners express their ideas more clearly. Learners who participated in repeated speaking tasks were given opportunities to practice articulation, pronunciation, pacing, voice projection, and word choice. This improvement may be attributed to the communicative nature of the intervention, in which learners were not only asked to memorize lines but also to use language for actual interaction and message delivery. Recent research on Task-Based Language Teaching supports this result because meaningful speaking tasks help learners improve both fluency and language performance through purposeful communication (Guo et al., 2026).

The increase in verbal and non-verbal delivery shows that learners improved in their use of voice, gestures, posture, eye contact, facial expression, and movement during public speaking. This finding is important because effective public speaking depends not only on the content of the speech but also on how the message is delivered to the audience. Task-based activities may have helped learners become more aware of their body language and delivery habits by repeatedly performing in front of classmates and receiving feedback. This aligns with the broader communication-readiness expectation that learners should demonstrate verbal, written, and non-verbal communication abilities in varied contexts (National Association of Colleges and Employers, 2025).

The improvement in confidence is particularly meaningful because the pretest mean was the lowest but improved to a Very Good level after the intervention. This suggests that learners became more comfortable speaking before an audience after engaging in repeated task-based speaking activities. Public speaking anxiety and fear of negative evaluation can negatively affect learners' oral performance, especially during presentations and group discussions (ul Huda et al., 2024). The findings imply that Task-Based Learning helped reduce hesitation by providing learners with structured practice, peer interaction, gradual exposure, and supportive feedback.

The improvement in audience engagement indicates that learners became more capable of connecting with listeners during speaking activities. Audience engagement may have improved

because learners participated in interactive tasks that required them to respond, persuade, explain, ask questions, defend ideas, and adjust to listener reactions. This is consistent with the principle that communication is not only the delivery of information but also the effective exchange of ideas with persons inside and outside an organization (National Association of Colleges and Employers, 2025). Therefore, the results suggest that public speaking instruction should include interactive, audience-responsive activities rather than one-way oral reporting alone.

The significant difference between pretest and posttest scores confirmed that the improvement in public speaking skills was statistically meaningful. The overall mean difference of 1.60, t-value of 18.26, and p-value of less than .001 indicated that learners' performance after Task-Based Learning was significantly higher than before the intervention. This result supports the interpretation that Task-Based Learning contributed to measurable improvement in content organization, clarity of speech, verbal and non-verbal delivery, confidence, audience engagement, and overall presentation. The finding is consistent with recent evidence that Task-Based Language Teaching can improve speaking outcomes when tasks are authentic, purposeful, collaborative, and supported by meaningful classroom interaction (Guo et al., 2026).

Despite the improvement, learners still moderately encountered challenges during the implementation of Task-Based Learning. The most common challenges were nervousness when speaking in front of classmates, followed by difficulty organizing ideas and finding the right words. These findings show that public speaking development requires continuous support even after learners demonstrate measurable improvement. Public speaking anxiety remains a relevant concern because fear of negative evaluation can affect learners' confidence, fluency, and performance during oral communication tasks (ul Huda et al., 2024).

The remaining challenges suggest that future speaking instruction should include more targeted activities to build confidence, organize ideas, develop vocabulary, encourage spontaneous speaking, and engage the audience. Learners who struggle with nervousness may benefit from gradual speaking exposure, pair practice, peer support, rehearsal routines, and positive feedback. Learners who struggle with organizing ideas may benefit from speech outlines, graphic organizers, sentence frames, and guided planning before performance. Learners who struggle to find the right words may need vocabulary-building tasks, speaking prompts, and repeated opportunities to explain ideas in different contexts.

Overall, the findings support the proposed SPEAK-UP: A Task-Based Public Speaking Enhancement Plan for Grade Twelve Learners. The plan is appropriate because it responds to the significant improvement achieved through Task-Based Learning and to the challenges learners continue to experience. It may strengthen public speaking instruction through progressive speaking tasks, rubric-based assessment, peer and teacher feedback, confidence-building activities, vocabulary support, delivery practice, audience-engagement exercises, and reflective performance monitoring. Therefore, Task-Based Learning may be considered an effective instructional strategy for improving public speaking skills when it is structured, learner-centered, collaborative, feedback-supported, and aligned with authentic communication needs (Guo et al., 2026; National Association of Colleges and Employers, 2025).

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IMPACT OF HOME-BASED TUTORING ON THE READING AND NUMERACY SKILLS OF ELEMENTARY LEARNERS IN BOLINAO, PANGASINAN

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Abstract

Foundational learning in reading and numeracy is essential because it enables elementary learners to understand texts, interpret information, solve problems, and participate meaningfully in classroom learning (UNICEF, 2022; World Bank, 2025). This study determined the impact of home-based tutoring on the reading and numeracy skills of elementary learners in Bolinao, Pangasinan. Specifically, it assessed the reading skills of learners with and without home-based tutoring, measured their numeracy skills, and tested whether there were significant differences between the two groups. The study employed a quantitative descriptive-comparative research design. The respondents were 205 elementary learners selected through stratified random sampling, comprising 88 learners with home-based tutoring and 117 without. The researcher used the Reading Skills Assessment Tool, the Numeracy Skills Assessment Tool, and the Home-Based Tutoring Classification Checklist. Reading skills were measured in word recognition, fluency, vocabulary, and comprehension, while numeracy skills were measured in number understanding, basic operations, interpretation of quantitative information, and mathematical problem-solving. The mean and standard deviation were used to determine skill levels, and the independent-samples t-test was used to assess significant differences between learners with and without home-based tutoring. Findings revealed that learners with home-based tutoring obtained a Very Satisfactory level of reading skills, with an overall mean of 84.01, while learners without home-based tutoring obtained a Satisfactory level, with an overall mean of 74.16. In numeracy, learners with home-based tutoring obtained a Very Satisfactory level, with an overall mean of 83.67, while learners without home-based tutoring obtained a Satisfactory level, with an overall mean of 73.70. The t-test for significant difference showed that learners with home-based tutoring performed significantly better in reading, with a t-value of 8.28 and a p-value of less than .001. Similarly, learners with home-based tutoring performed significantly better in numeracy, with a t-value of 8.33, a p-value of 8.28, and a p-value of less than .001. Similarly, learners with home-based tutoring performed with a value of less than .001. These findings indicate that home-based tutoring was associated with higher reading and numeracy performance among elementary learners. The study recommends strengthening school-home-community collaboration, aligning tutoring activities with classroom competencies, monitoring learner progress, and providing structured support in comprehension, vocabulary, mathematical problem-solving, and interpretation of quantitative information. Reading intervention should include targeted support in comprehension and vocabulary, while numeracy intervention should emphasize problem-solving, reasoning, and meaningful application of mathematical concepts (What Works Clearinghouse, 2021; What Works Clearinghouse, 2022).

Keywords: Home-Based Tutoring, Reading Skills, Numeracy Skills, Elementary Learners, Foundational Learning, Bolinao Pangasinan

1. Introduction

Foundational reading and numeracy skills are essential in elementary education because they enable learners to understand texts, follow instructions, interpret information, solve problems, and participate meaningfully in classroom learning (UNICEF, 2022; World Bank, 2025). Foundational learning includes basic literacy, numeracy, and socio-emotional skills that support

lifelong learning, cognitive development, civic engagement, and future productivity (World Bank, 2025). When learners enter or progress through elementary school without adequate reading and numeracy competencies, they may struggle to benefit fully from lessons across the curriculum (UNICEF, 2022; World Bank, 2025). Thus, strengthening reading and numeracy is not only a language or mathematics concern but a broad educational priority that affects learners' academic progress and long-term development (UNICEF, 2022; UNESCO, 2025).

Globally, learning gaps in reading and numeracy persist among children in the early and elementary grades (UNICEF, 2022; UNESCO, 2025). UNICEF reported that in half of the countries analyzed, only 30 percent of Grade 3 learners had foundational reading skills, while only 18 percent had foundational numeracy skills (UNICEF, 2022). UNESCO also reported that only 58 percent of learners achieved minimum proficiency in reading and 44 percent in mathematics at the end of primary school (UNESCO, 2025). These findings indicate that school attendance alone does not guarantee successful learning and that many learners need additional, targeted, and responsive support to master foundational skills (UNICEF, 2022; UNESCO, 2025).

In the Philippine context, the need to strengthen reading and numeracy is reflected in national and international assessment concerns (OECD, 2023). PISA 2022 showed that only 24 percent of Filipino students attained Level 2 or higher in reading, and only 16 percent in mathematics (OECD, 2023). Although PISA assesses 15-year-old learners rather than elementary pupils, the results suggest that learning gaps may accumulate when foundational reading and numeracy skills are not strengthened in earlier grade levels (OECD, 2023; World Bank, 2025). These results underscore the importance of early and sustained intervention to help learners develop the reading comprehension and mathematical reasoning needed for later academic success (OECD, 2023; World Bank, 2025).

National policy directions also highlight the importance of learning recovery in reading and mathematics (Department of Education, 2023; Republic of the Philippines, 2024). The Department of Education adopted the National Learning Recovery Program through DepEd Order No. 013, s. 2023 to address learning gaps and improve learner outcomes in basic education (Department of Education, 2023). Republic Act No. 12028, known as the Academic Recovery and Accessible Learning Program Act, institutionalized academic recovery support for learners who need assistance in essential learning competencies, particularly reading and mathematics (Republic of the Philippines, 2024). These policy developments affirm that reading and numeracy interventions should be systematic, accessible, and responsive to learners who are below expected proficiency levels (Department of Education, 2023; Republic of the Philippines, 2024).

Reading deserves focused attention because it enables learners to recognize words, build vocabulary, read fluently, comprehend texts, and use written information across learning areas (What Works Clearinghouse, 2022). The What Works Clearinghouse recommends reading interventions that build decoding skills, provide purposeful fluency-building activities, support vocabulary and comprehension, and intensify instruction for learners who need greater support (What Works Clearinghouse, 2022). For elementary learners, weak reading skills may affect not only language performance but also the ability to understand science texts, social studies materials, written directions, and mathematics word problems (What Works Clearinghouse, 2022; World Bank, 2025). Therefore, reading must be strengthened as a foundation for independent learning and meaningful participation in classroom activities (UNICEF, 2022; What Works Clearinghouse, 2022).

Numeracy also requires separate attention because it involves number understanding, basic operations, interpretation of quantitative information, and mathematical problem-solving (World Bank, 2025). Learners with weak numeracy may struggle to compute accurately, understand mathematical relationships, interpret data, solve word problems, and apply mathematics in daily situations (World Bank, 2025; UNESCO, 2025). The MATATAG Mathematics Curriculum emphasizes the importance of developing strong mathematical knowledge and understanding so that learners become mathematically proficient and critical

problem solvers (Department of Education, 2023). Thus, numeracy should not be treated as simple computation alone but as a broader competence that supports reasoning, problem-solving, and confidence in learning mathematics (Department of Education, 2023; World Bank, 2025).

Home-based tutoring may serve as an additional learning support mechanism for learners who need more time, guidance, practice, and feedback outside regular classroom instruction. Through home-based tutoring, learners may receive guided reading, vocabulary practice, comprehension questioning, mathematics drills, problem-solving support, immediate correction, and closer monitoring of progress. Such support is consistent with learning recovery priorities that emphasize targeted assistance, remediation, and reinforcement of essential competencies in reading and mathematics (Department of Education, 2023; Republic of the Philippines, 2024). However, the value of tutoring should be examined using empirical data, as its impact may vary depending on the learner's needs, tutor guidance, tutoring consistency, learning materials, and alignment with school competencies (UNICEF, 2022; World Bank, 2025).

In Bolinao, Pangasinan, examining home-based tutoring is relevant because learners' academic development may be influenced by both school-based instruction and home-supported learning. The study does not assume that all learners in the locality experience the same reading and numeracy conditions; rather, it seeks to generate localized evidence on whether learners with home-based tutoring differ from those without such support. This local focus is important because national policies and global reports establish the broader learning problem, but school and community-level studies are needed to determine how interventions relate to learner outcomes in specific contexts (Department of Education, 2023; World Bank, 2025). By comparing learners with and without home-based tutoring, the study provides a practical basis for understanding whether additional home-based tutoring is associated with better foundational learning performance.

Accordingly, this study determined the impact of home-based tutoring on the reading and numeracy skills of elementary learners in Bolinao, Pangasinan. Specifically, it described the reading and numeracy skill levels of learners with home-based tutoring and those without, and tested whether there were significant differences between the two groups. The study focused on reading indicators such as word recognition, fluency, vocabulary, and comprehension, as well as numeracy indicators such as number understanding, basic operations, interpretation of quantitative information, and mathematical problem-solving. The findings may provide useful evidence for teachers, parents, school heads, tutors, and community stakeholders to strengthen school-home-community collaboration, align home-based support with classroom competencies, and improve learning recovery initiatives for elementary learners (Department of Education, 2023; Republic of the Philippines, 2024; World Bank, 2025).

2. Method

2.1 Research Design

The study employed a quantitative descriptive-comparative research design to determine the impact of home-based tutoring on the reading and numeracy skills of elementary learners in Bolinao, Pangasinan (Creswell & Creswell, 2023). The design was quantitative because the study used numerical data from reading and numeracy assessment results to describe learners' performance and determine whether measurable differences existed between groups (Creswell & Creswell, 2023). It was descriptive because it determined the reading and numeracy skill levels of elementary learners who received home-based tutoring and those who did not (Creswell & Creswell, 2023). Reading skills were assessed in word recognition, fluency, vocabulary, and comprehension, while numeracy skills were assessed in number understanding, basic operations, interpretation of quantitative information, and mathematical problem-solving (World Bank, 2025). The design was also comparative, as the study compared two independent groups of learners based on their tutoring status: learners with home-based tutoring and those without (Creswell & Creswell, 2023). This approach was appropriate because the study sought to determine whether

learners' reading and numeracy performance differed according to their exposure to home-based tutoring (Creswell & Creswell, 2023). Since the researcher did not randomly assign learners to tutoring and non-tutoring groups, the study did not follow a true experimental design; rather, it compared naturally existing groups based on their actual home-based tutoring experience (Creswell & Creswell, 2023). The independent variable was home-based tutoring, while the dependent variables were reading skills and numeracy skills (Creswell & Creswell, 2023). The mean and standard deviation were used to describe the performance levels of the two groups, while the independent-samples t-test was used to determine whether significant differences existed between learners Creswell, 2023). The independent variable was home-based tutoring, while the dependent variables were reading skills and numeracy skills (Creswell & Creswell, with and without home-based tutoring in reading and numeracy skills (Field, 2024). The independent-samples t-test was appropriate because the study compared the mean scores of two distinct groups of learners (Field, 2024). The design was suitable for the study because it allowed the researcher to generate empirical evidence on whether home-based tutoring was associated with higher foundational learning performance among elementary learners (UNICEF, 2022; World Bank, 2025). However, the design did not claim that home-based tutoring alone caused all observed differences because other learner, home, school, and community factors may also influence reading and numeracy outcomes (Creswell & Creswell, 2023). Overall, the quantitative descriptive-comparative design provided a systematic basis for describing learners' skill levels, comparing tutored and non-tutored groups, and drawing evidence-based implications for strengthening home-based learning support in reading and numeracy (Creswell & Creswell, 2023; Field, 2024).

2.2 Participants

The study selected elementary learners in Bolinao, Pangasinan, who were officially enrolled at the time of the study and met the researcher's inclusion criteria. They were considered appropriate respondents because the study focused on determining the impact of home-based tutoring on foundational learning outcomes, particularly reading and numeracy skills (UNICEF, 2022; World Bank, 2025). The total population consisted of 420 elementary learners, 180 of whom received home-based tutoring and 240 who did not. From this population, a sample of 205 learners was determined using Slovin's formula at a 5% margin of error. The study used stratified random sampling because respondents needed to be represented by tutoring status: learners with home-based tutoring and learners without home-based tutoring (Creswell & Creswell, 2023). Using proportional allocation, the sample comprised 88 learners with home-based tutoring and 117 without. This sampling procedure was appropriate because the study compared two independent groups based on their exposure to home-based academic support (Field, 2024). The inclusion criteria required that the learner be enrolled in the elementary level in Bolinao, Pangasinan, have available information regarding tutoring status, have participated in the reading and numeracy assessments, and have obtained the necessary consent or permission for participation. Learners with incomplete assessment results, unclear tutoring status, or missing participation documents were excluded from the final sample to ensure accuracy, completeness, and consistency of data (Creswell & Creswell, 2023). The grouping of participants was essential because the study sought to describe the reading and numeracy skill levels of learners with and without home-based tutoring and determine whether significant differences existed between the two groups. Reading skills were assessed in word recognition, fluency, vocabulary, and comprehension, while numeracy skills were assessed in number understanding, basic operations, interpretation of quantitative information, and mathematical problem-solving. These learning areas were relevant because foundational literacy and numeracy are central competencies that support learners' academic progress and participation in elementary education (UNICEF, 2022; World Bank, 2025). Overall, the selected participants provided the necessary data for determining

whether home-based tutoring was associated with higher reading and numeracy performance among elementary learners in Bolinao, Pangasinan (Creswell & Creswell, 2023; Field, 2024).

2.3 Instrumentation

The study used three main instruments to gather the necessary data: the Reading Skills Assessment Tool, the Numeracy Skills Assessment Tool, and the Home-Based Tutoring Classification Checklist. The Reading Skills Assessment Tool was used to assess the reading performance of elementary learners in word recognition, fluency, vocabulary, and comprehension. These indicators were appropriate because reading development requires learners to accurately recognize words, read fluently, understand word meanings, and comprehend written texts for meaningful learning (What Works Clearinghouse, 2022). The Numeracy Skills Assessment Tool was used to assess the numeracy performance of elementary learners in number understanding, basic operations, interpretation of quantitative information, and mathematical problem-solving. These indicators were relevant because numeracy is a foundational learning skill that helps learners understand numbers, perform mathematical procedures, interpret quantitative information, and solve routine or practical problems (World Bank, 2025). The Home-Based Tutoring Classification Checklist was used to determine whether the learner belonged to the home-based tutoring group or the non-home-based tutoring group. This checklist included information on the learner's tutoring status, tutoring frequency, tutor, and subject areas covered during home-based academic support. The use of these instruments was appropriate because the study aimed to compare the reading and numeracy skills of two independent groups based on their exposure to home-based tutoring (Creswell & Creswell, 2023). The assessment tools were designed to generate numerical scores that could be analyzed using descriptive statistics and comparative tests (Field, 2024). To ensure content validity, the instruments were submitted to qualified validators, such as master teachers, school heads, reading coordinators, mathematics coordinators, or research experts, who examined the tools for clarity, relevance, alignment with the research problems, appropriateness of items, and suitability for elementary learners (Creswell & Creswell, 2023). A pilot test may also be conducted among learners who were not included as actual respondents to determine whether the test items were clear, manageable, reliable, and aligned with the intended reading and numeracy indicators (Creswell & Creswell, 2023). Items found to be confusing, too easy, too difficult, or not aligned with the study indicators were revised or removed before the final administration of the instruments. The reading and numeracy assessments were scored using prepared answer keys, rubrics, or scoring guides to ensure consistent evaluation of learner performance (Field, 2024). Overall, the instruments provided valid and relevant data to determine the reading and numeracy levels of learners with and without home-based tutoring and to test whether significant differences existed between the two groups (Creswell & Creswell, 2023; Field, 2024).

2.4 Data Analysis

The data gathered from the Reading Skills Assessment Tool, Numeracy Skills Assessment Tool, and Home-Based Tutoring Classification Checklist were checked, scored, encoded, tabulated, analyzed, and interpreted in accordance with the study's specific research questions (Creswell & Creswell, 2023). The learners were first grouped according to tutoring status: learners with home-based tutoring and those without (Creswell & Creswell, 2023). Descriptive statistics were used to determine the level of reading and numeracy skills of both groups of elementary learners (Creswell & Creswell, 2023). The mean was used to describe learners' average reading performance in word recognition, fluency, vocabulary, and comprehension (Creswell & Creswell, 2023). The mean was also used to describe learners' average numeracy performance across number understanding, basic operations, interpretation of quantitative information, and mathematical problem-solving (Creswell & Creswell, 2023). Standard deviation was used to assess the extent of variation or consistency in learners' reading

and numeracy scores within each group (Field, 2024). The computed mean scores were interpreted using the descriptive scale adopted in the study to determine whether learners' performance levels were Excellent, Very Satisfactory, Satisfactory, Fairly Satisfactory, or Needs Improvement (Creswell & Creswell, 2023). To answer the first and second research questions, the mean and standard deviation were used to determine the reading and numeracy skill levels of learners who received home-based tutoring (Creswell & Creswell, 2023). To answer the third and fourth research questions, the same statistical tools were used to determine the reading and numeracy skill levels of learners who did not receive home-based tutoring (Creswell & Creswell, 2023). To answer the fifth research question, an independent-samples t-test was used to determine whether there was a significant difference in reading skills between learners with and without home-based tutoring (Field, 2024). To answer the sixth research question, an independent-samples t-test was also used to determine whether there was a significant difference in numeracy skills between learners with and without home-based tutoring (Field, 2024). This test was appropriate because the study compared the mean scores of two independent groups of learners based on tutoring status (Field, 2024). The level of significance was set at 0.05 to determine whether the observed differences between the groups were statistically significant (Field, 2024). If the computed p-value was less than or equal to 0.05, the difference was interpreted as statistically significant; if the p-value was greater than 0.05, the difference was interpreted as not statistically significant (Field, 2024). The results of the data analysis provided the empirical basis for determining whether home-based tutoring was associated with higher reading and numeracy performance among elementary learners in Bolinao, Pangasinan (UNICEF, 2022; World Bank, 2025). Overall, the statistical treatment enabled the researcher to describe the foundational learning levels of learners with and without home-based tutoring and to determine whether meaningful differences existed between the two groups (Creswell & Creswell, 2023; Field, 2024).

3. Results

The findings showed that elementary learners who received home-based tutoring obtained a Very Satisfactory level of reading skills, with an overall mean of 84.01. Among the reading indicators, word recognition had the highest mean of 86.45, followed by fluency (84.78), vocabulary (82.96), and comprehension (81.84). These results indicate that learners receiving home-based tutoring demonstrated strong reading performance, particularly in word recognition and fluency. However, comprehension obtained the lowest mean among the reading indicators, suggesting that learners still needed continued support in understanding, interpreting, and responding to written texts. This finding supports the view that reading development requires not only word reading accuracy but also vocabulary growth, fluency-building, and comprehension support (What Works Clearinghouse, 2022).

In numeracy, learners who received home-based tutoring also achieved a Very Satisfactory level, with an overall mean of 83.67. Number understanding had the highest mean of 85.72, followed by basic operations (84.36), interpretation of quantitative information (82.64), and mathematical problem-solving (81.95). These results show that learners with home-based tutoring performed well in recognizing numbers, understanding quantities, and performing basic mathematical operations. However, mathematical problem-solving obtained the lowest mean among the numeracy indicators, implying that learners still needed reinforcement in applying mathematical concepts to practical and word-based problems. This result is consistent with the understanding that numeracy involves more than computation because learners must also interpret quantitative information, reason mathematically, and solve problems (World Bank, 2025).

For learners who did not receive home-based tutoring, the findings showed a Satisfactory level of reading skills, with an overall mean of 74.16. Among the reading indicators, word recognition had the highest mean of 76.34, followed by fluency (74.89), vocabulary (73.42), and

comprehension (71.98). These results indicate that learners without home-based tutoring showed acceptable reading performance but still required additional support, especially in vocabulary and comprehension. In numeracy, learners without home-based tutoring also obtained a Satisfactory level, with an overall mean of 73.70. Number understanding had the highest mean of 75.86, followed by basic operations (74.38), interpretation of quantitative information (72.94), and mathematical problem-solving (71.62). These findings imply that non-tutored learners demonstrated basic reading and numeracy competence, but their lower scores suggest a need for structured reinforcement, guided practice, and closer learning support. Foundational learning support remains important because literacy and numeracy are essential for learners' continuing academic development (UNICEF, 2022; World Bank, 2025).

The test of significance revealed that learners with home-based tutoring performed significantly better in reading than those without it. The overall reading mean for learners with home-based tutoring was 84.01, while the overall reading mean for learners without home-based tutoring was 74.16, yielding a mean difference of 9.85. The computed t-value of 8.28 and the p-value of less than 0.001 indicated that the difference was statistically significant at the 0.05 level. The same significant pattern was observed in all reading indicators, namely word recognition, fluency, vocabulary, and comprehension. These results indicate that home-based tutoring was associated with higher reading performance among elementary learners. The finding suggests that additional guided reading practice, correction of reading errors, vocabulary reinforcement, oral reading activities, and comprehension questioning may have contributed to stronger reading outcomes. This aligns with reading intervention guidance emphasizing structured practice, fluency-building, vocabulary development, and comprehension support for learners who need reading assistance (What Works Clearinghouse, 2022).

The test of significance also revealed that learners with home-based tutoring performed significantly better in numeracy than those without it. The overall numeracy mean for learners with home-based tutoring was 83.67, while the overall numeracy mean for learners without home-based tutoring was 73.70, yielding a mean difference of 9.97. The computed t-value of 8.33 and the p-value of less than 0.001 indicated that the difference was statistically significant at the 0.05 level. Significant differences were also observed across all numeracy indicators, namely number understanding, basic operations, interpretation of quantitative information, and mathematical problem-solving. These findings suggest that home-based tutoring may serve as a meaningful support mechanism for strengthening elementary learners' numeracy skills through step-by-step explanation, repeated practice, immediate correction, and guided problem-solving. However, since the study used a descriptive-comparative design, the findings should be interpreted as evidence of significant differences associated with home-based tutoring rather than absolute proof that tutoring alone caused all observed differences. Overall, the results support the need to strengthen school-home collaboration, align tutoring activities with classroom competencies, monitor learner progress, and provide targeted support in comprehension, vocabulary, quantitative interpretation, and mathematical problem-solving (UNICEF, 2022; What Works Clearinghouse, 2021; World Bank, 2025).

4. Discussion

The findings revealed that elementary learners who received home-based tutoring performed better in reading and numeracy than those without it. Learners with home-based tutoring obtained a Very Satisfactory level in reading, while learners without home-based tutoring obtained a Satisfactory level. This result indicates that additional academic support at home may help learners strengthen foundational reading skills through guided practice, immediate correction, and closer monitoring of learning progress. The finding supports the view that foundational literacy is essential for future learning because reading enables learners to understand texts, follow instructions, interpret information, and participate meaningfully in classroom activities (UNICEF, 2022; World Bank, 2025).

The higher reading performance of learners with home-based tutoring may be attributed to the additional opportunities they had to practice word recognition, fluency, vocabulary, and comprehension. Among the reading indicators, word recognition obtained the highest mean among tutored learners, suggesting that home-based support may be especially helpful in reinforcing accurate word reading and repeated oral reading practice. However, comprehension had the lowest mean among the reading indicators, indicating that learners still needed support in understanding, interpreting, and responding to written texts. This finding aligns with reading intervention guidance, which emphasizes that effective reading support should address not only word-reading accuracy but also fluency, vocabulary, and comprehension development (What Works Clearinghouse, 2022).

The reading results of learners without home-based tutoring showed that they had Satisfactory performance but remained behind the tutored group across all indicators. This suggests that regular classroom instruction may have supported basic reading development, but some learners may still require additional reinforcement outside of class. Learners who do not receive home-based tutoring may have fewer opportunities for individualized reading practice, immediate feedback, vocabulary reinforcement, and comprehension questioning. This finding supports the idea that foundational learning gaps require targeted support, especially when learners need more time and guidance to master essential literacy skills (UNICEF, 2022; World Bank, 2025).

In numeracy, learners with home-based tutoring also achieved a Very Satisfactory level, while those without home-based tutoring achieved a Satisfactory level. The higher performance of tutored learners suggests that home-based tutoring may help strengthen number understanding, basic operations, interpretation of quantitative information, and mathematical problem-solving. Number understanding obtained the highest mean among learners with home-based tutoring, indicating that they performed well in recognizing numbers, understanding quantity, and identifying numerical relationships. This supports the view that numeracy is a foundational competence because learners need it to reason mathematically, solve problems, interpret information, and participate successfully in later learning tasks (World Bank, 2025).

Although learners with home-based tutoring performed well in numeracy, mathematical problem-solving obtained the lowest mean among the numeracy indicators. This suggests that even learners receiving additional support still need more practice in applying mathematical concepts to real-life and word-based problems. Problem-solving is more complex than computation because learners must understand the situation, identify relevant information, choose an operation, apply a strategy, and check the reasonableness of their answer. Mathematics intervention guidance recommends explicit and systematic instruction, use of representations, attention to mathematical language, and structured practice to support learners who struggle with mathematics (What Works Clearinghouse, 2021).

The significant difference in reading skills confirmed that learners with home-based tutoring performed better than those without it. The large mean difference between the two groups suggests that tutoring may have provided meaningful learning advantages through additional reading time, individualized support, immediate feedback, and repeated practice. This finding is consistent with evidence that high-quality tutoring can improve learning when it aligns with classroom teaching and is responsive to learners' needs (Education Endowment Foundation, 2022). The result also implies that reading support at home should not be limited to answering assignments but should also include guided oral reading, vocabulary development, comprehension discussion, and regular progress monitoring.

The significant difference in numeracy skills likewise confirmed that learners with home-based tutoring performed statistically better than those without it. This result indicates that home-based support may contribute to stronger mathematics performance when learners receive step-by-step explanations, practice with operations, error correction, and guided problem-solving. However, the descriptive-comparative nature of the study means that the findings should be

interpreted as significant differences associated with home-based tutoring rather than absolute proof that tutoring alone caused the observed performance gap. Other factors, such as learner motivation, parental support, attendance, learning materials, prior achievement, and tutor competence, may also influence reading and numeracy performance (Creswell & Creswell, 2023).

Overall, the findings support the need to strengthen school-home-community collaboration in improving foundational reading and numeracy skills. Home-based tutoring may be useful when it is structured, consistent, aligned with classroom competencies, and focused on learners' actual needs. Teachers may coordinate with parents and tutors by identifying target competencies, providing practice materials for reading and numeracy, monitoring learner progress, and providing feedback on areas for improvement. The results suggest that intervention efforts should prioritize comprehension, vocabulary, mathematical problem-solving, and the interpretation of quantitative information, as these indicators had lower means than basic recognition and procedural skills. Strengthening these areas may help learners move beyond basic performance toward deeper understanding, independent learning, and more confident participation in elementary education (UNICEF, 2022; What Works Clearinghouse, 2021; What Works Clearinghouse, 2022; World Bank, 2025).

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USE OF VISUAL REPRESENTATIONS IN IMPROVING THE MATHEMATICS CONCEPTUAL UNDERSTANDING OF GRADE SEVEN LEARNERS AT SEÑOR SANTIAGO LEARNING CENTER

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Abstract

Mathematics learning requires learners to move beyond memorized procedures toward meaningful conceptual understanding, interpretation, representation, and problem-solving. This study determined the effectiveness of visual representations in improving the conceptual understanding of mathematics among Grade Seven learners at Señor Santiago Learning Center. Specifically, it assessed learners' conceptual understanding before and after using visual representations, tested for a significant difference between pretest and posttest scores, identified challenges encountered during the intervention, and proposed an instructional enhancement plan based on the findings. The study employed a quasi-experimental one-group pretest–posttest design. The respondents were Grade Seven learners of Señor Santiago Learning Center who participated in mathematics instruction using visual representations. Data were gathered using researcher-developed pretest and posttest instruments on selected Grade Seven Mathematics concepts, together with a learner-response instrument that identified challenges encountered during the intervention. The visual representation-based instruction used diagrams, graphs, models, tables, number lines, illustrations, charts, manipulatives, and visual organizers to help learners connect mathematical symbols, words, visuals, and concepts. Descriptive statistics were used to assess learners' conceptual understanding before and after the intervention, and a paired-samples t-test was used to determine whether the pretest and posttest results differed significantly. Findings revealed that the learners had a low level of conceptual understanding before using visual representations, with a pretest mean of 73.40, indicating Did Not Meet Expectations. After the intervention, their posttest mean increased to 85.60, classified as Very Satisfactory. The mean difference of 12.20, the computed t-value of 13.10, and the p-value of 0.000 indicated a statistically significant improvement in learners' conceptual understanding. The learners encountered moderate challenges, particularly in connecting visual representations with mathematical symbols and formulas, interpreting graphs, charts, and tables, and applying visuals to word problems. Based on the findings, an instructional enhancement plan was proposed to strengthen learners' ability to interpret, connect, and apply mathematical ideas through visual representation-based learning.

Keywords: Visual Representations, Mathematics Conceptual Understanding, Grade Seven Learners, Diagrams, Graphs, Manipulatives, Señor Santiago Learning Center

1. Introduction

Mathematics is a foundational discipline because it develops learners' logical thinking, reasoning, problem-solving ability, and decision-making skills. In contemporary mathematics education, learners are expected not only to compute accurately but also to explain relationships, interpret patterns, represent situations, and apply mathematical ideas to real-life contexts. The Programme for International Student Assessment defines mathematical literacy as the capacity to reason mathematically and to formulate, employ, and interpret mathematics in solving real-world problems (Organisation for Economic Co-operation and Development [OECD], 2023). This definition supports the view that mathematics instruction should move beyond memorized rules and mechanical procedures toward deeper conceptual understanding and meaningful application.

In the Philippine basic education context, this direction is reflected in the MATATAG Mathematics Curriculum. The revised curriculum aims to develop learners who can solve mathematical problems critically, grounded in strong conceptual knowledge, mathematical processes, and a productive disposition toward mathematics (Department of Education [DepEd], 2023). This curricular goal indicates that mathematics learning should not be limited to procedural fluency. Rather, learners must understand why procedures work, how concepts are connected, and how mathematical representations can be used to interpret relationships and solve problems.

Conceptual understanding is especially important in Grade Seven because learners encounter increasingly abstract mathematical topics. The uploaded manuscript covers Grade Seven concepts, including regular and irregular polygons, angle relationships, percentages and rates, rational numbers, square roots, irrational numbers, sets and subsets, Venn diagrams, integers, algebraic expressions, equations, formulas, scientific notation, graphs, and data representations. These topics require learners to move across numerical, symbolic, verbal, and visual forms. When instruction relies mainly on formulas, verbal explanation, and repeated computation, some learners may perform steps without fully understanding the mathematical ideas behind them.

The need to strengthen conceptual understanding is supported by evidence from national and international assessments. In PISA 2022, only 16% of Filipino students reached at least Level 2 proficiency in mathematics, compared with the OECD average of 69%. At Level 2, students can interpret and recognize how a simple situation can be represented mathematically without direct instruction (OECD, 2023). Although these results do not directly measure Grade Seven learners at Señor Santiago Learning Center, they provide important educational context: many Filipino learners need stronger support in interpreting, representing, reasoning, and applying mathematics.

Visual representations offer a practical instructional strategy for addressing this need. In mathematics instruction, visual representations may include diagrams, graphs, models, tables, number lines, illustrations, charts, manipulatives, and visual organizers. The uploaded manuscript identifies these tools as the primary instructional supports for improving mathematics conceptual understanding among Grade Seven learners. These representations help make abstract concepts more concrete by allowing learners to see relationships among quantities, patterns, operations, shapes, data, and symbols. In this sense, visuals serve as bridges between mathematical language and conceptual meaning.

Research supports the instructional value of visualization in mathematics learning. A meta-analysis titled *Learning with visualizations helps: A meta-analysis of visualization interventions in mathematics education* reported that visualization interventions produced a positive medium effect on mathematics learning across 41 studies involving 10,562 participants (Schoenherr et al., 2024). This evidence supports the use of visual representations because learners often understand mathematical concepts better when ideas are presented in clear, organized, and connected forms. For Grade Seven learners, diagrams may clarify geometric relationships, number lines may support understanding of integers and rational numbers, graphs may help interpret data, and Venn diagrams may make set relationships more understandable.

The use of visual representations is also consistent with concept-based and constructivist approaches to mathematics instruction. Concept-based instruction emphasizes understanding relationships among ideas rather than memorizing isolated procedures. Ncube and Luneta (2025) examined concept-based instruction in mathematics and reported its relevance in improving learners' understanding and performance. This supports the present study because visual representations allow learners to construct meaning by connecting symbols, words, figures, and real-life situations. Instead of simply being told what a formula means, learners can observe, manipulate, compare, classify, draw, and explain mathematical relationships.

At Señor Santiago Learning Center, the study addresses a practical classroom need: how to help Grade Seven learners develop stronger conceptual understanding through visual

representation-based instruction. The uploaded manuscript clarifies that the study will determine learners' level of mathematics conceptual understanding before and after the use of visual representations, examine the significant difference between pretest and posttest scores, identify challenges encountered during the intervention, and propose an instructional enhancement plan based on the findings. This approach is important because it does not merely assume that visual representations are effective; it tests their effect using classroom-based evidence from the actual learners.

Accordingly, this study determined the effectiveness of visual representations in improving the conceptual understanding of mathematics among Grade Seven learners at Señor Santiago Learning Center. Specifically, it assessed learners' conceptual understanding before and after the intervention, tested for a significant difference between their pretest and posttest performance, identified challenges encountered when using visual representations, and proposed an instructional enhancement plan. By focusing on visual tools such as diagrams, graphs, models, tables, number lines, illustrations, charts, manipulatives, and visual organizers, the study aimed to make mathematics more concrete, meaningful, and accessible for Grade Seven learners.

2. Method

2.1 Research Design

The study employed a quasi-experimental research design, specifically the one-group pretest–posttest design, to determine the effectiveness of visual representations in improving the conceptual understanding of mathematics among Grade Seven learners at Señor Santiago Learning Center. This design was appropriate because the study involved one intact group of learners who were assessed before and after exposure to the instructional intervention. The pretest was administered to establish the learners' initial level of conceptual understanding in mathematics, while the posttest was administered after the use of visual representations to determine whether improvement occurred. The intervention used diagrams, graphs, models, tables, number lines, illustrations, charts, manipulatives, and visual organizers as instructional tools to help learners connect mathematical symbols, words, visuals, and concepts. In methodological terms, the one-group pretest–posttest design is suitable when the researcher intends to measure changes in the same group after an instructional treatment, although random assignment and a separate control group are not used (Campbell & Stanley, 1963; Creswell & Creswell, 2018; Shadish et al., 2002). In this study, random assignment was not feasible because the respondents were from an existing Grade Seven class; therefore, the quasi-experimental design allowed the researcher to evaluate performance changes within the actual classroom setting. The comparison of pretest and posttest scores provided empirical evidence on whether visual representation-based instruction contributed to improved conceptual understanding in mathematics. However, since the design did not include a control group, the results were interpreted within the study's limitations and were primarily intended to provide classroom-based evidence to improve mathematics instruction at Señor Santiago Learning Center.

2.2 Participants

The study participants were the Grade Seven learners of Señor Santiago Learning Center who were officially enrolled during the study and who participated in the mathematics instruction using visual representations. They served as the primary respondents because the study specifically aimed to determine whether the use of diagrams, graphs, models, tables, number lines, illustrations, charts, manipulatives, and visual organizers could improve their conceptual understanding of mathematics. The respondents were exclusively Grade Seven learners from the said school; learners from other grade levels or schools were not included. These learners were considered appropriate participants because the Grade Seven Mathematics curriculum includes abstract and representation-based topics such as rational numbers, sets, Venn diagrams,

integers, algebraic expressions, equations, polygons, graphs, and data representations, which require learners to interpret relationships, connect symbols with meaning, and apply concepts in problem-solving contexts. The participants completed a pretest to determine their initial level of mathematics conceptual understanding, received instruction using visual representations, completed a posttest after the intervention, and answered a learner-response instrument to identify the challenges they encountered when using visual representations. Since the study was conducted at one school and focused on one grade level, the findings were interpreted within the context of Señor Santiago Learning Center and were intended primarily to guide the improvement of mathematics instruction for Grade Seven learners in similar learning environments.

2.3 Instrumentation

The study utilized researcher-developed pretest and posttest instruments as the primary tools for measuring the mathematics conceptual understanding of Grade Seven learners at Señor Santiago Learning Center. The pretest was administered before the use of visual representations to determine the learners' baseline conceptual understanding, while the posttest was administered after the intervention to measure improvement in their ability to interpret mathematical concepts, explain relationships, connect symbols with words and visuals, and apply concepts in problem-solving contexts. The test items were based on selected Grade Seven Mathematics concepts where visual representations were applicable, particularly topics involving relationships, patterns, quantities, operations, graphs, tables, number lines, diagrams, models, illustrations, charts, manipulatives, and visual organizers. In addition to the pretest and posttest, a learner-response instrument was used to identify the challenges learners encountered when using visual representations in mathematics instruction. This instrument helped determine difficulties in connecting visuals to mathematical symbols and formulas, interpreting graphs, charts, and tables, and applying visual representations to word problems. The use of these instruments was appropriate because the study aimed not only to measure learners' performance before and after the intervention but also to identify the specific challenges that affected their learning experience. The visual representation-based instructional materials served as the intervention tools and included diagrams, graphs, models, tables, number lines, illustrations, charts, manipulatives, and visual organizers to make abstract mathematical concepts more concrete, visible, and meaningful. Overall, the instruments generated the necessary data to determine learners' levels of conceptual understanding before and after the intervention, test for significant differences between pretest and posttest results, identify implementation challenges, and develop an instructional enhancement plan for Grade Seven Mathematics.

2.4 Data Analysis

The data gathered from the pretest, posttest, and learner-response instrument were organized, checked, scored, encoded, and analyzed using descriptive and inferential statistical tools. The mean and standard deviation were used to determine the Grade Seven learners' level of conceptual understanding in mathematics before and after the use of visual representations. The mean described the learners' average pretest and posttest performance, while the standard deviation described the variability of scores within the group. Frequency counts and percentages were also used to classify learners by performance level before and after the intervention. To determine whether a significant difference existed between the learners' pretest and posttest scores, the paired-samples t-test was employed. This statistical tool was appropriate because the same group of learners was tested twice: first before exposure to diagrams, graphs, models, tables, number lines, illustrations, charts, manipulatives, and visual organizers, and again after using these visual representations in mathematics instruction. The level of significance was set at 0.05, which determined whether to accept or reject the null hypothesis. This procedure was appropriate for a one-group pretest–posttest design because it determines whether the observed difference between two related sets of scores is statistically significant (Campbell & Stanley, 1963;

Creswell & Creswell, 2018; Shadish et al., 2002). In addition, weighted means, frequency counts, percentages, and rankings were used to analyze the challenges learners encountered during the intervention, particularly difficulties connecting visuals to mathematical symbols and formulas, interpreting graphs, charts, and tables, and applying visual representations to word problems. The results of the statistical analysis served as the empirical basis for developing the proposed instructional enhancement plan, which prioritized areas with lower performance and greater learner difficulty.

3. Results

The results showed that, before the use of visual representations, the Grade Seven learners at Señor Santiago Learning Center had a low level of conceptual understanding in mathematics. The pretest result was interpreted as Did Not Meet Expectations, indicating that many learners had difficulty interpreting mathematical concepts, explaining relationships, connecting mathematical symbols with meaning, and applying mathematical ideas in problem-solving situations. This finding established the need for an instructional strategy that could make mathematical concepts more concrete, visible, and understandable.

After implementing visual representation-based instruction, learners' conceptual understanding of mathematics improved. The posttest mean score was 85.60, interpreted as Very Satisfactory. This result indicates that learners became more capable of understanding mathematical concepts, interpreting relationships, connecting visual forms with symbols and words, and applying mathematical ideas in problem-solving after being exposed to diagrams, graphs, models, tables, number lines, illustrations, charts, manipulatives, and visual organizers.

The comparison between the pretest and posttest results further confirmed the positive effect of visual representations. The study reported a mean difference of 12.20, a computed t-value of 13.10, and a p-value of 0.000, which is lower than the 0.05 level of significance. Therefore, the null hypothesis was rejected. This means that there was a statistically significant difference between the learners' pretest and posttest scores, indicating that the use of visual representations significantly improved their conceptual understanding of mathematics.

The study also revealed that learners encountered moderate challenges when using visual representations, with an overall weighted mean of 3.32. The most prominent challenge was connecting visual representations with mathematical symbols and formulas. Other difficulties included interpreting graphs, charts, and tables; needing more teacher guidance in using diagrams, models, and visual organizers; applying visual representations to word problems; experiencing confusion from excessive visuals; and explaining answers using visual representations.

Based on these findings, the study proposed a Visual-Based Mathematics Instruction Enhancement Plan for Improving the Conceptual Understanding of Grade Seven Learners. The plan was designed to strengthen learners' abilities to connect visuals with symbols, interpret graphs and tables, use number lines, apply visual representations in word problems, and engage in guided practice with manipulatives and models. Overall, the results indicate that visual representations were effective instructional tools for improving Grade Seven learners' conceptual understanding of mathematics, but continued teacher guidance, clearer visual materials, gradual presentation of visual tools, and structured practice remain necessary to sustain the gains.

4. Discussion

The study's findings confirm that the use of visual representations significantly improved the conceptual understanding of mathematics among Grade Seven learners at Señor Santiago Learning Center. Before the intervention, learners demonstrated a low level of conceptual understanding, as indicated by a Did Not Meet Expectations rating, indicating difficulty interpreting mathematical relationships, connecting symbols to meaning, and applying concepts in problem-solving situations. After using visual representations, their posttest mean increased to 85.60,

indicating Very Satisfactory. This improvement suggests that diagrams, graphs, models, tables, number lines, illustrations, charts, manipulatives, and visual organizers helped learners make abstract mathematical ideas more concrete, visible, and understandable.

The improvement supports the view that mathematics instruction should develop conceptual understanding, not only procedural fluency. The MATATAG Mathematics Curriculum emphasizes that learners should develop strong mathematical knowledge, conceptual understanding, strategic skills, and a positive disposition toward mathematics (Department of Education, 2023). This is consistent with the present findings because visual representations allowed learners to connect mathematical symbols, words, and visuals rather than rely solely on memorized formulas or mechanical procedures. The study therefore supports instruction that helps learners explain why mathematical processes work and how concepts are related.

The statistically significant difference between the pretest and posttest results further strengthens the intervention's effectiveness. The study reported a mean difference of 12.20, a computed t-value of 13.10, and a p-value of 0.000, which is lower than the 0.05 level of significance. Thus, the null hypothesis was rejected, indicating that the improvement in learners' conceptual understanding of mathematics was statistically significant. This result is consistent with Schoenherr, Strohmaier, and Schukajlow's (2024) meta-analysis, which found that visualization interventions produced a positive effect on mathematics learning. It also supports Parame-Decin's (2023) assertion that visual representations help learners understand abstract concepts and solve mathematical problems.

The findings also affirm the importance of representation-based mathematics instruction. Grade Seven Mathematics includes topics such as rational numbers, integers, sets, Venn diagrams, algebraic expressions, equations, polygons, graphs, and data representations, all of which require learners to interpret relationships and move across verbal, numerical, symbolic, and visual forms (Department of Education, 2023). When learners see mathematical ideas through visual tools, they are better able to organize information, compare values, identify patterns, and understand connections among concepts. This supports the argument of Ncube and Luneta (2025) that concept-based instruction strengthens learners' depth of understanding, transfer of learning, engagement, and mathematical performance.

However, the learners still encountered moderate challenges during the intervention, with an overall weighted mean of 3.32. The most prominent challenge was connecting visual representations with mathematical symbols and formulas. Other difficulties included interpreting graphs, charts, and tables; applying visual representations to word problems; needing more teacher guidance; experiencing confusion when too many visuals were presented; and explaining answers using visual representations. These findings imply that visual representations are effective, but they must be introduced gradually, clearly, and with sufficient teacher facilitation. Visual tools should not simply be shown to learners; they must be explicitly connected to mathematical language, symbols, formulas, and problem-solving steps.

The challenges learners encounter also support the need for guided and scaffolded instruction. Visual representations may reduce abstraction, but learners still need help interpreting their meanings and how they relate to mathematical procedures. This is consistent with constructivist learning principles, which hold that learners construct understanding through active engagement, prior knowledge, guided practice, and meaningful interaction (Creswell & Creswell, 2018). It is also consistent with cognitive load theory, which suggests that instructional materials should be designed to support understanding without overwhelming learners. Thus, teachers should use clear visuals, limit unnecessary details, provide step-by-step modeling, and allow learners to explain their reasoning using both visual and symbolic forms.

Overall, the findings justify the proposed Visual-Based Mathematics Instruction Enhancement Plan for Improving the Conceptual Understanding of Grade Seven Learners. The plan should prioritize activities that strengthen learners' ability to connect visuals with symbols, interpret tables and graphs, use number lines and diagrams, apply visual representations in word

problems, and explain mathematical reasoning. The results suggest that visual representations are effective instructional tools, but their success depends on careful selection, guided explanation, repeated practice, and integration with mathematical concepts. Therefore, the study supports the continued use of visual representation-based instruction to make Grade Seven Mathematics more meaningful, accessible, and conceptually grounded.

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IMPROVING VOCABULARY MASTERY THROUGH INTERACTIVE STORYTELLING AMONG GRADE FOUR LEARNERS OF CREATIVE GEMS LEARNING CENTER, INC

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Abstract

Vocabulary mastery is a foundational component of language learning because it enables learners to understand word meanings, recognize vocabulary in texts, use words accurately in sentences, and interpret meanings based on context. This study determined the effectiveness of interactive storytelling in enhancing the vocabulary mastery of Grade Four learners at Creative Gems Learning Center, Inc. Specifically, it assessed learners' vocabulary mastery before and after the implementation of interactive storytelling in terms of word meaning, word recognition, word usage in sentences, and contextual understanding; tested the significant difference between pretest and posttest scores; identified challenges encountered during the intervention; and proposed an instructional enhancement plan based on the findings. The study employed a pre-experimental one-group pretest–posttest research design. The respondents were 40 Grade Four learners selected through total enumeration sampling. A researcher-developed vocabulary mastery test was used as the primary instrument to gather pretest and posttest data. The interactive storytelling intervention included story presentation, guided questioning, prediction activities, repetition of target words, dramatization, retelling, and oral or written vocabulary activities. Findings revealed that learners had a moderate level of vocabulary mastery before the intervention. After using interactive storytelling, learners achieved a high level of vocabulary mastery, demonstrating improvement across all vocabulary indicators. The overall pretest mean of 2.59 increased to a posttest mean of 4.10, resulting in a mean difference of 1.51. The computed t-value of 17.36 and p-value of less than .001 indicated a statistically significant difference between the pretest and posttest results; thus, the null hypothesis was rejected. The most common challenge encountered was difficulty using newly learned vocabulary in sentences. Based on the findings, the study proposed STORY-WORDS: An Interactive Storytelling-Based Instructional Enhancement Plan for Grade Four Vocabulary Mastery.

Keywords: Interactive Storytelling, Vocabulary Mastery, Grade Four Learners, Word Meaning, Word Recognition, Sentence Usage, Contextual Understanding

1. Introduction

Vocabulary mastery is a fundamental component of language learning because it enables learners to recognize, understand, and use words meaningfully in listening, speaking, reading, and writing tasks. In the elementary grades, vocabulary does not function merely as a set of words to memorize; rather, it serves as a linguistic foundation for comprehension, oral expression, written communication, and classroom participation. Recent literature emphasizes that vocabulary instruction is central to literacy development and that breadth and depth of vocabulary support learners' ability to recognize words in context and comprehend texts (Zeng et al., 2025). This makes vocabulary mastery especially important among Grade Four learners, who are expected to understand increasingly complex stories, informational texts, classroom directions, and subject-related vocabulary.

Vocabulary mastery is closely associated with reading comprehension because learners cannot fully understand sentences, paragraphs, and extended texts without sufficient knowledge

of word meanings. The uploaded manuscript explains that Grade Four learners must develop vocabulary skills not only in word meaning but also in word recognition, word usage in sentences, and contextual understanding. This multidimensional view is supported by vocabulary research, which shows that teaching word meanings supports comprehension and that instruction involving active word processing is generally more useful than definition-based or dictionary-only methods (Wright & Cervetti, 2017). Therefore, vocabulary instruction should help learners encounter words repeatedly, understand meanings deeply, and use words in meaningful contexts.

In the Philippine basic education context, vocabulary development is aligned with the goals of the MATATAG English Curriculum. The DepEd MATATAG English Curriculum for Grades 4 and 7 presents language learning as a means of developing communication, literacy, interpretation, expression, and participation in society (Department of Education, 2023). This curricular direction supports the need for vocabulary instruction that goes beyond word recall. Learners must be able to interpret vocabulary in texts, explain ideas using appropriate words, and participate actively in language activities. Thus, strengthening vocabulary mastery among Grade Four learners is directly connected to the broader goal of developing communicative and literate learners.

Despite its importance, vocabulary mastery remains challenging for many elementary learners. The uploaded manuscript notes that learners may recognize words while reading but still struggle to explain meanings, use words accurately in sentences, or interpret meanings based on context. These difficulties become more visible in Grade Four because learners are already expected to read longer selections and understand vocabulary used in stories, poems, instructions, and content-area lessons. The University of Virginia Literacy Partnerships also emphasizes that literacy instruction for Grades 4–8 should support evidence-based reading instruction, including vocabulary-related skills necessary for comprehension and written expression (University of Virginia Literacy Partnerships, 2023).

Traditional vocabulary instruction often relies on copying definitions, memorizing word lists, and answering isolated vocabulary drills. While these activities may help learners temporarily recall words, they may not be sufficient for deep, flexible, and functional vocabulary learning. Vocabulary mastery requires learners to understand words in context, use them in sentences, and connect them with ideas, experiences, and texts. This is consistent with research showing that vocabulary instruction should connect theory, research, and classroom practice, particularly because vocabulary knowledge supports reading comprehension and writing outcomes (Zeng et al., 2025). Therefore, teachers need strategies that make vocabulary learning active, contextualized, and meaningful.

Interactive storytelling offers a promising instructional strategy for vocabulary development because it embeds words within meaningful narratives, characters, events, emotions, and situations. Instead of presenting vocabulary as isolated terms, storytelling allows learners to encounter words in context and connect meanings with actions, images, dialogue, and story events. Research on digital storytelling indicates that storytelling can enhance vocabulary acquisition among young learners by integrating visual, auditory, and textual elements that support understanding and retention (Banoth & Muthyala, 2025). Although the present study focuses on interactive storytelling rather than purely digital storytelling, the same principle applies: vocabulary learning becomes stronger when learners interact with words through meaningful, engaging, and multimodal experiences.

The interactive nature of storytelling is particularly suitable for Grade Four learners because it allows them to participate actively in the learning process. Learners can listen to stories, predict events, answer questions, repeat key words, dramatize scenes, retell story parts, and use newly learned vocabulary in oral or written responses. The uploaded manuscript identifies these activities as part of the intervention and links them to vocabulary mastery in word meaning, word recognition, sentence usage, and contextual understanding. This approach

reflects child-centered language learning because learners are not passive receivers of definitions; they become active users of words in meaningful communicative situations.

The local context of Creative Gems Learning Center, Inc. further justifies the study. Grade Four learners in the school are expected to use language for broader academic and communicative purposes, including reading comprehension, classroom discussion, written responses, and interpretation of texts. However, the effectiveness of interactive storytelling cannot simply be assumed based on studies from other countries, grade levels, or learning environments. The uploaded manuscript identifies the need to generate classroom-based evidence on whether interactive storytelling can improve learners' vocabulary mastery in the actual setting of Creative Gems Learning Center, Inc.

Accordingly, this study determined the effectiveness of interactive storytelling in enhancing vocabulary mastery among Grade Four learners at Creative Gems Learning Center, Inc. Specifically, it assessed learners' vocabulary mastery before and after the implementation of interactive storytelling in terms of word meaning, word recognition, word usage in sentences, and contextual understanding. By comparing pretest and posttest results, the study aimed to determine whether interactive storytelling improved vocabulary mastery. Ultimately, the study provides localized evidence that may help teachers design vocabulary lessons that are more engaging, participatory, contextualized, and developmentally appropriate for Grade Four learners.

2. Method

2.1 Research Design

The study employed a pre-experimental research design, specifically the one-group pretest–posttest design, to determine the effectiveness of interactive storytelling in enhancing vocabulary mastery among Grade Four learners at Creative Gems Learning Center, Inc. This design was appropriate because the study involved one intact group of learners who were assessed before and after exposure to the instructional intervention. The pretest measured the learners' baseline vocabulary mastery before the implementation of interactive storytelling, while the posttest measured their vocabulary mastery after the intervention. In educational research, the one-group pretest–posttest design is commonly used when the researcher seeks to determine whether measurable improvement occurs after a teaching strategy or intervention is implemented with the same group of participants (Campbell & Stanley, 1963; Creswell & Creswell, 2018; Shadish et al., 2002). In this study, vocabulary mastery was assessed in terms of word meaning, word recognition, word use in sentences, and contextual understanding, which served as the basis for comparing learners' performance before and after interactive storytelling. The intervention involved story presentation, guided questioning, prediction activities, repetition of target words, dramatization, retelling, and oral or written vocabulary tasks, allowing learners to encounter and use vocabulary in meaningful narrative contexts. The difference between the pretest and posttest scores provided empirical evidence on whether interactive storytelling contributed to improvement in learners' vocabulary mastery. Although the absence of a control group limits the ability to rule out all alternative explanations, the design remained suitable for the study because it generated classroom-based evidence on vocabulary gains among the Grade Four learners in the actual instructional setting of Creative Gems Learning Center, Inc. (Creswell & Creswell, 2018; Shadish et al., 2002).

2.2 Participants

The study was conducted with 40 Grade Four learners from Creative Gems Learning Center, Inc., who were officially enrolled at the time the study was conducted. These learners served as the primary respondents because they directly participated in the interactive storytelling intervention and completed both the pretest and posttest on vocabulary mastery. They were considered the most appropriate participants because the study specifically aimed to determine

the effectiveness of interactive storytelling in enhancing vocabulary mastery among Grade Four learners in terms of word meaning, word recognition, word usage in sentences, and contextual understanding. The study employed total enumeration sampling, wherein all 40 Grade Four learners in the identified population were included as respondents. This sampling procedure was appropriate because the population was manageable, accessible, and directly involved in the instructional intervention. The respondents were selected based on the following criteria: official enrollment as Grade Four learners at Creative Gems Learning Center, Inc., participation in the interactive storytelling activities, and completion of both the pretest and posttest. Including the entire Grade Four population enabled the study to conduct a comprehensive classroom-based assessment of learners' vocabulary mastery before and after the intervention. Since the study was conducted in one school and focused only on Grade Four learners who participated in the intervention, the findings were interpreted primarily within the context of Creative Gems Learning Center, Inc., and were not intended for direct generalization to all Grade Four learners in other schools.

2.3 Instrumentation

The study used a researcher-developed vocabulary mastery test as the primary instrument to assess the vocabulary performance of Grade Four learners at Creative Gems Learning Center, Inc. The test was administered twice: first as a pretest to assess learners' baseline vocabulary mastery before the implementation of interactive storytelling, and second as a posttest to assess their vocabulary mastery after the intervention. The instrument was constructed using target vocabulary words taken from the stories used during the interactive storytelling sessions. It assessed learners' vocabulary mastery in four domains: word meaning, word recognition, word usage in sentences, and contextual understanding. The word meaning component measured learners' ability to identify the correct meaning of target words; the word recognition component assessed their ability to recognize vocabulary words accurately; the word usage in sentences component measured their ability to use newly learned words appropriately in meaningful sentences; and the contextual understanding component assessed their ability to infer word meanings from sentence or story contexts. The use of these four domains was appropriate because vocabulary mastery requires more than memorizing definitions; learners must also recognize words, understand meanings, use words accurately, and interpret vocabulary in context (Wright & Cervetti, 2017; Zeng et al., 2025). The test was evaluated by qualified professionals, including English teachers, elementary language instructors, and research advisers, to ensure clarity, relevance, grade-level appropriateness, and alignment with the study's objectives. Revisions were made based on expert feedback before the final administration of the instrument. In addition to the vocabulary mastery test, the intervention used an interactive storytelling procedure composed of story presentation, guided questioning, prediction exercises, repetition of target vocabulary, dramatization, retelling, and oral or written vocabulary activities. These activities supported the administration of the posttest by providing learners with repeated, meaningful exposure to target vocabulary before their post-intervention performance was measured. Overall, the instruments and intervention procedures were suitable because they generated quantitative data to compare learners' vocabulary mastery before and after interactive storytelling and provided evidence of the strategy's effectiveness in improving vocabulary development among Grade Four learners.

2.4 Data Analysis

The data gathered from the vocabulary mastery test were organized, tabulated, scored, and analyzed using both descriptive and inferential statistical techniques. Weighted mean and standard deviation were used to determine the level of vocabulary mastery of Grade Four learners before and after the implementation of interactive storytelling, in terms of word meaning, word recognition, word use in sentences, and contextual understanding. These descriptive statistics

enabled the researcher to determine the learners' average performance and the consistency of their responses across the four vocabulary domains. The weighted mean was interpreted using the established descriptive scale to determine whether learners demonstrated low, moderate, high, or very high levels of vocabulary mastery. To determine whether a significant difference existed between the learners' pretest and posttest scores, the paired-samples t-test was employed. This inferential statistical tool was appropriate because the same group of Grade Four learners was tested twice—before and after exposure to the interactive storytelling intervention—making the data dependent and related (Campbell & Stanley, 1963; Creswell & Creswell, 2018; Shadish et al., 2002). The level of significance was set at 0.05, which determined whether to accept or reject the null hypothesis. If the computed p-value was less than 0.05, the null hypothesis of no significant difference was rejected, indicating that the intervention had a statistically significant effect on vocabulary mastery. In addition, frequency counts, percentages, weighted means, and rankings were used to identify and describe the challenges encountered by learners during the implementation of interactive storytelling. These procedures enabled the researcher to determine the most frequently experienced difficulties and provided empirical bases for the formulation of the proposed instructional enhancement plan. Overall, the selected statistical tools were appropriate because they allowed the study to describe learners' vocabulary mastery, determine the effectiveness of interactive storytelling, identify implementation challenges, and generate evidence-based recommendations for vocabulary instruction among Grade Four learners.

3. Results

The results showed that before the implementation of interactive storytelling, the Grade Four learners of Creative Gems Learning Center, Inc. demonstrated a moderate level of vocabulary mastery, with an overall pretest mean of 2.59. Among the four vocabulary indicators, word recognition obtained the highest mean of 2.91, indicating that learners were relatively more capable of identifying vocabulary words before the intervention. However, word usage in sentences obtained the lowest mean of 2.35, suggesting that learners had greater difficulty using newly learned words meaningfully in written or oral sentence construction. These findings indicate that learners had an existing vocabulary foundation but still needed support in applying words accurately and appropriately in context.

After implementing interactive storytelling, learners' vocabulary mastery improved to a high level, with an overall posttest mean of 4.10. All indicators improved after the intervention, with word recognition reaching the highest mean of 4.35, followed by word meaning (4.18), contextual understanding (4.02), and word usage in sentences (3.86). These results show that the learners became more capable of recognizing vocabulary words, understanding their meanings, interpreting words in context, and using them in sentences after participating in interactive storytelling activities.

The comparison between the pretest and posttest results confirmed a substantial improvement in the learners' vocabulary mastery. The overall mean increased from 2.59 in the pretest to 4.10 in the posttest, producing a mean difference of 1.51. The computed t-value of 17.36 and p-value of less than .001 indicated that the improvement was statistically significant at the 0.05 level; therefore, the null hypothesis was rejected. This means that interactive storytelling significantly enhanced the vocabulary mastery of the Grade Four learners.

The study also revealed that learners encountered challenges when using interactive storytelling. The most common challenge was difficulty using newly learned vocabulary words in sentences, reported by 18 learners (45.00%). This was followed by difficulty understanding unfamiliar words during storytelling (16 learners, 40.00%) and limited confidence in answering questions orally (14 learners, 35.00%). Other challenges included difficulty interpreting word meanings in the context of the story, difficulty retelling story events using target vocabulary,

shyness during dramatization, difficulty remembering target words, and a short attention span during longer storytelling sessions.

Based on these findings, the study proposed STORY-WORDS: An Interactive Storytelling-Based Instructional Enhancement Plan for Grade Four Vocabulary Mastery. The plan was designed to sustain the gains from interactive storytelling and address remaining vocabulary difficulties through vocabulary unlocking, repeated exposure to target words, guided questioning, context-clue activities, sentence construction, oral sharing, retelling, dramatization, vocabulary journals, and regular assessment. Overall, the results indicate that interactive storytelling is an effective and engaging strategy for improving vocabulary mastery among Grade Four learners at Creative Gems Learning Center, Inc.

4. Discussion

The study's findings indicate that interactive storytelling significantly enhanced vocabulary mastery among Grade Four learners at Creative Gems Learning Center, Inc. Before the intervention, learners demonstrated only a moderate level of vocabulary mastery, with an overall pretest mean of 2.59. After implementing interactive storytelling, their vocabulary mastery improved to a high level, with an overall posttest mean of 4.10. This improvement shows that learners benefited from vocabulary instruction that was embedded in meaningful stories, guided questioning, prediction activities, repetition of target words, dramatization, retelling, and oral or written vocabulary tasks. This result supports the view that vocabulary learning is strengthened when learners encounter words repeatedly and meaningfully rather than through isolated memorization alone (Wright & Cervetti, 2017; Zeng et al., 2025).

The improvement across all vocabulary indicators further confirms the value of interactive storytelling as a language-learning strategy. Word recognition obtained the highest posttest mean of 4.35, followed by word meaning with 4.18, contextual understanding with 4.02, and word usage in sentences with 3.86. These results suggest that storytelling was especially effective in helping learners recognize vocabulary words and understand their meanings, while also improving their ability to interpret words in context and use them in sentences. This finding is consistent with the claim that vocabulary mastery is multidimensional: learners must not only remember definitions but also recognize words, understand meanings, use words accurately, and interpret meanings within context (University of Virginia Literacy Partnerships, 2023; Wright & Cervetti, 2017; Zeng et al., 2025).

The statistically significant difference between the pretest and posttest scores strengthens the conclusion that interactive storytelling was effective. The overall mean increased from 2.59 to 4.10, with a mean difference of 1.51. The computed t-value of 17.36 and p-value of less than .001 show that the improvement was statistically significant; therefore, the null hypothesis was rejected. This finding means that the observed vocabulary gains were not merely descriptive improvements but were supported by inferential evidence. In classroom terms, the learners became more capable of understanding word meanings, recognizing target vocabulary, using words in sentences, and interpreting vocabulary through context after participating in interactive storytelling.

The findings are supported by the literature, which emphasizes that storytelling provides a meaningful context for vocabulary development. Banoth and Muthyala (2025) reported that storytelling can enhance vocabulary acquisition among young learners by integrating visual, auditory, and textual elements that support contextual understanding and retention. Similarly, Nami and Asadnia (2024) emphasized that storytelling allows learners to contextualize vocabulary in meaningful narratives and engage cognitively and affectively with words. These claims support the present result because interactive storytelling helped learners encounter vocabulary within stories, characters, events, and situations rather than as isolated word lists. This made vocabulary learning more concrete, memorable, and meaningful for Grade Four learners.

The study also supports the principles of the MATATAG English Curriculum, which emphasizes communication, literacy, interpretation, expression, and meaningful participation in language learning (Department of Education, 2023). Interactive storytelling aligns with this direction because it allows learners to listen, speak, interpret, answer questions, retell events, dramatize scenes, and use new words in oral or written responses. In this way, vocabulary instruction becomes more than word recall. It becomes a communicative activity where learners actively construct meaning, connect words to experiences, and practice using language in purposeful contexts.

However, the results also show that some vocabulary difficulties remained after the intervention. The most common challenge was difficulty using newly learned vocabulary words in sentences, reported by 18 learners (45.00%). Other challenges included difficulty understanding unfamiliar words during storytelling, limited confidence in answering questions orally, difficulty interpreting word meanings in the context of the story, difficulty retelling events using target vocabulary, shyness during dramatization, difficulty remembering target words, and a short attention span during longer storytelling sessions. These findings imply that while interactive storytelling improved vocabulary mastery, learners still need more structured sentence-building activities, guided oral practice, repeated vocabulary exposure, and confidence-building tasks. This is consistent with vocabulary research indicating that deeper vocabulary learning requires repeated use of words across contexts, not merely exposure during reading or listening activities (Wright & Cervetti, 2017; Zeng et al., 2025).

Overall, the findings justify the proposed STORY-WORDS: An Interactive Storytelling-Based Instructional Enhancement Plan for Grade Four Vocabulary Mastery. The plan is appropriate because it responds directly to the learners' improved posttest performance and remaining challenges in sentence usage, contextual understanding, oral confidence, and vocabulary retention. The plan may strengthen vocabulary instruction by integrating vocabulary unlocking, repeated exposure, context-clue activities, guided questioning, retelling, dramatization, vocabulary journals, sentence construction, and regular assessment. Therefore, interactive storytelling may be considered an effective and developmentally appropriate strategy for enhancing Grade Four learners' vocabulary mastery, especially when implemented with structured follow-up activities that support word meaning, recognition, sentence use, and contextual understanding.

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IMPROVING READING COMPREHENSION THROUGH CONTEXTUALIZED ENGLISH MODULES AMONG GRADE TEN LEARNERS OF SEÑOR SANTIAGO LEARNING CENTER

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Abstract

Reading comprehension is a foundational academic skill that enables learners to understand, interpret, evaluate, and apply written information across learning areas. This study determined the effectiveness of contextualized English modules in enhancing the reading comprehension skills of Grade Ten learners at Señor Santiago Learning Center. Specifically, it assessed learners' reading comprehension levels before and after the intervention, tested for a significant difference between pretest and posttest scores, identified challenges encountered during module use, and proposed an instructional enhancement plan based on the findings. The study employed a quantitative pre-experimental research design, specifically the one-group pretest–posttest approach. The participants were Grade Ten learners who completed the pretest, contextualized module intervention, and posttest. Purposive sampling was used because the study focused on learners who were directly exposed to the intervention. A researcher-developed reading comprehension test was administered as both a pretest and a posttest, measuring vocabulary understanding, identifying main ideas, recognizing supporting details, sequencing events, making inferences, summarizing texts, and interpreting meanings. The contextualized English modules included localized reading selections, vocabulary-building exercises, guided comprehension tasks, sequencing activities, inference exercises, summarizing tasks, and interpretation questions. Descriptive statistics were used to determine learners' comprehension levels, and a paired-samples t-test was used to assess the significance of the difference between pretest and posttest scores. Findings revealed that learners' overall reading comprehension improved from a pretest mean of 73.01 to a posttest mean of 84.81. Vocabulary understanding obtained the highest posttest mean of 86.45, while making inferences obtained the lowest posttest mean of 83.20. The overall t-value of 10.02 and p-value of 0.000 indicated a statistically significant improvement; thus, the null hypothesis was rejected. Learners encountered moderate challenges using the modules, with an overall weighted mean of 3.49. The most significant challenge was making inferences from reading selections. Based on the findings, an instructional enhancement plan was proposed to strengthen vocabulary development, main idea identification, recognition of supporting details, sequencing, inference-making, summarizing, and interpretation of meaning through improved contextualized English modules.

Keywords: Contextualized English Modules, Reading Comprehension, Grade Ten Learners, Localized Reading Materials, Vocabulary Understanding, Inference-Making, Señor Santiago Learning Center

1. Introduction

Reading comprehension is a foundational academic skill because it enables learners to construct meaning from texts, integrate new information with prior knowledge, and use written information for academic and real-life purposes (OECD, n.d.; . It extends beyond word recognition because learners must understand explicit details, interpret implied meanings, evaluate ideas, and apply information in varied learning contexts (OECD, n.d.; Kamil et al., 2008). In basic education, reading comprehension is necessary for meaningful classroom participation, accurate responses to assessment tasks, successful completion of written activities, and learning across

content areas (World Bank, 2022a; . Learners with weak comprehension often struggle to follow instructions, interpret questions, analyze passages, and organize ideas in both oral and written responses (World Bank, 2022a; .

The importance of reading comprehension is reinforced by global literacy concerns, showing that many learners still struggle to understand age-appropriate texts (World Bank et al., 2022). Learning poverty refers to the inability of children to read and understand a simple written text by age ten, which makes reading comprehension a major concern for educational recovery and equity (World Bank, 2022b). The World Bank and partner organizations reported that learning poverty reached crisis levels after the COVID-19 pandemic, with about 70 percent of 10-year-old children in low- and middle-income countries unable to read and understand a simple written text (World Bank et al., 2022). These data indicate that reading difficulties are not only language-related concerns but also barriers to academic progress, future employability, and lifelong learning (World Bank, 2022a; UNESCO, 2026).

In the Philippine context, reading comprehension remains a major instructional challenge among learners in basic education (OECD, 2023; . PISA 2022 reported that only 24 percent of Filipino students reached Level 2 or higher in reading, compared with the OECD average of 74 percent (OECD, 2023). At Level 2, learners can identify the main idea of a moderately long text, locate information using explicit criteria, and reflect on the purpose and form of texts when guided (OECD, 2023). The low proportion of Filipino learners reaching this level suggests the need for stronger support in vocabulary development, main idea identification, inference-making, sequencing, summarizing, and text interpretation (OECD, 2023; .

The urgency of strengthening reading comprehension is also supported by national literacy data from the Philippine Statistics Authority (2025). The 2024 Functional Literacy, Education and Mass Media Survey reported that 93.1 percent of Filipinos aged 10 to 64 had basic literacy, while only 70.8 percent had functional literacy (Philippine Statistics Authority, 2025). This gap implies that many Filipinos can read, write, and compute at a basic level but still experience difficulty with higher-level comprehension and the application of information (Philippine Statistics Authority, 2025). For secondary learners, this gap is significant because Grade Ten students are expected to read longer, more complex, and discipline-related texts in English and other subjects (Department of Education, 2016; .

English instruction plays a central role in addressing reading comprehension needs by developing communicative competence, multiliteracies, critical thinking, and meaningful language use (Department of Education, 2016). The K to 12 English Curriculum emphasizes reading and viewing, listening and speaking, writing and representing, thinking, interaction, and contextualization as connected language-learning processes (Department of Education, 2016). This curricular direction means that reading instruction should not focus only on mechanical question-answering but should guide learners to predict, clarify, infer, summarize, evaluate, and apply meaning from texts (Department of Education, 2016; Kamil et al., 2008). Effective adolescent literacy instruction also requires explicit vocabulary instruction, direct comprehension strategy instruction, extended discussion of text meaning, motivation-building activities, and support for struggling readers (Kamil et al., 2008).

Contextualized English modules offer a practical response to these reading comprehension challenges by connecting reading tasks to learners' prior knowledge, lived experiences, interests, and local context (Bonganciso, 2016; . Contextualization helps learners understand texts more meaningfully because unfamiliar ideas become easier to process when linked to familiar situations and authentic experiences (Bonganciso, 2016; Perin, 2011). In the Philippine basic education setting, contextualization is consistent with the goal of making instructional materials responsive to learners' needs, diversity, and local realities (Department of Education, 2016; . Contextualized reading materials can therefore strengthen comprehension by bridging the gap between English texts and learners' actual experiences (Bonganciso, 2016; .

The use of modules also supports systematic reading instruction by organizing learning into sequenced, manageable, and learner-responsive tasks (Department of Education, 2020a; . English modules may include objectives, localized reading selections, vocabulary-building exercises, guided comprehension tasks, sequencing activities, inference exercises, summarizing tasks, interpretation questions, and assessment items (Department of Education, 2020a; . When these modules are contextualized, learners are given opportunities to engage with texts that are relevant, familiar, and connected to their everyday experiences (Bonganciso, 2016; . Such a design may improve learner engagement because reading materials that reflect learners' environment, concerns, and experiences can make English reading less abstract and more meaningful (Bonganciso, 2016; .

At Señor Santiago Learning Center, the study addressed the reading comprehension needs of Grade Ten learners through contextualized English modules . The study focused on selected reading comprehension skills, namely vocabulary understanding, identification of main ideas, recognition of supporting details, sequencing of events, inference-making, text summarization, and interpretation of meanings . These skills represent the literal, inferential, and interpretive dimensions of reading comprehension that Grade Ten learners need to understand English texts more effectively (Kamil et al., 2008; . The intervention used localized reading selections, vocabulary-building activities, guided reading tasks, inference exercises, summarization activities, and interpretation tasks tailored to learners' reading levels, classroom needs, local experiences, and familiar learning contexts .

Accordingly, this study determined the effectiveness of contextualized English modules in enhancing the reading comprehension skills of Grade Ten learners at Señor Santiago Learning Center . Specifically, it assessed learners' reading comprehension performance before and after the use of contextualized English modules, tested for a significant difference between pretest and posttest scores, identified challenges encountered during module use, and proposed an instructional enhancement plan based on the findings . By generating school-based evidence, the study aimed to determine whether contextualized English modules can improve learners' vocabulary understanding, main idea identification, recognition of supporting details, sequencing, inference-making, summarizing, and interpretation of meaning . The study therefore contributes to the development of a learner-centered and context-responsive reading intervention for Grade Ten English instruction (Department of Education, 2016; .

2. Method

2.1 Research Design

The study employed a quantitative pre-experimental research design, specifically the one-group pretest–posttest design, to determine the effectiveness of contextualized English modules in enhancing the reading comprehension skills of Grade Ten learners at Señor Santiago Learning Center . This design was appropriate because the study measured the reading comprehension performance of the same group of learners before and after exposure to the contextualized English module intervention (Mercado, n.d.; Campbell & Stanley, 1963). The pretest was administered to determine the learners' baseline reading comprehension level before the intervention, while the posttest was administered after the use of contextualized English modules to determine whether improvement occurred . The contextualized English modules served as the instructional intervention and included localized reading selections, vocabulary-building activities, guided reading tasks, sequencing activities, inference exercises, summarizing tasks, and interpretation questions . The one-group pretest–posttest design was suitable for classroom-based intervention research because it allows the researcher to compare two related sets of scores from the same participants before and after a specific instructional treatment (Campbell & Stanley, 1963; Creswell & Creswell, 2018). The design was considered pre-experimental because it did not include a separate control group or random assignment of participants, which means

that the findings should be interpreted within the limits of a single-group intervention study (Shadish et al., 2002). Despite this limitation, the design provided a practical and systematic way to determine whether the learners' reading comprehension improved after using contextualized English modules in the actual classroom setting (Creswell & Creswell, 2018; . The study focused on reading comprehension skills such as vocabulary understanding, identification of main ideas, recognition of supporting details, sequencing of events, inference-making, text summarization, and interpretation of meanings . By comparing pretest and posttest results, the study determined whether the contextualized English modules produced measurable improvement in the reading comprehension performance of Grade Ten learners (Mercado, n.d.; Shadish et al., 2002). The design results also served as the empirical basis for identifying learner challenges and proposing an instructional enhancement plan for English reading comprehension at Señor Santiago Learning Center .

2.2 Participants

The study was conducted with Grade Ten learners of Señor Santiago Learning Center who were officially enrolled in English at the time of the study. They were selected because they were the intended users of the contextualized English modules and were directly involved in the reading comprehension intervention . Participants were required to take the pretest, use the contextualized English modules, complete the module-based activities, and complete the posttest after the intervention period . The same group of learners participated in both the pretest and posttest to ensure consistency in measuring their reading comprehension performance before and after the intervention (Mercado, n.d.; Campbell & Stanley, 1963). Purposive sampling was employed because the study required respondents with specific characteristics relevant to the research objectives (Mercado, n.d.; Creswell & Creswell, 2018). The selected respondents were Grade Ten learners who were enrolled at Señor Santiago Learning Center, taking English during the study period, and available to participate in the contextualized module intervention . Learners from other grade levels, sections, schools, or learning areas were excluded because the study focused only on the reading comprehension improvement of Grade Ten learners within the said school context . Participants were also limited to those who were present for both the pretest and posttest assessments and who completed all required module-based activities . This inclusion criterion ensured that the data analyzed came only from learners who experienced the full intervention process from baseline assessment to post-intervention evaluation . The participants' responses and test scores served as the primary data for determining the effectiveness of contextualized English modules in improving vocabulary understanding, main idea identification, recognition of supporting details, sequencing of events, inference-making, summarizing texts, and interpreting meanings . Since the study used a one-group pretest–posttest design, the Grade Ten learners served as the intact learner group from which classroom-based evidence on the intervention's effectiveness was generated (Mercado, n.d.; Shadish et al., 2002). Overall, the selection of participants was appropriate because the study sought to evaluate the effectiveness of a school-based, learner-centered reading intervention among learners who needed support with reading comprehension.

2.3 Instrumentation

The study used a researcher-developed reading comprehension test as the primary instrument to assess the reading comprehension skills of Grade Ten learners at Señor Santiago Learning Center . The test was administered as both the pretest and posttest to determine learners' reading comprehension performance before and after exposure to contextualized English modules . The instrument measured seven reading comprehension skills, namely vocabulary understanding, identification of main ideas, recognition of supporting details, sequencing of events, inference-making, text summarization, and interpretation of meanings . These skills were selected because they represented the principal comprehension areas targeted

by the contextualized English module intervention . The reading comprehension test consisted of reading selections with comprehension items designed to assess learners' ability to understand and interpret English texts . The test items were developed based on reading competencies appropriate for Grade Ten learners and were aligned with the objectives of the contextualized English modules (Mercado, n.d.; Department of Education, 2016). The same test coverage was used for the pretest and posttest to allow direct comparison of learners' performance before and after the intervention (Mercado, n.d.; Campbell & Stanley, 1963). The pretest established the learners' baseline reading comprehension level, while the posttest measured their performance after completing the contextualized English modules . The contextualized English modules served as the instructional intervention and contained localized reading selections, vocabulary-building activities, guided reading tasks, inference exercises, sequencing activities, summarizing tasks, and interpretation questions . These modules were designed to address learners' reading needs, school context, interests, and familiar experiences through meaningful and context-based reading activities (Mercado, n.d.; Bonganciso, 2016). A challenges checklist was also used to identify difficulties learners encountered while using the contextualized English modules . The checklist covered challenges such as unfamiliar vocabulary, insufficient time for reading, difficulty understanding instructions, lack of confidence in answering comprehension questions, difficulty making inferences, difficulty interpreting deeper meanings, difficulty summarizing texts, and the need for teacher guidance during module-based tasks . The reading comprehension test, contextualized English modules, and related research materials underwent validation to ensure content relevance, clarity of instructions, appropriateness of items, and alignment with the study objectives . English teachers, reading specialists, and research experts reviewed the materials and provided comments for refinement before administration . Overall, the instruments were appropriate because they generated the data needed to determine learners' reading comprehension level before and after the intervention, test the effectiveness of the contextualized English modules, identify learner challenges, and develop an instructional enhancement plan for Grade Ten English reading instruction (Mercado, n.d.; Creswell & Creswell, 2018).

2.4 Data Analysis

The data gathered from the reading comprehension test, contextualized English modules, and learners' challenge responses were checked, scored, tabulated, organized, and analyzed in accordance with the study's specific research questions . Frequency and percentage were used to describe the distribution of Grade Ten learners across reading comprehension performance levels before and after the implementation of contextualized English modules . These tools were appropriate because they showed the number and proportion of learners in each performance category based on their pretest and posttest scores (Mercado, n.d.; Creswell & Creswell, 2018). The mean was computed to determine learners' average reading comprehension performance before and after the intervention . The pretest mean indicated the learners' baseline reading comprehension level, while the posttest mean indicated their performance after using the contextualized English modules . The standard deviation was computed to assess the extent of variation in learners' reading comprehension scores before and after the intervention . This statistical measure helped explain whether learners' scores were closely grouped around the mean or widely dispersed across the assessed comprehension skills (Mercado, n.d.; Creswell & Creswell, 2018). The paired-samples t-test was used to determine whether there was a significant difference between the pretest and posttest reading comprehension scores of the same group of learners . This test was appropriate because the same respondents were measured twice, first before the intervention and then after exposure to contextualized English modules (Mercado, n.d.; Campbell & Stanley, 1963). The level of significance was set at 0.05 to determine whether the null hypothesis would be accepted or rejected (Mercado, n.d.; Shadish et al., 2002). Weighted mean was used to analyze the extent to which learners encountered challenges in using the contextualized English modules . Ranking was also applied to arrange the challenges from most

to least encountered based on learners' responses . Descriptive analysis was used to formulate the proposed instructional enhancement plan by examining the pretest and posttest results, the significant difference, and the challenges encountered by the learners . The findings served as the empirical basis for identifying reading comprehension skills that required further strengthening, particularly vocabulary understanding, identifying main ideas, recognizing supporting details, sequencing events, making inferences, summarizing texts, and interpreting meanings . Overall, the statistical tools used in the study provided a systematic basis for determining the effectiveness of contextualized English modules in enhancing the reading comprehension skills of Grade Ten learners at Señor Santiago Learning Center .

3. Results

Before the implementation of the contextualized English modules, Grade Ten learners had an overall pretest mean of 73.01, indicating that their reading comprehension skills remained below the expected mastery level . Among the assessed skills, vocabulary understanding obtained the highest pretest mean of 74.20, while making inferences obtained the lowest pretest mean of 71.90 . The pretest results showed that learners had difficulty not only in understanding unfamiliar words but also in identifying main ideas, recognizing supporting details, sequencing events, summarizing texts, interpreting meanings, and making inferences . These findings established the need for a structured, context-based intervention to help learners understand English texts through familiar, relevant, and guided reading activities .

After using contextualized English modules, the learners' overall posttest mean increased to 84.81, which was interpreted as Satisfactory . Vocabulary understanding obtained the highest posttest mean of 86.45, followed by identifying main ideas with a mean of 85.90 and recognizing supporting details with a mean of 85.35 . Sequencing events obtained a posttest mean of 84.80, summarizing texts obtained a mean of 84.25, interpreting meanings obtained a mean of 83.75, and making inferences obtained the lowest posttest mean of 83.20 . These results showed that the contextualized English modules improved learners' reading comprehension across all assessed skills, although higher-order comprehension skills such as inference-making, interpretation, and summarizing still required further support .

The comparison of pretest and posttest scores revealed a statistically significant improvement in learners' reading comprehension after the implementation of the contextualized English modules . The overall pretest mean of 73.01 increased to an overall posttest mean of 84.81, producing an overall t-value of 10.02 and a p-value of 0.000 . Since the p-value was lower than the 0.05 level of significance, the null hypothesis was rejected . This result indicated a significant difference in learners' reading comprehension performance before and after exposure to contextualized English modules . Therefore, the findings confirmed that the use of contextualized English modules was effective in enhancing the reading comprehension skills of Grade Ten learners at Señor Santiago Learning Center .

The learners also encountered several challenges while using the contextualized English modules . The overall weighted mean of 3.49 showed that these challenges were Moderately Encountered . The most prominent challenge was difficulty making inferences from reading selections, which obtained a weighted mean of 3.82 and was interpreted as Highly Encountered . Learners also experienced difficulty interpreting deeper meanings, understanding unfamiliar vocabulary, and summarizing important ideas . These findings indicated that although the modules improved overall reading comprehension, learners continued to need support in higher-order comprehension tasks that required analysis, interpretation, and independent meaning-making .

Based on the findings, the study proposed an instructional enhancement plan titled Project READ-CONTEXT: A Contextualized Reading Enhancement Plan for Grade Ten Learners of Señor Santiago Learning Center . The plan was designed to sustain the gains from contextualized English modules and address the remaining weak areas in reading comprehension . It focused

on strengthening vocabulary understanding, identifying main ideas, recognizing supporting details, sequencing events, making inferences, summarizing texts, and interpreting meanings . The plan included contextualized vocabulary drills, guided reading questions, graphic organizers, inference exercises, summary frames, teacher-guided reading sessions, and regular progress monitoring . Overall, the results demonstrated that contextualized English modules served as a meaningful, practical, and learner-responsive intervention for improving the reading comprehension skills of Grade Ten learners .

4. Discussion

The study found that contextualized English modules significantly enhanced the reading comprehension skills of Grade Ten learners at Señor Santiago Learning Center . The learners' overall pretest mean of 73.01 indicated that their reading comprehension skills were still below the desired level before the intervention . After implementing the contextualized English modules, the learners' overall posttest mean increased to 84.81, indicating improvement in their ability to understand, process, and interpret English texts . This improvement suggests that reading comprehension becomes more effective when learning materials are structured, localized, and connected to learners' prior knowledge and lived experiences (Bonganciso, 2016; Perin, 2011; .

The significant increase in the learners' scores supports the value of contextualization in English reading instruction . Contextualized instruction helps learners connect unfamiliar texts with familiar situations, local experiences, and meaningful content, making reading more accessible and purposeful (Perin, 2011; Bonganciso, 2016). This supports the claim that comprehension improves when learners can relate new information to what they already know and experience in their own environment (International Literacy Association, n.d.; . In the present study, the use of localized reading selections, vocabulary-building tasks, guided comprehension activities, sequencing exercises, inference questions, summarizing tasks, and interpretation activities helped learners engage more actively with English texts .

The highest posttest mean was observed in vocabulary understanding, indicating that the contextualized English modules were effective in helping learners unlock the meaning of words in context . This finding is supported by adolescent literacy research, which emphasizes that explicit vocabulary instruction is one of the important practices for improving reading comprehension among struggling readers (Kamil et al., 2008). Vocabulary development is necessary because learners cannot fully understand a text when they cannot determine the meanings of unfamiliar words, academic terms, and context-specific expressions (Kamil et al., 2008; . The use of familiar situations, localized examples, and guided word activities in the modules may have helped learners connect vocabulary with meaning more effectively (Bonganciso, 2016; .

The improvement in identifying main ideas, recognizing supporting details, and sequencing events also shows that the modules strengthened learners' literal and organizational comprehension skills . These skills are essential because learners need to determine the central message of a passage, identify relevant details, and organize information logically in order to understand the text as a whole (Kamil et al., 2008; Reading Rockets, n.d.). The K to 12 English Curriculum supports this direction by emphasizing reading, viewing, thinking, and meaning-making as interconnected processes in language learning (Department of Education, 2016). Therefore, the positive posttest results suggest that structured module-based activities helped learners move from simple reading tasks to more organized comprehension of text content (Department of Education, 2016; .

Despite the overall improvement, making inferences remained the lowest posttest indicator among the assessed reading comprehension skills . This finding suggests that inferential comprehension remains more difficult than literal comprehension because learners must go beyond directly stated information and use clues, prior knowledge, and reasoning to construct implied meanings (Kamil et al., 2008; . The result is consistent with the learners' reported

challenge that making inferences from reading selections was highly encountered during module use . This implies that future English modules should include more scaffolded inference activities, guided questioning, think-aloud modeling, and teacher-supported interpretation exercises to help learners process deeper meanings in texts (Kamil et al., 2008; Department of Education, 2016; .

The statistically significant difference between the pretest and posttest results confirmed the effectiveness of the contextualized English modules as a reading intervention . The computed t-value of 10.02 and p-value of 0.000 indicated that the improvement in learners' reading comprehension performance was statistically significant at the 0.05 level . This result led to the rejection of the null hypothesis and established that a significant difference existed between learners' reading comprehension performance before and after the intervention . This finding supports the usefulness of the one-group pretest–posttest design in determining whether a classroom-based intervention produces measurable improvement among the same group of learners (Campbell & Stanley, 1963; Shadish et al., 2002; .

The findings also support the role of modules as structured instructional materials for improving reading comprehension (Department of Education, 2020a; . Modules help organize learning into clear objectives, reading selections, vocabulary activities, comprehension questions, practice tasks, and assessment items that guide learners through the reading process (Department of Education, 2020a; . When modules are contextualized, they become more responsive to learners' background, reading level, interests, and local realities (Department of Education, 2016; Bonganciso, 2016). This explains why the contextualized English modules used in the study improved learners' reading comprehension across vocabulary understanding, main idea identification, recognition of supporting details, sequencing, inference-making, summarizing, and interpretation of meaning .

The challenges learners encounter indicate that contextualized modules must still be supported by teacher guidance and differentiated instruction . The overall weighted mean of 3.49 indicated that the challenges were moderately encountered, suggesting that the intervention was helpful but not free of implementation difficulties . Learners particularly struggled with making inferences, interpreting deeper meanings, understanding unfamiliar vocabulary, summarizing important ideas, and needing teacher assistance during module-based activities . These challenges suggest that struggling readers need more explicit instruction, guided practice, feedback, peer discussion, and gradual release of responsibility during reading lessons (Kamil et al., 2008; Department of Education, 2016; .

Overall, the study confirms that contextualized English modules can serve as a meaningful, practical, and learner-centered intervention for improving reading comprehension among Grade Ten learners . The findings support the proposed Project READ-CONTEXT enhancement plan because it directly addresses the remaining gaps in vocabulary development, main idea identification, recognition of supporting details, sequencing, inference-making, summarizing, and interpretation of meaning . The plan is aligned with the goal of English instruction to develop communicative competence, multiliteracies, critical thinking, and meaningful language use among learners (Department of Education, 2016). Therefore, the study contributes to school-based literacy improvement by providing evidence that contextualized English modules can help learners read more meaningfully, confidently, and independently when the materials are relevant to their experiences and supported by appropriate instructional strategies (Bonganciso, 2016; Kamil et al., 2008; .

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IMPACT OF DEMONSTRATION METHOD ON THE COOKERY SKILLS OF GRADE NINE TLE LEARNERS AT SEÑOR SANTIAGO LEARNING CENTER

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Abstract

Skills-based learning in Technology and Livelihood Education requires instructional strategies that help learners transform theoretical knowledge into observable and standards-based performance. This study determined the impact of the demonstration method on the cookery skills of Grade Nine TLE learners at Señor Santiago Learning Center. Specifically, it assessed the learners' profile in terms of age, sex, previous exposure to cookery-related activities, and availability of cooking tools and equipment at home; determined their cookery skills before and after the use of the demonstration method; tested the significant difference between pretest and posttest performance; examined the relationship between learner profile and posttest cookery skills; identified challenges encountered during the intervention; and proposed an instructional enhancement plan based on the findings. The study employed a pre-experimental one-group pretest–posttest design with a descriptive component. The respondents were Grade Nine TLE learners selected through purposive sampling. A researcher-developed performance-based rubric was used to assess learners' cookery skills in the proper use of tools and equipment, food preparation techniques, safety and sanitation practices, accuracy in following cooking procedures, and the presentation of finished products. Findings revealed that before the intervention, learners were moderately skilled, with an overall pretest mean of 2.63. After implementing the demonstration method, their performance improved to proficient, with an overall posttest mean of 4.24. Safety and sanitation practices had the highest posttest mean of 4.46, while the presentation of the finished product had the lowest posttest mean of 3.98, although it was still described as skilled. The computed t-value of 17.56 and p-value of 0.000 indicated a statistically significant improvement in learners' cookery skills; thus, the null hypothesis was rejected. Age and sex were not significantly related to posttest performance, while previous exposure to cookery-related activities and availability of cooking tools and equipment at home were significantly related to learners' performance after the intervention. The study concluded that the demonstration method had a positive impact on Grade Nine learners' cookery skills. Based on the findings, an instructional enhancement plan in cookery was proposed to strengthen teacher modeling, guided practice, return demonstration, safety and sanitation drills, tool-handling activities, and product presentation skills.

Keywords: Demonstration Method, Cookery Skills, Grade Nine TLE Learners, Performance-Based Assessment, Technology And Livelihood Education, Señor Santdiago Learning Center

1. Introduction

Skills-based education has become an essential direction in basic education because learners are expected to develop competencies that go beyond memorizing concepts and answering written activities. In practical learning areas, students must be able to apply knowledge, perform tasks, follow standards, solve problems, and improve outputs through guided practice. This direction is consistent with the broader purpose of contemporary education, which emphasizes the development of knowledge, skills, attitudes, and values that learners can use in authentic life and work situations (OECD, 2019). The uploaded manuscript similarly explains that

skills-based education prepares learners for lifelong learning, employability, productive work, and active participation in community and workplace settings.

Technical and vocational education strengthens this orientation by connecting classroom learning with practical, livelihood-oriented, and employment-related competencies. TVET is intended to equip learners with skills for empowerment, productive employment, decent work, and participation in changing economic and social conditions (UNESCO, 2022). In the Philippine basic education system, Technology and Livelihood Education serves as a practical learning area that introduces learners to home economics, agriculture, industrial arts, and information and communications technology. DepEd identifies TLE and the Technical-Vocational-Livelihood track as integral parts of the K to 12 curriculum, with specializations offered to prepare learners for work, entrepreneurship, and further technical training (Department of Education, n.d.).

Cookery is one of the TLE specializations that provides learners with structured opportunities to develop technical, procedural, and performance-based skills. The DepEd Cookery NC II Curriculum Guide presents cookery as a course designed to develop learners' knowledge, skills, and attitudes in performing cookery tasks, including maintaining kitchen premises, preparing food products, packaging prepared foods, and demonstrating workplace behavior (Department of Education, 2016). The uploaded manuscript states that cookery instruction requires learners to handle tools and equipment correctly, prepare ingredients with precision, observe safety and sanitation practices, follow cooking procedures accurately, and present finished products in accordance with accepted standards.

For Grade Nine learners, cookery instruction is especially important because it marks the beginning of specialized technical-vocational preparation. At this stage, learners begin to connect classroom lessons with possible livelihood, employment, entrepreneurship, and future training opportunities. The TESDA Cookery NC II Training Regulations emphasize that candidates must demonstrate competence in the required units of competency before certification, which shows that cookery learning must be assessed through actual performance rather than simple recall of information (Technical Education and Skills Development Authority, 2014). This supports the need for instructional strategies that allow learners to observe correct procedures, practice skills, receive feedback, and improve their performance based on clear standards.

Food safety and sanitation also make cookery a high-responsibility learning area because learners' practices can affect health and consumer safety. The World Health Organization identifies the Five Keys to Safer Food as keeping clean, separating raw and cooked food, cooking thoroughly, keeping food at safe temperatures, and using safe water and raw materials (World Health Organization, 2006). These principles show that cookery performance should be evaluated not only through taste and appearance but also through hygienic preparation, safe handling, and responsible food service. The uploaded manuscript likewise emphasizes that safety and sanitation practices are essential indicators of cookery skills among Grade Nine TLE learners.

Despite the importance of cookery, learners may experience difficulty when instruction relies mainly on lectures, printed procedures, or verbal explanations. Some learners may know the names of kitchen tools but may not be confident in selecting, handling, cleaning, and storing them properly. Others may understand a recipe in written form but still struggle with measurement, sequencing, tool handling, heat control, sanitation, timing, and food presentation during actual performance. The uploaded manuscript identifies these concerns as part of the instructional problem because cookery requires observable competence in the proper use of tools and equipment, food preparation techniques, safety and sanitation practices, accuracy in following cooking procedures, and presentation of finished products.

The demonstration method offers an appropriate instructional response because it allows teachers to model the correct performance of a task before learners perform it independently. Demonstration-based instruction aligns with explicit instruction, which emphasizes clear explanation, modeling, guided practice, checking for understanding, and gradual movement toward independent practice (Australian Education Research Organization, 2022). The uploaded

manuscript explains that demonstration allows learners to observe step-by-step procedures, see how ingredients and tools are handled, understand how safety standards are applied, and perform return demonstrations with teacher feedback. This method is relevant in cookery because learners benefit from visual, auditory, and kinesthetic cues before attempting performance-based tasks.

The demonstration method is also consistent with the competency-based nature of TLE cookery. TESDA defines training regulations as documents that establish competency standards and serve as bases for curriculum development, instructional materials, assessment tools, and recognition of competence (Technical Education and Skills Development Authority, n.d.). This means that cookery instruction should provide learners with opportunities to demonstrate skills under conditions that reflect actual performance expectations. In this study, the demonstration method is expected to help learners improve their proper tool use, food preparation techniques, safety and sanitation, procedural accuracy, and the presentation of finished products.

Accordingly, this study determined the impact of the demonstration method on the cookery skills of Grade Nine TLE learners at Señor Santiago Learning Center. Specifically, it assessed learners' cookery skills before and after the demonstration method, tested for a significant difference between pretest and posttest performance, examined the relationship between learner profile and posttest performance, identified challenges encountered during the intervention, and proposed an instructional enhancement plan based on the findings. By generating school-based evidence, the study aimed to determine whether teacher modeling, guided practice, return demonstration, and immediate feedback can improve learners' performance in a practical and standards-based TLE cookery classroom.

2. Method

2.1 Research Design

The study employed a pre-experimental research design, specifically the one-group pretest–posttest design with a descriptive component, to determine the impact of the demonstration method on the cookery skills of Grade Nine TLE learners at Señor Santiago Learning Center (Navarro, n.d.). This design was appropriate because the study measured the same group of learners before and after exposure to the instructional intervention, allowing the researcher to determine whether learners' cookery skills improved after the use of teacher modeling, step-by-step explanation, guided practice, return demonstration, and immediate feedback (Campbell & Stanley, 1963; Shadish et al., 2002). The pretest served as a baseline measure of learners' initial cooking skills, while the posttest assessed their performance after implementing the demonstration method (Navarro, n.d.). The study was considered pre-experimental because it involved only one group of respondents and did not include a separate control or comparison group (Campbell & Stanley, 1963). This design is commonly used in classroom-based intervention studies where the main objective is to determine measurable improvement in learner performance after exposure to a specific teaching strategy (Creswell & Creswell, 2018). The descriptive component was also appropriate because the study described the learners' profiles, their levels of cooking skills before and after the intervention, and the challenges they encountered during the implementation of the demonstration method (Navarro, n.d.). Since cookery is a practical and performance-based subject, the design enabled the researcher to assess improvement through actual task performance rather than relying solely on written tests (DepEd, 2016; TESDA, 2014). Through this design, the study generated classroom-based evidence on whether demonstration-based instruction could improve learners' proper use of tools and equipment, food preparation techniques, safety and sanitation practices, accuracy in following cooking procedures, and presentation of finished products (Navarro, n.d.).

2.2 Participants

The study involved Grade Nine Technology and Livelihood Education learners at Señor Santiago Learning Center who were officially enrolled at the time of the study. They were selected because they were taking TLE and had been exposed to cookery-related competencies, making them the most appropriate respondents for assessing the impact of the demonstration method on cookery skills. The study used purposive sampling to select learners who met the criteria aligned with the research objectives, specifically those enrolled in Grade Nine TLE and participating in cookery lessons using the demonstration method. The respondents were composed of 40 Grade Nine learners, with 24 learners (60.00 percent) aged 15 years old, 8 learners (20.00 percent) aged 14 years old, 6 learners (15.00 percent) aged 16 years old, and 2 learners (5.00 percent) aged 17 years old and above. In terms of sex, 22 learners (55.00%) were female, while 18 learners (45.00%) were male. With respect to previous exposure to cookery-related activities, 26 learners or 65.00 percent had prior exposure, while 14 learners or 35.00 percent had no previous exposure. Regarding the availability of cooking tools and equipment at home, 28 learners (70.00%) reported that tools and equipment were available, while 12 learners (30.00%) reported that they were not. The inclusion criteria were limited to Grade Nine TLE learners who participated in demonstration-based cookery activities and completed both the pretest and posttest assessments, while learners from other grade levels, learning areas, or schools were excluded from the study. This participant selection was appropriate because the study aimed to measure actual cookery performance before and after the demonstration method in the same group of learners, thereby generating classroom-based evidence on whether teacher modeling, guided practice, return demonstration, and immediate feedback improved learners' practical cookery skills.

2.3 Instrumentation

The study used a researcher-developed performance-based rubric as the main instrument for measuring the cookery skills of Grade Nine TLE learners before and after the implementation of the demonstration method. The rubric was administered as both a pretest and a posttest, allowing the researcher to compare learners' actual cooking performance before and after exposure to teacher modeling, step-by-step demonstration, guided practice, a return demonstration, and immediate feedback. The rubric measured five cookery skill indicators: proper use of tools and equipment, food preparation techniques, safety and sanitation practices, accuracy in following cooking procedures, and presentation of finished product. Each indicator was rated using a five-point performance scale: 5 – Highly Skilled, 4 – Skilled, 3 – Moderately Skilled, 2 – Slightly Skilled, and 1 – Not Skilled. The pretest established the learners' baseline cookery skills before the intervention, while the posttest measured their performance after the demonstration method was implemented using the same rubric for consistency of comparison. In addition to the performance rubric, the study used a learner profile checklist to gather information on age, sex, previous exposure to cookery-related activities, and availability of cooking tools and equipment at home. A separate challenge-response checklist was also used to identify difficulties encountered by learners during the implementation of the demonstration method, including limited time for guided practice, difficulty during return demonstration, lack of confidence, limited prior cookery experience, difficulty using tools and equipment, limited materials, inconsistent safety and sanitation practices, difficulty preparing ingredients, problems with measurement and timing, and difficulty presenting the finished product properly. These instruments were appropriate because cookery is a performance-based TLE subject that requires learners to demonstrate actual skills rather than merely recall concepts. Collectively, the profile checklist, pretest-posttest performance rubric, and challenge-response checklist generated the data needed to determine learners' initial and final cookery skill levels, analyze improvement after the intervention, examine related learner profile variables, identify implementation challenges, and develop an instructional enhancement plan for TLE cookery.

2.4 Data Analysis

The data gathered from the profile checklist, performance-based rubric, and challenges checklist were organized, checked, scored, tabulated, and analyzed using descriptive and inferential statistical tools. Frequency counts and percentages were used to describe the profile of the Grade Nine TLE learners in terms of age, sex, previous exposure to cookery-related activities, and availability of cooking tools and equipment at home (Navarro, n.d.). Weighted mean and standard deviation were used to determine the learners' level of cookery skills before and after the implementation of the demonstration method in terms of proper use of tools and equipment, food preparation techniques, safety and sanitation practices, accuracy in following cooking procedures, and presentation of finished product (Navarro, n.d.). The weighted mean described the average level of performance for each cookery skill indicator, while the standard deviation showed the extent of variation or consistency in learners' performance scores (Navarro, n.d.). To determine whether a significant difference existed between the learners' pretest and posttest cookery skills performance, the paired-samples t-test was employed at the 0.05 level of significance (Navarro, n.d.; Campbell & Stanley, 1963; Shadish et al., 2002). This test was appropriate because the same group of learners was assessed before and after the demonstration method, allowing the researcher to determine whether the observed improvement in performance was statistically significant (Creswell & Creswell, 2018). To examine the significant relationship between learners' profile variables and their posttest cookery skills performance, correlational analyses were applied according to the type of variable involved (Navarro, n.d.). Pearson product-moment correlation was used for continuous or numerical variables, Spearman rho was used for ordinal or ranked variables, and the chi-square test of independence was used for categorical variables such as sex, previous exposure to cookery-related activities, and availability of cooking tools and equipment at home (Navarro, n.d.). To analyze the challenges encountered by learners when using the demonstration method, frequency counts, percentages, weighted means, and rankings were used to determine the extent and order of difficulties experienced during the intervention (Navarro, n.d.). The results of these analyses served as the empirical basis for determining the impact of the demonstration method and for developing the proposed instructional enhancement plan in cookery for Grade Nine TLE learners at Señor Santiago Learning Center (Navarro, n.d.).

3. Results

The profile of the Grade Nine TLE learners showed that most respondents were within the expected age range for their grade level. The majority of learners were 15 years old, representing 24 learners (60.00 percent of the respondents), while female learners slightly outnumbered male learners, with 22 female learners (55.00 percent) and 18 male learners (45.00 percent). In terms of previous exposure to cookery-related activities, 26 learners or 65.00 percent had prior exposure, while 14 learners or 35.00 percent had none. Moreover, 28 learners (70.00%) reported that cooking tools and equipment were available at home, while 12 learners (30.00%) reported that they were not. These findings indicate that many learners already had some background and home resources that could support their cookery performance, although some in the class still had limited experience and access to tools.

Before the demonstration method was used, the Grade Nine TLE learners had an overall weighted mean of 2.63, indicating Moderately Skilled. Among the cookery skill indicators, safety and sanitation practices had the highest mean of 2.85, while presentation of the finished product had the lowest mean of 2.36, indicating Slightly Skilled. This result suggests that the learners had basic familiarity with cookery tasks before the intervention, but they still needed structured modeling, guided practice, teacher feedback, and repeated performance opportunities to improve their skills in tool use, food preparation, procedural accuracy, sanitation, and product presentation.

After implementing the demonstration method, the learners' cookery skills improved to an overall weighted mean of 4.24, indicating Skilled. Safety and sanitation practices remained the highest indicator, with a mean of 4.46, while presentation of finished product remained the lowest indicator, with a mean of 3.98, although it was still described as Skilled. These findings show that teacher-led demonstration, step-by-step modeling, guided practice, return demonstration, and immediate feedback helped learners improve across all cookery skill indicators.

The test of significance confirmed that the demonstration method had a positive, statistically significant impact on learners' cookery skills. The overall pretest mean of 2.63 increased to an overall posttest mean of 4.24, with a mean difference of 1.61. The computed t-value of 17.56 and p-value of 0.000 indicated that the improvement was statistically significant at the 0.05 level; therefore, the null hypothesis was rejected. This result means that the use of the demonstration method significantly improved the cookery skills performance of Grade Nine TLE learners at Señor Santiago Learning Center.

The test of significant relationship showed that age and sex were not significantly related to learners' posttest cookery skills performance, while previous exposure to cookery-related activities and availability of cooking tools and equipment at home were significantly related to posttest performance. This means that learners' improvement was not dependent on age or sex, but learners with prior cookery experience and access to cooking tools and equipment were more likely to perform better after the intervention. The learners also encountered moderate challenges when using the demonstration method, with an overall weighted mean of 3.24; the most common challenges were insufficient time for guided practice and return demonstration, limited tools and equipment during cookery activities, and difficulty presenting the finished product properly. Based on these findings, the study proposed an Instructional Enhancement Plan to Improve the Cookery Skills of Grade Nine TLE Learners, focusing on tool use, food preparation, safety and sanitation, procedural accuracy, product presentation, guided practice, return demonstration, learner confidence, performance-based assessment, and instructional resource support.

4. Discussion

The study found that the demonstration method had a positive impact on the cookery skills of Grade Nine TLE learners at Señor Santiago Learning Center (Navarro, n.d.). Before the intervention, the learners obtained an overall pretest mean of 2.63, indicating Moderately Skilled, suggesting they had basic cookery skills but still required structured modeling, practice, and feedback to perform cookery tasks more competently (Navarro, n.d.). After implementing the demonstration method, the learners' overall posttest mean increased to 4.24, indicating Skilled performance, suggesting that teacher-led demonstration, guided practice, return demonstration, and immediate feedback contributed to improved performance in cookery (Navarro, n.d.).

The improvement in learners' cookery skills supports the nature of TLE as a performance-based learning area where students are expected to demonstrate practical competencies rather than merely recall information (Department of Education, 2016; Navarro, n.d.). The DepEd Cookery NC II Curriculum Guide emphasizes the development of learners' knowledge, skills, and attitudes in performing cookery tasks, which confirms the need for instruction that allows learners to observe, practice, and demonstrate actual procedures (Department of Education, 2016). The TESDA Cookery NC II Training Regulations also require competency standards to be demonstrated through actual performance, which strengthens the interpretation that demonstration-based instruction is appropriate for cookery learning (Technical Education and Skills Development Authority, 2014). These curricula and competency standards support the finding that learners improved when they were given clear models of proper tool use, food preparation techniques, safety and sanitation practices, accurate procedures, and finished-product presentation (Department of Education, 2016; TESDA, 2014; Navarro, n.d.).

The significant increase in performance from pretest to posttest further demonstrates that the demonstration method was effective in transforming learners' theoretical knowledge into

observable skills (Navarro, n.d.). The computed t-value of 17.56 and p-value of 0.000 indicated a statistically significant difference between the learners' pretest and posttest cookery skills performance, leading to the rejection of the null hypothesis (Navarro, n.d.). This result implies that the improvement was not merely incidental but was associated with the instructional intervention used in the study (Campbell & Stanley, 1963; Shadish et al., 2002; Navarro, n.d.). The finding is consistent with explicit instruction principles, which emphasize breaking down learning tasks into smaller steps, modeling each step, guiding practice, and gradually moving learners toward independent performance (Australian Education Research Organization, 2022; Rosenshine, 2012).

The demonstration method was particularly useful because cookery requires learners to process visual, auditory, and kinesthetic information during task performance (Australian Education Research Organization, 2022; Navarro, n.d.). When the teacher demonstrated the correct use of tools and equipment, learners observed not only the names and purposes of each tool but also its safe handling, proper use, and correct storage (Department of Education, 2016; Navarro, n.d.). When the teacher modeled food preparation techniques, learners could see the correct sequence, pacing, measurement, and handling of ingredients before performing the task themselves (TESDA, 2014; Navarro, n.d.). This supports the idea that demonstration is suitable for skills-based instruction because learners gain a clearer understanding when procedures are shown before they are independently practiced (Australian Education Research Organization, 2022; Rosenshine, 2012).

Among the posttest indicators, safety and sanitation practices had the highest mean of 4.46, suggesting that learners responded strongly to visible modeling of hygienic and safe food-preparation behaviors (Navarro, n.d.). This finding is important because food safety is a critical component of cookery, requiring learners to keep clean, separate raw and cooked food, cook thoroughly, keep food at safe temperatures, and use safe water and raw materials (World Health Organization, 2006). The result indicates that learners may understand safety and sanitation better when the teacher directly demonstrates handwashing, workspace sanitation, safe tool handling, waste management, and contamination prevention during actual cookery tasks (WHO, 2006; Navarro, n.d.). This finding also supports the TLE objective of developing not only technical competence but also responsible workplace behavior and occupational safety awareness (Department of Education, 2016; Department of Education, 2023).

Although all cookery skill indicators improved, the presentation of the finished product remained the lowest posttest indicator, with a mean of 3.98, which was still interpreted as Skilled (Navarro, n.d.). This result suggests that learners could already prepare food more competently after the intervention but still needed additional practice in plating, portioning, garnishing, neatness, arrangement, and overall product appeal (TESDA, 2014; Navarro, n.d.). Product presentation requires aesthetic judgment, consistency, and repeated performance, which may explain why learners needed more guided practice even after teacher demonstration (Department of Education, 2016; Navarro, n.d.). Therefore, future cookery instruction should include more focused demonstrations on plating techniques, quality standards, serving presentation, and peer or teacher feedback on finished outputs (TESDA, 2014; Navarro, n.d.).

The relationship analysis showed that age and sex were not significantly related to learners' posttest cookery skills performance, indicating that improvement after the demonstration method was not dependent on these demographic variables (Navarro, n.d.). However, previous exposure to cookery-related activities and availability of cooking tools and equipment at home were significantly related to posttest performance, suggesting that prior experience and access to resources helped learners perform better after the intervention (Navarro, n.d.). This finding is reasonable because skills development improves when learners have more opportunities to practice, repeat procedures, use tools, and connect classroom demonstrations with home-based experiences (OECD, 2019; UNESCO, 2022; Navarro, n.d.). The result implies that TLE teachers should provide additional guided practice and resource support for learners who have limited

cookery background or limited access to tools and equipment at home (Department of Education, 2016; Navarro, n.d.).

The learners also encountered moderate challenges during the demonstration method implementation, with an overall weighted mean of 3.24 (Navarro, n.d.). The most common challenges were insufficient time for guided practice and return demonstration, limited tools and equipment during cookery activities, and difficulty presenting the finished product properly (Navarro, n.d.). These challenges show that demonstration alone is not enough if learners are not given sufficient time, materials, and opportunities to practice and receive feedback (Australian Education Research Organization, 2022; Rosenshine, 2012; Navarro, n.d.). This finding implies that demonstration-based cookery instruction should be supported by proper scheduling, adequate instructional resources, smaller practice groups, structured rubrics, and continuous monitoring of learner performance (Department of Education, 2016; TESDA, 2014; Navarro, n.d.).

Overall, the findings justify the proposed Instructional Enhancement Plan to Improve the Cookery Skills of Grade Nine TLE Learners at Señor Santiago Learning Center (Navarro, n.d.). The plan should focus on strengthening tool and equipment handling, food preparation techniques, safety and sanitation practices, procedural accuracy, finished-product presentation, guided practice, return demonstration, learner confidence, performance-based assessment, and instructional resource support (Navarro, n.d.). The proposed plan aligns with TVET's goal of developing practical skills for empowerment, employability, lifelong learning, and productive participation in society (UNESCO, 2022). Therefore, the study supports the continued use of the demonstration method as a practical, learner-centered, and competency-based instructional strategy for improving cookery skills in Grade Nine TLE (Department of Education, 2016; TESDA, 2014; Navarro, n.d.).

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INTEGRATING TECHNOLOGY-ASSISTED INSTRUCTION TO ENHANCE THE BASIC OPERATIONS SKILLS OF GRADE ONE MATHEMATICS LEARNERS AT SEÑOR SANTIAGO LEARNING CENTER

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Abstract

Foundational numeracy is an essential early-grade competency because it supports learners' ability to recognize numbers, count accurately, understand number relationships, and perform basic operations needed for later mathematical learning . This study determined the effectiveness of technology-assisted instruction in enhancing the basic operations skills of Grade One Mathematics learners at Señor Santiago Learning Center . Specifically, it assessed learners' basic operations skills before and after the intervention in terms of number recognition, counting, number relationships, addition, and subtraction . The study employed a quasi-experimental research design, specifically the one-group pretest–posttest design, involving 40 Grade One Mathematics learners selected through total enumeration sampling . The researcher used a Basic Operations Skills Test as the pretest and posttest instrument and a Challenges Encountered Checklist to identify difficulties experienced during the intervention . The intervention consisted of teacher-guided technology-assisted instruction using digital tools, interactive applications, multimedia presentations, educational videos, online games, virtual manipulatives, and technology-supported mathematics activities . Results showed that the learners' overall pretest mean of 2.28 was interpreted as Low, while the overall posttest mean of 4.15 was interpreted as High, indicating improvement after the intervention . Counting obtained the highest posttest mean of 4.48, while subtraction obtained the lowest posttest mean of 3.82, although both were interpreted as High . The paired-samples t-test showed a significant difference between pretest and posttest scores, with a mean difference of 1.87, t-value of 18.72, and p-value of $p < .001$. Learners sometimes encountered challenges during technology-assisted instruction, with an overall mean of 3.32, particularly repeated need for teacher guidance, difficulty following digital instructions, and distraction from sounds, animations, or game features . Based on the findings, the study proposed Project TAI-BOS: Technology-Assisted Instruction for Basic Operations Skills to strengthen number recognition, counting, number relationships, addition, and subtraction through structured, teacher-guided, and developmentally appropriate technology-assisted mathematics instruction .

Keywords: Technology-Assisted Instruction, Basic Operations Skills, Grade One Mathematics, Foundational Numeracy, Digital Tools, Project TAI-BOS, Señor Santiago Learning Center

1. Introduction

Mathematics plays a vital role in early-grade education because it develops learners' ability to recognize patterns, compare quantities, reason logically, and solve practical problems World Bank, 2025). In the first years of schooling, mathematics serves not only as a subject for learning numbers but also as a foundation for critical thinking, communication, and interpretation of everyday experiences National Research Council, 2009). Foundational learning, which includes basic numeracy, supports lifelong learning, cognitive development, and productive participation in society (World Bank, 2025). For this reason, mathematics in Grade One should be treated as a core learning area that shapes academic readiness and essential life skills UNICEF, 2021).

Grade One is a critical stage in developing foundational numeracy because learners begin to formalize their understanding of numbers, quantities, symbols, and basic operations UNICEF, 2021). At this level, children move from informal counting experiences to structured mathematical learning, especially in addition and subtraction Frye et al., 2013). Foundational numeracy builds on children's early mathematical ideas, including counting, quantity comparison, and emerging understandings of addition and subtraction (UNICEF, 2021). These early competencies form the basis for more advanced mathematical concepts, such as place value, measurement, multiplication, division, and problem-solving (Frye et al., 2013; National Research Council, 2009).

Proficiency in basic operations is essential because it enables young learners to combine, separate, compare, and represent quantities in meaningful ways Frye et al., 2013). Addition and subtraction are not merely procedural skills because they help learners understand number relationships and solve simple quantitative problems National Research Council, 2009). The development of number sense requires learners to connect objects, pictures, symbols, and mathematical language through concrete and guided experiences (Frye et al., 2013). When learners acquire accurate and confident basic operations skills, they become better prepared to participate in classroom activities and handle more complex mathematics lessons in later grade levels World Bank, 2025).

However, many young learners experience difficulty in mathematics because numeracy involves more than memorizing number names or reciting counting sequences UNICEF, 2026). Learners must understand that numbers represent quantities, quantities can be compared, and groups can be joined or separated through addition and subtraction Frye et al., 2013). If instruction does not connect mathematical symbols with objects, images, actions, and real-life situations, learners may perform procedures without fully understanding the relationships behind them Frye et al., 2013). This concern becomes more evident when instruction is too abstract for young learners who still need concrete, visual, and meaningful experiences National Research Council, 2009).

Developmentally appropriate early mathematics instruction should therefore progress from concrete experiences to visual representations and, finally, to abstract symbols (Frye et al., 2013). Young learners may use fingers, blocks, tally marks, counters, drawings, and digital manipulatives to represent mathematical ideas before solving written number sentences independently (Frye et al., 2013; Yaris, n.d.). This progression is important because learners differ in readiness, attention span, counting ability, language development, and prior exposure to mathematical activities Frye et al., 2013). Instruction that follows a developmental progression can help learners build number recognition, counting accuracy, number relationships, addition, and subtraction systematically (Frye et al., 2013; Yaris, n.d.).

Technology-assisted instruction offers a possible response to the need for concrete, visual, engaging, and learner-centered mathematics instruction in the early grades UNESCO, 2023). Digital tools can help translate abstract numerical symbols into visible, interactive representations through number lines, virtual counters, digital flashcards, animated examples, drag-and-drop activities, and educational games Mayer, 2021). These tools can help learners see how quantities are combined in addition and separated in subtraction Mayer & Fiorella, 2021). When used properly, technology-assisted instruction can support foundational numeracy by helping learners visualize number relationships, practice basic operations, and receive immediate feedback Barana et al., 2021).

The value of technology in education depends on its relevance, appropriateness, and connection to learning goals rather than its mere availability (UNESCO, 2023). Technology should strengthen pedagogy by helping teachers present lessons more clearly, provide guided practice, monitor learner progress, and address specific learning needs (UNESCO, 2023; OECD, 2025). In Grade One Mathematics, technology-assisted instruction should not replace the teacher or concrete materials, as young learners still need explanations, questioning, encouragement, routines, and adult guidance OECD, 2023). Instead, technology should enrich instruction by

making mathematical ideas more visible, interactive, and understandable for young learners Mayer, 2021).

Interactive applications, multimedia presentations, educational videos, online games, and teacher-guided digital activities may increase learners' participation in mathematics lessons Dan et al., 2024). Digital game-based learning may motivate learners to repeat basic operations tasks in a less threatening and more engaging manner when the games are aligned with mathematical objectives (Dan et al., 2024; Debrenti, 2024). Multimedia learning can also support early numeracy, as learners often understand concepts more effectively when words, pictures, sounds, and animations are clearly and meaningfully organized (Mayer, 2021; Mayer & Fiorella, 2021). Immediate feedback from digital activities can further help learners recognize errors, correct misconceptions, and try another strategy while the learning experience is still fresh (Barana et al., 2021).

At Señor Santiago Learning Center, the study focused on strengthening the basic operations skills of Grade One Mathematics learners through technology-assisted instruction The study examined learners' performance in number recognition, counting, number relationships, addition, and subtraction before and after the intervention The intervention included teacher-guided use of digital tools, interactive applications, multimedia presentations, educational videos, online games, and other technology-supported mathematics activities These activities were designed to make basic operations more concrete, visual, engaging, and responsive to the developmental needs of young learners UNESCO, 2023).

Accordingly, this study determined the effectiveness of technology-assisted instruction in enhancing the basic operations skills of Grade One Mathematics learners at Señor Santiago Learning Center Specifically, it assessed learners' basic operations skills before and after the intervention, tested for a significant difference between pretest and posttest scores, identified challenges encountered during technology-assisted instruction, and proposed an instructional enhancement plan based on the findings The study is important because early numeracy must be strengthened through evidence-based strategies that are developmentally appropriate, engaging, teacher-guided, and aligned with learning outcomes Frye et al., 2013). By generating school-based evidence, the study may guide teachers and administrators in improving early mathematics instruction through purposeful and pedagogically sound technology integration UNESCO, 2023).

2. Method

2.1 Research Design

The study employed a quantitative quasi-experimental research design, specifically the one-group pretest–posttest design, to determine the effectiveness of technology-assisted instruction in enhancing the basic operations skills of Grade One Mathematics learners at Señor Santiago Learning Center This design was appropriate because the study measured the performance of the same group of learners before and after their exposure to technology-assisted instruction (Campbell & Stanley, 1963). The pretest was administered before the intervention to determine the learners' initial level of basic operations skills in terms of number recognition, counting, number relationships, addition, and subtraction After the pretest, the learners were exposed to teacher-guided technology-assisted instruction using digital tools, interactive applications, multimedia presentations, educational videos, online games, and other technology-supported mathematics activities The posttest was administered after the intervention to determine whether learners' basic operations skills improved through technology-assisted instruction The comparison of pretest and posttest results served as the basis for identifying whether a significant difference existed in learners' performance before and after the intervention (Shadish et al., 2002). The one-group pretest–posttest design was suitable for classroom-based intervention research because it allowed the researcher to evaluate measurable improvement

among the same learners within an actual instructional setting (Creswell & Creswell, 2018). Although the design did not include a separate control group, it provided a practical method for examining the effect of a specific instructional intervention on learners' early numeracy performance (Campbell & Stanley, 1963; Shadish et al., 2002). The study also identified the challenges learners encountered during technology-assisted instruction, providing additional evidence of the intervention's implementation These challenges were used to understand learner-related and instruction-related concerns, such as attention, participation, understanding of digital activities, use of learning devices, and need for teacher assistance The findings from the pretest, posttest, significant difference test, and challenges encountered served as the basis for developing an instructional enhancement plan to strengthen basic operations instruction in Grade One Mathematics.

2.2 Participants

The study was 40 Grade One Mathematics learners at Señor Santiago Learning Center who were officially enrolled at the time of the study. These learners were selected because they were directly involved in early-grade mathematics instruction in which technology-assisted instruction was implemented. Since the study focused on basic operations skills, the participants were appropriate because Grade One is a critical stage for developing number recognition, counting, number relationships, addition, and subtraction. Early mathematics learning should be strengthened during the primary years because number and operations competencies serve as foundations for later mathematical understanding (Frye et al., 2013). The study used total enumeration sampling because the entire group of Grade One learners was included as respondents. This approach was appropriate because the population was manageable and allowed the researcher to gather complete data from all learners who participated in the intervention. Total enumeration also ensured that every learner in the target group had the opportunity to take the pretest, participate in technology-assisted instruction, complete the posttest, and report challenges encountered during the intervention. The same learners participated in both the pretest and posttest, allowing their performance before and after the intervention to be compared. This procedure was consistent with one-group pretest–posttest designs, in which the same participants are measured before and after exposure to an instructional treatment (Campbell & Stanley, 1963). The learners' scores served as the primary data for determining whether technology-assisted instruction improved their basic operations skills. Including all Grade One learners in the target group also supported classroom-based evidence generation, as the study examined the intervention within the actual learning context. Since the respondents were young learners, the study required teacher guidance, child-friendly instructions, and age-appropriate assessment procedures. Early mathematics instruction should be developmentally appropriate because young learners differ in readiness, attention span, prior number knowledge, and ability to connect concrete experiences with mathematical symbols (Frye et al., 2013). Overall, the participants were suitable for the study because they represented the learner group for whom technology-assisted instruction was intended and whose basic operation skills needed to be measured before and after the intervention.

2.3 Instrumentation

The study used researcher-developed instruments to gather data on the effectiveness of technology-assisted instruction in enhancing the basic operations skills of Grade One Mathematics learners. The main instrument was the Basic Operations Skills Test, which served as both the pretest and posttest. The test measured learners' performance in five foundational numeracy areas: number recognition, counting, number relationships, addition, and subtraction. These skill areas were appropriate because early mathematics instruction should develop number and operations through a developmental progression that begins with concrete number understanding and proceeds toward more formal operational thinking (Frye et al., 2013). The

pretest was administered before the intervention to determine the learners' initial level of basic operations skills. The posttest was administered after technology-assisted instruction to determine whether learners improved in the same skill areas. Using comparable pretest and posttest measures was appropriate because one-group pretest–posttest studies require the same group of participants to be assessed before and after an instructional intervention (Campbell & Stanley, 1963). The test items were designed to be age-appropriate and aligned with Grade One Mathematics competencies, particularly in identifying numbers, counting objects, comparing quantities, recognizing number relationships, solving simple addition problems, and solving simple subtraction problems. This alignment was important because early-grade mathematics assessment should reflect learners' developmental readiness and the foundational competencies expected in number and operations (Frye et al., 2013). In addition to the Basic Operations Skills Test, the study used a Challenges Encountered Checklist to identify difficulties learners experienced during technology-assisted instruction. The checklist included learner- and instruction-related concerns such as attention span, participation, understanding of digital activities, use of learning devices, following instructions, need for teacher assistance, and completion of technology-supported mathematics tasks. This instrument was appropriate because technology integration should be evaluated not only in terms of learning outcomes but also in terms of relevance, appropriateness, accessibility, and actual classroom implementation (UNESCO, 2023). Since the respondents were young learners, the checklist was administered with teacher guidance and classroom observation to ensure responses and observations were appropriate for their age and level of understanding. The research instruments were validated by mathematics teachers, early-grade teachers, and research experts to ensure clarity, age appropriateness, content relevance, and alignment with the study's objectives. Validation was necessary because research instruments should accurately measure the intended variables and be reviewed for appropriateness before actual administration (Creswell & Creswell, 2018). Overall, the Basic Operations Skills Test and the Challenges Encountered Checklist provided the necessary data to determine learners' performance before and after the intervention, identify implementation challenges, and develop an instructional enhancement plan for Grade One Mathematics instruction.

2.4 Data Analysis

The data gathered from the Basic Operations Skills Test and the Challenges Encountered Checklist were checked, scored, tabulated, organized, analyzed, and interpreted in accordance with the specific research problems of the study (Creswell & Creswell, 2023). Descriptive statistics were used to determine the level of basic operations skills of the Grade One Mathematics learners before and after the implementation of technology-assisted instruction (Creswell & Creswell, 2023). The mean was computed to determine the learners' average performance in number recognition, counting, number relationships, addition, and subtraction before and after the intervention (Creswell & Creswell, 2023). The standard deviation was used to determine the extent of variation or consistency in the learners' pretest and posttest scores across the assessed basic operations skills (Field, 2024). The pretest results served as the baseline measure of learners' initial numeracy performance, while the posttest results served as the measure of learners' performance after exposure to technology-assisted instruction (Creswell & Creswell, 2023). The descriptive interpretation of the mean scores was used to classify learners' level of performance in each basic operations skill area before and after the intervention (Creswell & Creswell, 2023). To determine whether a significant difference existed between the pretest and posttest scores of the same group of learners, the paired-samples t-test was employed at the 0.05 level of significance (Field, 2024). This statistical test was appropriate because the study compared two related sets of scores obtained from the same learners before and after the instructional intervention (Field, 2024). The result of the paired-samples t-test served as the basis for determining whether technology-assisted instruction significantly enhanced the learners' basic

operations skills (Creswell & Creswell, 2023). To address challenges encountered during technology-assisted instruction, frequency counts and percentages were used to determine how many learners experienced each difficulty and the proportion of the group that encountered the same concern (Creswell & Creswell, 2023). A weighted mean was used to determine the extent to which learners encountered each challenge during technology-assisted instruction (Creswell & Creswell, 2023). Ranking was applied to arrange the challenges from most to least encountered based on learners' responses and classroom observations (Creswell & Creswell, 2023). The analysis of challenges was important because technology integration should be evaluated not only through learning outcomes but also through its relevance, appropriateness, accessibility, and actual classroom implementation (UNESCO, 2023). The interpretation of the results also considered that young learners need guided, high-quality, and developmentally appropriate digital learning experiences rather than passive exposure to technology (OECD, 2023). The findings from the pretest, posttest, significance test, and challenges encountered served as the empirical basis for developing an instructional enhancement plan to improve basic operations skills in Grade One Mathematics (Creswell & Creswell, 2023). Overall, the statistical tools provided a systematic basis for determining the effectiveness of technology-assisted instruction and for identifying priority areas for strengthening number recognition, counting, number relationships, addition, and subtraction among Grade One learners (World Bank, 2025).

3. Results

Before the implementation of technology-assisted instruction, the Grade One Mathematics learners obtained an overall pretest mean of 2.28, interpreted as Low, indicating that their basic operations skills still needed strengthening before the intervention. Among the five assessed skills, counting had the highest pretest mean of 2.55, followed by number recognition (2.48), number relationships (2.31), addition (2.10), and subtraction (1.98). These findings showed that the learners had some initial ability to recognize and count numbers but still experienced difficulty understanding number relationships and performing addition and subtraction. This result supports the view that foundational numeracy requires more than mere counting familiarity, as learners must also connect numbers to quantities, relationships, and operations (UNICEF, 2021; World Bank, 2025). The low pretest performance further emphasized the need for concrete, visual, guided, and developmentally appropriate mathematics instruction in the early grades (Department of Education, 2023; OECD, 2023).

After implementing technology-assisted instruction, the learners' overall posttest mean increased to 4.15, indicating a High level. Counting obtained the highest posttest mean of 4.48, followed by number recognition with a mean of 4.35, number relationships with a mean of 4.12, addition with a mean of 3.96, and subtraction with the lowest mean of 3.82. Although subtraction remained the lowest skill area, it was still rated High, indicating that learners improved even in the operation that was initially most difficult. These findings indicated that technology-assisted instruction helped learners improve across all basic operations indicators. The improvement may be attributed to the use of digital tools, interactive applications, multimedia presentations, educational videos, online games, virtual manipulatives, and teacher-guided technology activities that made numbers and operations more concrete, visual, and engaging (Mayer, 2021; UNESCO, 2023). This result aligns with the idea that young learners benefit when technology is used purposefully to support learning goals rather than merely provide screen-based activity (OECD, 2023; UNESCO, 2023).

The comparison of the pretest and posttest results showed a statistically significant improvement in learners' basic operations skills. The overall pretest mean of 2.28 increased to an overall posttest mean of 4.15, producing a mean difference of 1.87. The computed overall t-value of 18.72, with a p-value of 0.000 ($p < .001$ in APA style), indicated that the improvement was statistically significant at the 0.05 level. Therefore, the null hypothesis was rejected, confirming that there was a significant difference between the learners' basic operations skills before and

after the use of technology-assisted instruction. The improvement across number recognition, counting, number relationships, addition, and subtraction suggests that technology-assisted instruction contributed positively to early numeracy development. This finding is consistent with current views that digital learning environments can support mathematics learning when they provide visual representation, interaction, guided practice, and feedback (Barana et al., 2021; Dan et al., 2024).

The learners also encountered challenges during the implementation of technology-assisted instruction. The overall weighted mean of 3.32 indicated that the challenges were Sometimes Encountered. The most frequently encountered challenge was learners' repeated need for teacher guidance in using digital tools, with a mean of 3.92, indicating it was Often Encountered. This was followed by difficulty following instructions in digital activities (mean = 3.75) and by distraction caused by sounds, animations, or game features (mean = 3.58). Other challenges included difficulty transferring learning from digital activities to written tasks, limited attention span, difficulty operating devices independently, needing more time to complete technology-supported mathematics tasks, becoming overly focused on the game aspect, confusion when switching activities, and hesitation when using unfamiliar applications. These findings imply that technology-assisted instruction for young learners should remain teacher-guided, structured, age-appropriate, and closely connected to mathematics objectives (OECD, 2023; UNESCO, 2023).

Based on the findings, the study proposed Project TAI-BOS: Technology-Assisted Instruction for Basic Operations Skills as an instructional enhancement plan for Grade One Mathematics. The plan focused on strengthening number recognition, counting, number relationships, addition, and subtraction through a concrete–visual–symbolic progression. It included digital flashcards, number-tracing applications, matching games, interactive counting tasks, number lines, digital sorting activities, animated joining-and-taking-away activities, virtual counters, and guided problem-solving exercises. The plan also emphasized formative assessment through short quizzes, oral questions, observation checklists, written exercises, small-group remediation, and progress monitoring. This enhancement plan was appropriate because the findings showed both significant learning gains and implementation challenges that required structured teacher support. Overall, the results demonstrated that technology-assisted instruction can be an effective instructional strategy for improving Grade One learners' basic operations skills when implemented through guided, developmentally appropriate, and instructionally purposeful activities (Department of Education, 2023; OECD, 2023; UNESCO, 2023; World Bank, 2025).

4. Discussion

The study's findings revealed that technology-assisted instruction enhanced the basic operations skills of Grade One Mathematics learners. The increase from low pretest to high posttest performance indicates that young learners benefited from instruction that made number concepts more visual, concrete, interactive, and engaging. This finding supports the view that foundational numeracy is essential in the early grades because it develops learners' ability to understand numbers, quantities, relationships, and operations needed for future learning (World Bank, 2025). It also aligns with the MATATAG Mathematics Curriculum, which emphasizes the development of mathematical knowledge, understanding, problem-solving, and critical thinking among learners (Department of Education, 2023).

The improvement in number recognition and counting suggests that technology-assisted instruction helped learners connect numerals with quantities and number names. Digital flashcards, number tracing applications, interactive counting tasks, and visual matching activities may have strengthened learners' ability to identify numbers and count objects accurately. This result is consistent with the idea that young learners need concrete and visual learning experiences before they can work confidently with abstract mathematical symbols (UNICEF,

2021). It also supports the principle that digital learning experiences for young children should be guided, developmentally appropriate, and integrated into broader learning activities rather than used as passive screen exposure (OECD, 2023).

The improvement in number relationships indicates that learners became more capable of comparing quantities, identifying greater or lesser values, arranging numbers, and understanding how numbers relate to one another. This is important because number relationships serve as a bridge between simple counting and more complex operations such as addition and subtraction. Technology-assisted instruction may have supported this skill through digital number lines, sorting activities, matching games, and visual comparison tasks. Multimedia learning theory supports this finding because learners understand concepts more effectively when verbal explanations are combined with clear visual representations (Mayer, 2021).

The additional gains show that technology-assisted instruction helped learners understand the process of joining quantities. Animated joining activities, virtual counters, drag-and-drop exercises, and teacher-guided digital games may have helped learners see how separate groups combine to form a total. This supports the idea that technology can contribute to learning when it is intentionally selected to address a specific instructional goal (UNESCO, 2023). It also reflects the value of interactive learning environments that allow learners to practice repeatedly and receive immediate responses while solving mathematical tasks (Barana et al., 2021).

Although subtraction remained the lowest posttest skill, its improvement still indicates that learners developed a better understanding of taking away or separating quantities. Subtraction is often more difficult for young learners because it requires them to understand decrease, remaining quantity, and the relationship between the original set and the resulting set. Technology-assisted activities may have helped reduce this difficulty by visually showing objects being removed from a group. This interpretation is supported by multimedia learning principles, which explain that learners can better understand abstract ideas when instructional materials combine words, pictures, animations, and meaningful demonstrations (Mayer, 2021).

The significant difference between the pretest and posttest results confirms that technology-assisted instruction contributed to measurable improvement in learners' basic operations skills. The use of teacher-guided digital tools, interactive applications, multimedia presentations, educational videos, and online games appears to have supported learners in moving from low performance to high performance. This finding is consistent with recent discussions on educational technology, which emphasize that technology should be evaluated on the basis of its relevance, appropriateness, equity, and contribution to learning outcomes (UNESCO, 2023). It also supports the view that successful digital learning depends not only on device availability but also on how technology is integrated into pedagogy (OECD, 2023).

The findings also showed that learners sometimes encountered challenges during technology-assisted instruction. The repeated need for teacher guidance suggests that Grade One learners still require close supervision when using digital tools for mathematics learning. Difficulty following digital instructions and distraction from sounds, animations, or game features also indicate that technology must be carefully selected and managed for young learners. This supports the OECD's position that young children's digital engagement should be high-quality, adult-guided, and balanced with broader learning experiences (OECD, 2023).

The challenges encountered further suggest that technology-assisted instruction should not be treated as a substitute for teacher-led instruction. Young learners still need explanation, questioning, modeling, encouragement, correction, and structured classroom routines. Digital games and applications can increase engagement, but they may also distract learners if the entertainment features outweigh the mathematical goal. This is consistent with recent research on digital game-based learning, which emphasizes that games support mathematics learning only when they are aligned with instructional objectives, designed for learning, and facilitated properly by the teacher (Dan et al., 2024).

Overall, the findings support the proposed Project TAI-BOS: Technology-Assisted Instruction for Basic Operations Skills as a relevant instructional enhancement plan for Grade One Mathematics. The plan is appropriate because it addresses the need to strengthen number recognition, counting, number relationships, addition, and subtraction through concrete, visual, symbolic, interactive, and teacher-guided learning activities. It also responds to the identified challenges by emphasizing teacher guidance, structured use of digital tools, progress monitoring, remediation, and purposeful technology integration. Therefore, technology-assisted instruction may be considered an effective and practical strategy for improving early numeracy when it is developmentally appropriate, instructionally aligned, and guided by the teacher (Department of Education, 2023; OECD, 2023; UNESCO, 2023; World Bank, 2025).

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