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Journal



EVBERIJ

EASTERN VISAYAS BASIC EDUCATION RESEARCH AND INNOVATION JOURNAL

*"Championing Research and Innovation with Ethics, Integrity,
and Excellence in Eastern Visayas Education"*

OFFICE OF THE REGIONAL DIRECTOR

Message



It is with great pride and optimism that I extend my warmest greetings to the contributors, editors, and readers of the 2025 Eastern Visayas Basic Education Research and Innovation Journal. This publication demonstrates our genuine commitment to advancing education through ethical, innovative research that responds to the needs of our learners and communities.

Anchored in the theme “Championing Research and Innovation with Ethics, Integrity, and Excellence in Eastern Visayas Education,” this journal reflects DepEd Region VIII’s strong belief that research is not optional but a pillar of educational transformation. In a region facing learning gaps, inclusivity challenges, digital transitions, disaster risks, and equity concerns, we are reminded that meaningful solutions must be grounded in evidence and informed by context.



Research enables us to move beyond assumptions and traditions. It allows us to ask critical questions, analyze realities, and determine what works, for whom, and under what conditions. When conducted with ethical rigor and professional integrity, research becomes a powerful tool for reform—guiding sound policy decisions, strengthening programs, and improving classroom practice.

Innovation brings research to life. It translates findings into action and transforms insights into tangible improvements in teaching and learning. In Eastern Visayas, innovation must be sustainable, inclusive, and sensitive to local realities. Research must not end on paper; it must lead to empowered teachers, engaged learners, resilient schools, and stronger communities.

This journal also underscores our commitment to excellence. Excellence in research demands quality at every stage—from design and implementation to analysis and utilization. It calls on us to uphold transparency, credibility, and accountability, ensuring that our work earns public trust and serves the greater good.

As Regional Director, I commend all researchers and innovators whose work is featured in this volume. May this journal inspire deeper inquiry, stronger collaboration, and greater courage to use research as a tool for transformation. Let us continue to build a vibrant research culture that uplifts learners and strengthens the future of basic education in Eastern Visayas.


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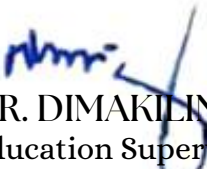
Foreword

DepEd Region VIII through the Policy Planning and Research Division PPRD presents the 2025 Eastern Visayas Basic Education Research and Innovation Journal, featuring a rich collection of research studies and innovative practices presented during the 2025 Eastern Visayas Basic Education Research and Innovation Forum. Anchored on the theme “Championing Research and Innovation with Ethics, Integrity, and Excellence in Eastern Visayas Education,” the journal reflects the region’s commitment to quality basic education aligned with the Quality Basic Education Program (QBEDP) and the Regional Education Development Plan (REDP).

The forum served as a vital platform for DepEd educators to generate and share research-based insights that strengthen evidence informed decision making and support the attainment of priority outcomes. The studies featured in this journal address key focus areas including learner centered instruction, teacher development, technology integration, and governance, all of which directly contribute to the implementation of the REDP.

Through the publication of these research outputs, the journal reinforces a culture of research and innovation that informs policy development, guides planning, and enhances program implementation across the region. It ensures that education initiatives are responsive, inclusive, and grounded in evidence, supporting continuous improvement in teaching and learning. We commend the educators and researchers of Eastern Visayas, together with the Policy Planning and Research Division (PPRD), for their commitment to advancing research driven practices and for their leadership in promoting excellence and accountability in basic education.




RITA R. DIMAKILING
Chief Education Supervisor
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DEPED REGION VIII: ADVANCING EDUCATION THROUGH RESEARCH AND INNOVATION

DepEd Regional Office VIII, together with its 13 Schools Division Offices and 4,480 schools, upholds the belief that education is the greatest equalizer, opening opportunities and reinforcing our responsibility to make basic education accessible to every learner. With this conviction, the region continues to move forward amid an environment of volatility, uncertainty, complexity, and ambiguity, guided by courage, purpose, and a shared vision of educational progress.

Anchored on this commitment, Region VIII has placed research and innovation at the heart of educational transformation. Through the Policy, Planning, and Research Division (PPRD), the region actively promotes the generation, use, and dissemination of evidence to guide policies, strengthen programs, and improve learning outcomes. This is reflected in the strong participation of educators in research and innovation initiatives, including the 2025 Eastern Visayas Basic Education Research and Innovation Forum, which gathered 163 research studies and 78 innovations across the areas of teaching and learning, governance, human resource development, and child protection.

This reflects the region's commitment to equity, quality, and responsive service delivery, grounded in evidence-based decision-making. It provides a data-driven foundation that informs regional planning, supports performance monitoring, and guides resource allocation, fully aligned with the Quality Basic Education Program (QBED-P) and the Regional Education Development Plan (REDP). By integrating research into planning and governance, DepEd Region VIII strengthens its capacity to respond to learning gaps, system challenges, and emerging needs of schools and communities.

Through EVBERIJ and its broader research agenda, the region continues to build a culture of inquiry, innovation, and accountability, ensuring that every policy, program, and intervention is informed by credible data and the lived realities of learners and educators. In doing so, DepEd Region VIII advances its mission of building an education system that is inclusive, resilient, and truly responsive to the needs of every Filipino learner.



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RESEARCH



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INNOVATION Compendium

THE IMPACT OF PROJECT “MATH-RISE” IN ENHANCING NUMERACY SKILLS OF SENIOR HIGH SCHOOL STUDENTS THROUGH BALK (BASIC ARITHMETIC LEARNING KIT)

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“Teaching and Learning - First Best Paper”

Introduction

Numeracy, a core element of mathematical literacy, involves more than basic computation. It requires learners to reason quantitatively, apply mathematical concepts, and solve problems in real-life situations. As Belleza (2022), citing Pangan (2016), notes, numeracy integrates conceptual understanding, procedural fluency, and communication—competencies that have become increasingly essential in a technology-driven society. Early mastery of numeracy is therefore crucial; foundational arithmetic skills developed in primary grades support the acquisition of higher-level mathematics (Munda et al., 2024). In contrast, weak numeracy foundations often lead to persistent learning difficulties and limited capacity for problem-solving (Celemin, 2023).

Despite its importance, global and national assessments consistently reveal low numeracy proficiency among Filipino learners. The Philippines ranked lowest in mathematics in TIMSS 2019 and placed 77th out of 81 participating countries in PISA 2022, underscoring significant gaps in number sense and analytical reasoning (Organization for Economic Co-operation and Development [OECD], 2023). National studies reinforce these findings. DOST-SEI and UP NISMED (2020) reported widespread difficulties in basic arithmetic across grade levels, while David et al. (2022) documented substantial mathematics learning losses during and after the pandemic. These gaps affirm the Department of Education’s (DepEd, 2023) call for contextualized numeracy interventions aligned with curriculum standards. In addition, this study is guided by DepEd Order No. 8, s. 2015, which mandates the use of diagnostic, formative, and summative assessments; DepEd Order No. 42, s. 2016, which emphasizes scaffolded and responsive instruction; and DepEd Order No. 34, s. 2022, which prioritizes learning recovery and numeracy strengthening (Department of Education, 2015, 2016, 2022).

Local diagnostic data from Manhilo National High School (MNHS) further highlights the urgency of intervention. In School Year 2024–2025, the Enhanced Regional Unified Numeracy Test (ERUNT) administered to 168 Senior High School learners revealed that 14 learners (8.33%) demonstrated high proficiency, 28 (16.67%) reached proficiency, 44 (26.19%) were low-proficient, and 11 (6.55%) were non-proficient. The majority struggled with whole number operations,

integers, and problem-solving tasks. These results show that, despite existing programs, MNHS has not yet implemented or systematically evaluated a localized, scaffolded numeracy intervention targeting Senior High School learners. This gap provides the rationale for the current study.

In response, MNHS introduced Project MATH-RISE (Mastering Arithmetic Through the Help of Rational, Interactive, and Structured Exemplars), which utilizes the Basic Arithmetic Learning Kit (BALK). BALK is a contextualized instructional toolkit composed of flashcards and worksheets organized by topic and difficulty level, aligned with ERUNT competency domains. It focuses on four key numeracy areas: whole number operations, fractions and decimals, integers, and exponents and roots. The intervention includes a pre-test, guided practice sessions using BALK materials, weekly 10-item assessments, and a post-test administered after seven weeks to evaluate changes in learners’ accuracy, fluency, and overall numeracy competence.



Project MATH-RISE draws on Vygotsky’s (1978) Sociocultural Theory, particularly the concept of the Zone of Proximal Development (ZPD), which posits that learners progress most effectively when supported by a more knowledgeable other (MKO). BALK operationalizes this through scaffolded instruction, sequenced tasks, and repeated exposure to arithmetic concepts. The project aligns with DepEd Order No. 013, s. 2023 (National Learning Recovery Program) and DepEd Order No. 021, s. 2019 (K-12 Curriculum Review), both of which promote evidence-based, curriculum-aligned numeracy interventions.

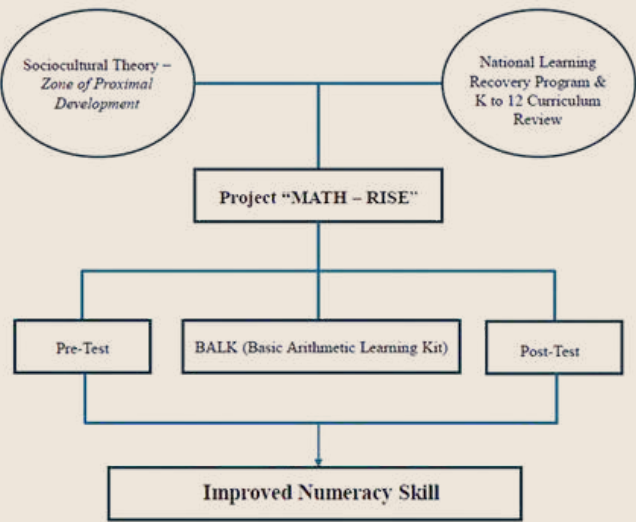


Figure 1. Conceptual Framework of the Study

The conceptual framework demonstrates how Project MATH-RISE integrates theoretical, policy, and instructional components to improve numeracy skills. It begins with assessing learners’ baseline performance through a pre-test, continues with structured intervention activities using BALK, and concludes with a post-test to measure learning gains. Differences in pre-test and post-test scores serve as indicators of the intervention’s effectiveness in strengthening foundational arithmetic competence.

This study investigates the effectiveness of Project MATH-RISE and the Basic Arithmetic Learning Kit (BALK) in enhancing the numeracy performance of non-proficient Senior High School learners. Specifically, it examines learners’ initial numeracy levels, the degree of improvement following BALK-based intervention activities, changes in computational accuracy and fluency across arithmetic domains, and learners’ perceptions of the intervention’s usefulness. Through its structured and contextualized approach, this study aims to contribute to evidence-based numeracy enhancement practices within Philippine secondary education.

Methodology

This study employed a mixed-methods research design, integrating both quantitative and qualitative approaches to comprehensively examine the impact of Project MATH-RISE through the Basic Arithmetic Learning Kit (BALK). Mixed-methods designs are particularly valuable in educational research because they combine the strengths of numerical data with rich descriptive insights, enabling researchers to identify statistical trends while gaining deeper understanding of learners’ experiences (Baran, 2022). Specifically, this study utilized an explanatory sequential design, wherein quantitative data were collected and analyzed first, followed by qualitative data to further clarify, contextualize, and elaborate on the initial quantitative findings. This design facilitated a more nuanced interpretation of changes in numeracy performance by incorporating learners’ perspectives on how BALK supported their learning.

The research was conducted at Manhilo National High School (MNHS) in Manhilo, Maasin City, during the second grading period of School Year 2024–2025. The participants consisted of 11 Senior High School students identified as non-proficient based on their Enhanced Regional Unified Numeracy Test (ERUNT) pre-test scores. Purposeful selection of non-proficient learners ensured alignment with the study’s primary objective—to determine the effectiveness of BALK in supporting those most at risk of not meeting foundational numeracy competencies. Including low-proficient learners would have diluted the targeted effects, as they already demonstrate partial mastery and require less intensive intervention (Creswell & Creswell, 2018). The demographic profile of the participants is presented in Table 1a, while their pre-intervention mathematics performance is shown in Table 1b.

Table 1a. Demographic profile as to Age, Sex, by Grade levels			
Grade Level	Age	Sex	
		Male	Female
11	16	1	4
	17	1	0
	18 above	0	0
12	16	0	0
	17	5	0
	18 above	0	0
Total		7	4

Level	f	%	Overall
Outstanding (90 - 100)	0	0%	Fairly Satisfactory (75 - 79)
Very Satisfactory (85-89)	0	0%	
Satisfactory (80 - 84)	0	0%	
Fairly Satisfactory (75 - 79)	10	91%	
Did not Meet Expectations (Below 75)	1	9%	



The BALK intervention was implemented every Friday for seven weeks and followed a structured progression of four arithmetic categories: whole numbers, fractions and decimals, integers, and exponents and roots. Each category was organized into three levels of increasing difficulty. For each level, the researchers prepared five sets of activity sheets and one set of flashcards. Learners completed one activity sheet per session and used the flashcards for guided or independent practice. Advancement to the next level depended on meeting predetermined proficiency criteria. At the onset of the intervention, participants completed a 20-item pre-test aligned with the ERUNT framework to determine baseline numeracy performance. Flashcards were available throughout the program to support independent practice, and learners logged both the duration of practice and their corresponding scores. Weekly progress monitoring involved a 10-item assessment to determine readiness for advancement. Promotion criteria were as follows: for Category 1, a minimum of 8 correct responses (Proficient Level) across all levels was required to advance, while for Categories 2 to 4, a minimum of 5 correct responses (Nearly Proficient Level) was required. After the seven-week implementation, students completed a post-test equivalent in structure and content to the pre-test to measure overall improvement.

To complement the quantitative findings, qualitative data were collected to capture learners' experiences, perceptions, and challenges throughout the intervention. These included face-to-face interviews conducted by the researchers, reflective questions completed by learners after each BALK activity, and classroom observations during intervention sessions. Interview responses and written reflections explored learners' motivation, difficulties, and perceived usefulness of BALK, while classroom observations focused on indicators such as engagement, participation, and task behavior. All qualitative data were transcribed, collated, and analyzed using thematic analysis following the procedures outlined by Braun and Clarke (2021).

The integration of quantitative and qualitative data provided a comprehensive understanding of the effectiveness of Project MATH-RISE in enhancing numeracy skills among non-proficient Senior High School learners. Finally, the research instruments used in the study underwent validation to ensure accuracy and credibility. The pre-test, post-test, and weekly assessments were subjected to expert validation or pilot testing in accordance with standards outlined in DepEd Order No. 8, s. 2015. Ethical considerations were strictly observed, including securing informed consent from participants, ensuring confidentiality, and obtaining administrative approval prior to implementation.

As shown in Table 2, Senior High School learners initially demonstrated low-to-average numeracy performance prior to the intervention. No student achieved the Highly Proficient or Proficient levels, and the mean score of 50.73% placed learners in the Nearly Proficient category, indicating partial competency in

basic arithmetic but insufficient mastery. While 64% of participants showed moderate understanding, 36% remained Low Proficient, reflecting gaps in computational skills, conceptual knowledge, and operational fluency. These baseline results highlight the need for targeted numeracy support, providing the rationale for implementing Project MATH-RISE using the Basic Arithmetic Learning Kit (BALK).

Results and Discussions

Table 2. Results of the Pre-Test Performance of Learners

Performance	f	%	Average	
Highly Proficient (90-100)	0	0%		
Proficient (75-89)	0	0%		
Nearly Proficient (50-74)	7	64%	50.73%	(Nearly Proficient)
Low Proficient (25-49)	4	36%		
Non-Proficient (0-24)	0	0%		

Table 3 presents the post-test performance of learners. After the seven-week intervention, significant improvement was observed. The proportion of learners reaching the Proficient level increased to 36%, and no students remained in the Low or Non-Proficient categories. The mean score rose to 74.00%, moving closer to the Proficient range. This shift suggests that learners responded positively to the scaffolding, guided practice, and visual learning strategies embedded in BALK. The transition from minimal proficiency toward competence affirms the kit's effectiveness as a remedial tool for numeracy development.

Table 3. Results of the Post-Test Performance of Learners

Performance	f	%	Average	
Highly Proficient (90-100)	0	0%		
Proficient (75-89)	4	36%		
Nearly Proficient (50-74)	7	64%	74.00%	(Nearly Proficient)
Low Proficient (25-49)	0	0%		
Non-Proficient (0-24)	0	0%		

Table 4 Observable Changes in Learners' Accuracy and Speed Across Levels of Complexity Before and After the Use of BALK

Table 4. 1 Series of Operations on Whole Numbers

Category	Level	Pre-Test			Post-Test		
		Time Difference	PS	Level of Proficiency	Time Difference	PS	Level of Proficiency
1	1	0:13	80.91	Proficient	0:09	95.00	Highly Proficient
	2	0:09	80.00	Proficient	0:09	96.36	Highly Proficient
	3	0:13	82.73	Proficient	0:08	90.00	Highly Proficient
Average		0:11	81.21	Proficient	0:08	93.79	Highly Proficient



Table 4.1 shows a clear improvement in learners’ performance in the Series of Operations on Whole Numbers after the intervention. From the pre-test to the post-test, the average problem-solving time decreased from 0:11 to 0:08, indicating faster computation, while the mean performance score increased from 81.21 (Proficient) to 93.79 (Highly Proficient). Across all levels, learners moved from Proficient to Highly Proficient, demonstrating that the intervention effectively enhanced both accuracy and speed in solving whole number operations.

Table 4. 2 Operations on Fractions and Decimals							
Category	Level	Pre-Test			Time Difference	Post-Test	
		Time Difference	PS	Level of Proficiency		Time Difference	PS
2	1	0:14	44.55	Low Proficient	0:13	71.00	Nearly Proficient
	2	0:14	44.55	Low Proficient	0:14	58.00	Nearly Proficient
	3	0:14	32.73	Low Proficient	0:14	54.00	Nearly Proficient
Average		0:14	40.61	Low Proficient	0:13	61.00	Nearly Proficient

Table 4.2 indicates an overall improvement in learners’ performance in operations on fractions and decimals after the intervention. The mean performance score increased from 40.61 (Low Proficient) in the pre-test to 61.00 (Nearly Proficient) in the post-test, showing notable gains in accuracy across all levels. While time differences showed minimal change, with only a slight reduction in the average completion time from 0:14 to 0:13, the improvement in proficiency suggests that learners developed better conceptual understanding and procedural skills. However, the results also indicate that operations involving fractions and decimals remain challenging, implying the need for continued practice and targeted instructional support to further improve both accuracy and speed.

Table 4. 3 Operations on Integers							
Category	Level	Pre-Test			Time Difference	Post-Test	
		Time Difference	PS	Level of Proficiency		Time Difference	PS
3	1	0:10	73.64	Nearly Proficient	0:08	93.64	Highly Proficient
	2	0:10	73.64	Nearly Proficient	0:11	90.00	Highly Proficient
	3	0:11	66.36	Nearly Proficient	0:11	90.91	Highly Proficient
Average		0:10	71.21	Nearly Proficient	0:10	91.52	Highly Proficient

Table 4.3 reveals a significant improvement in learners’ performance in operations on integers following the intervention. The average performance score increased from 71.21 (Nearly Proficient) in the pre-test to 91.52 (Highly Proficient) in the post-test, indicating substantial gains in accuracy across all levels. Although the average time difference remained at 0:10, slight improvements in specific levels suggest more efficient problem-solving. The shift from Nearly Proficient to Highly Proficient across all levels

demonstrates that the intervention was highly effective in strengthening learners’ understanding and execution of integer operations, particularly in improving accuracy while maintaining consistent speed.

Table 4. 4 Exponents and Roots							
Category	Level	Pre-Test			Time Difference	Post-Test	
		Time Difference	PS	Level of Proficiency		Time Difference	PS
4	1	0:14	79.09	Proficient	0:11	93.64	Highly Proficient
	2	0:11	64.55	Nearly Proficient	0:11	79.09	Proficient
	3	0:13	67.27	Nearly Proficient	0:11	79.09	Proficient
Average		0:12	70.30	Nearly Proficient	0:11	83.94	Proficient

Table 4.4 shows a clear improvement in learners’ performance in exponents and roots after the intervention. The average performance score increased from 70.30 (Nearly Proficient) in the pre-test to 83.94 (Proficient) in the post-test, reflecting enhanced accuracy across all levels. The average time difference slightly decreased from 0:12 to 0:11, indicating more efficient problem-solving. The shift from Nearly Proficient to Proficient, with Level 1 reaching Highly Proficient, suggests that the intervention was effective in improving learners’ understanding and application of exponents and roots while also promoting faster task completion.

Table 5. Difference in Pre-Test and Post-Test performance during Project MATH - RISE						
Variables	Pre	Post	Mean Difference	% Increase	of	Remarks
Numeracy Levels	Proficiency 50.73	74.00	23.27	45.87%		Better
Extent of Gain: 0&below (Poor/No Gain), 1-25% (Good), 26 - 49% (Better), 50-100% (Best)						

Table 5 highlights the difference between pre-test and post-test performance. The 23.27-point increase, corresponding to a 45.87% improvement, is classified as “Better.” This improvement demonstrates that BALK effectively strengthened arithmetic operations, conceptual understanding, and computational speed. These findings align with research showing that the use of concrete and virtual manipulatives in mathematics instruction significantly enhances students’ mathematical achievement compared with traditional methods (Ahmad & Siller, 2024).

Thematic results of the Responses of Participants

Table 6. Learners' Thematic Self-Assessment on Numeracy Skills Before and After the Implementation of Project 'MATH-RISE'			
Themes	Description		Sample Verbatim Responses
Initial Lack of Confidence and Math Anxiety	Before using the learning kit students felt anxious, unsure, and had low confidence in Math		"Diko <u>musaling sa ahong</u> answer kay basin <u>mali</u> "; "I'm feeling nervous"; " <u>Nahadlok ng gikubaan sa</u> Numeracy"; "No good in Math"
Increased Confidence After Using Learning Kit	Students reported greater confidence, feeling capable of solving Math problems independently.		"Naa <u>nakoy</u> confidence di na <u>kabado</u> "; "I feel more confident and ready to solve Math problems"



Thematic analysis of learners’ self-assessments revealed two primary themes regarding their experiences with numeracy. Initially, learners reported feelings of nervousness, hesitation, and low confidence, which aligns with research showing that math anxiety can undermine mathematics performance and persistence (Kappuw, 2024; Ruijia et al., 2022; Sulatra & Magnate, 2023). For example, students expressed: “Diko musalig sa ahong answer kay basin mali” and “I’m feeling nervous.” After the intervention, students reported increased confidence and a sense of competence in solving mathematical problems independently, stating: “Naa nakoy confidence di na kabado” and “I feel more confident and ready to solve Math problems.” These findings are consistent with evidence that mathematics self-efficacy predicts better math achievement and can mediate the negative effects of anxiety on performance (Labong et al., 2025).

Table 7. Impact of Project "MATH-RISE" using BALK (Basic Arithmetic Learning Kit)		
Themes	Description	Sample Verbatim Responses
Strengthened Understanding of Math Concepts	Previously confusing topics like exponents, fractions, integers, and cube roots became clearer.	"Kinaunhan maglibog ko sa 2 raise to the power of 3 ug 2 cube raise to the power of 3, <u>karon kahibaw nako unsaon</u> "; "Fractions became clearer to me, I learned how to add <u>fractions</u> "; "I have understood the integers better after the experience"
Improvement in Basic Computational Skills	Students improved arithmetic and operational skills in integers, fractions, powers and roots.	"Solving integers and power & roots"; "Fundamental operations improved"; "Adding integers, dividing fractions"
Enhanced Performance and Confidence in Assessments	Students experienced faster problem-solving, fewer mistakes, and higher scores.	"Dali <u>muimprove</u> imong <u>pag</u> answer, <u>mupaspas</u> "; "Helps me improve in Math"; "My test scores went up, fewer mistakes"

Analysis of the impact of BALK on learning revealed that previously challenging topics, such as exponents, fractions, integers, and roots, became more understandable. Students reported improvements in both conceptual understanding and computational skills. Sample responses included: “Fractions became clearer to me, I learned how to add fractions” and “I have understood the integers better after the experience.” Participants also noted faster problem-solving, fewer mistakes, and higher assessment scores, highlighting the benefits of structured, scaffolded practice and visual reinforcement in numeracy learning (Kappuw, 2024; Labong et al., 2025; Sulatra & Magnate, 2023).

Table 8. Feedback on the Project "MATH-RISE" using BALK (Basic Arithmetic Learning Kit)		
Themes	Description	Sample Verbatim Responses
Effectiveness of Activity Sheets and Practice Materials	Students found the activity sheets and flashcards helpful in understanding concepts, improving speed, and reinforcing lessons.	"Activity sheets help me solve and understand"; "Step by step examples were helpful"; "Flashcards make learning fun"; "Difficulty of categories improves speed and accuracy"
Challenges Encountered	Some students faced difficulties with harder topics and limited time especially for initially unfamiliar lessons	"Category 4 is hard"; "Difficult to finish with given time"; "Some lessons were hard at first but improved after reviewing"
Willingness to Recommend the Kit	Students were willing to recommend the kit because it makes Math easier, clearer and enhances skills.	"Yes, it enhances Math <u>Skills</u> "; "Yes, it makes Math easier to understand"; "Yes, it helps students learn clearly and simply"

Learners’ feedback on BALK materials indicated high acceptability and perceived usefulness. Activity sheets and flashcards were described as engaging and helpful in reinforcing lessons: “Step by step examples were helpful” and “Flashcards make learning fun.” Although some students encountered difficulties with more complex topics or time constraints—e.g., “Category 4 is hard”—most persisted, demonstrating increased motivation and resilience. Learners expressed a strong willingness to recommend BALK to peers, confirming its effectiveness as a numeracy intervention.

The results highlight the critical role of structured, scaffolded learning interventions in addressing numeracy gaps. Learners’ progression from Low or Nearly Proficient toward higher competency reflects the synergy of guided instruction, repeated practice, and visual scaffolding, consistent with Vygotsky’s (1978) Zone of Proximal Development and Scaffolding Theory. The observed improvements in accuracy, speed, and conceptual understanding illustrate successful skill acquisition and transfer.

Furthermore, enhancements in learners’ self-confidence and reduction in math anxiety underscore the importance of addressing affective factors in mathematics education, aligning with Bandura’s (1997) self-efficacy theory. The qualitative findings confirm that when students experience mastery through guided, activity-based interventions, their motivation and willingness to engage in problem-solving increase significantly.

Overall, Project MATH-RISE, using BALK, effectively enhanced numeracy skills among Senior High School learners. Both quantitative and qualitative data indicate improvements in computation speed, accuracy, conceptual understanding, and learner confidence. The mean scores increased from 50.73% to 74.00%, with significant gains in integer operations and other foundational arithmetic skills. Positive learner perceptions further confirm that scaffolded, activity-based interventions promote deeper understanding, active engagement, and improved learning outcomes.



Based on these findings, several recommendations are proposed to enhance the effectiveness of Project MATH-RISE at the school level. First, the use of BALK in numeracy lessons should be sustained and gradually extended to other mathematical domains, such as geometry and measurement, to further strengthen foundational skills, with pilot classes implemented initially to monitor effectiveness. Second, targeted professional development for teachers is essential, including workshops on scaffolding strategies, differentiated instruction, and the use of structured exemplars, while collaborative sharing of teaching experiences should be encouraged. Third, introducing BALK activities at lower grade levels is advised to address early numeracy gaps and prevent long-term difficulties in mathematics. Fourth, reflective learning practices, such as self-assessment checklists, peer feedback, and journaling, should be incorporated to foster metacognition and independent problem-solving among learners. Finally, the program's effectiveness should be continuously monitored and evaluated through classroom-based performance data, teacher observations, and student feedback, and digital adaptations may be considered to broaden accessibility and support long-term improvement in mathematical competencies. Implementing these recommendations will help sustain and refine Project MATH-RISE, enabling learners to strengthen arithmetic skills, develop positive attitudes toward mathematics, and improve overall academic performance.

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DECODING PROBLEM-SOLVING ERRORS: INVESTIGATING THE INTERPLAY OF READING COMPREHENSION, PROCESS SKILLS, AND ENCODING ERRORS AMONG GRADE-8 STUDENTS

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Introduction

Mathematical problem-solving stands as a foundation of academic achievement and a critical life skill, empowering individuals to navigate the complexities of the modern world. However, despite its universal importance, students both globally and within the Philippine context frequently encounter significant challenges when dealing with mathematical word problems. These types of problems require more than just numerical fluency; they demand the integration of linguistic comprehension, logical reasoning, and mathematical process skills. This challenge is especially pronounced among Grade 8 students, who are at a transitional stage in their mathematical development, grappling with increasingly abstract concepts and complex cognitive demands that necessitate both strong foundational knowledge and advanced comprehension strategies.

Recent international assessments have highlighted the urgency of addressing these problem-solving difficulties in Philippine education. The Trends in International Mathematics and Science Study (TIMSS, 2019) revealed that only 19 percent of Filipino eighth-grade students demonstrated proficiency in mathematics. This sobering statistic signals a pressing national concern: the need to identify and address the cognitive barriers that hinder students' mathematical understanding, particularly when navigating multi-step, word-based problem contexts. Without targeted, research-based interventions, this proficiency gap may persist and further disadvantage students in their academic and future pursuits.

Effective mathematical problem-solving is recognized as a multi-phase cognitive process, often beginning with encoding the mental translation of a word problem into a structured internal representation. Encoding errors, which occur during this initial stage, can compromise all subsequent problem-solving efforts. According to problem-solving theorists such as Polya (2004) and Schoenfeld (2014), this step is essential to forming a clear understanding of what the problem is asking. Unfortunately, the encoding phase is frequently overlooked in classroom instruction, despite its significant impact on students' ability to proceed with correct computations or reasoning.

Furthermore, while past studies have indepen-

dently established the influence of reading comprehension (Coscarelli & Ribeiro, 2018; Hyde et al., 2019; Lenski & Johns, 2020; Pressley et al., 2023) and process skills (e.g., analyzing, strategizing, executing operations) on mathematical performance, fewer studies have deeply examined how these factors interact, particularly through the lens of encoding. The mediating role of encoding errors and how they may bridge the gap between students' reading skills, process abilities, and problem-solving outcomes remains insufficiently explored, especially in the context of the Philippine education system, where such challenges are amplified.

This research was conceptualized in response to the findings and recommendations of the researcher's previous study, *Error Analysis in Solving Word Problems Among Grade-8 Students*. The study revealed that most errors committed by learners stemmed from the combination of process skill deficiencies and encoding errors. Statistical analysis using the chi-squared test of association confirmed a significant correlation between students' reading comprehension levels and the frequency of problem-solving errors. These findings provided clear evidence that the relationships among reading comprehension, process skills, and encoding errors merit further empirical investigation, particularly in exploring how they collectively influence mathematical performance.

Thus, the present study aims to address this critical research gap by examining the intricate relationship between reading comprehension, process skills, and encoding errors in the mathematical problem-solving performance of Grade 8 students. Specifically, the study aims to examine how reading comprehension and process skills predict encoding accuracy and, in turn, influence overall problem-solving success. It also seeks to determine whether encoding errors mediate the relationships between reading comprehension, process skills, and problem-solving performance. By investigating these interconnected variables, this study offers evidence-based insights that can inform the development of pedagogical strategies aimed at minimizing errors and enhancing mathematical understanding among junior high school learners. Grounded in cognitive learning theories and informed by real-world classroom

contexts, this research aims to contribute not only to academic discourse but also to practical improvements in instructional planning and intervention design, particularly within the Department of Education (DepEd) system.

Research Questions

This study investigated the relationships between reading comprehension, process skills, encoding errors, and problem-solving performance in eighth-grade students. To guide the investigation, the following research questions were formulated:

1. What are the individual levels of reading comprehension and process skills demonstrated by Grade 8 students when solving mathematical word problems?
2. What common encoding errors do Grade 8 students commit during the translation of word problems into mathematical expressions?
3. Is there a significant correlation between reading comprehension, process skills, and the frequency of encoding errors in predicting the problem-solving accuracy of Grade 8 students?
4. How do reading comprehension and process skills collectively influence problem-solving performance, and to what extent is this relationship mediated by encoding errors?

Methodology

The methodology section detailed the research design, participant selection, instrumentation, data collection procedures, and analytical methods employed in this study. This systematic approach ensured the comprehensive and logical integration of all components, effectively addressing the research problem and providing strong empirical evidence.

a. Research Design

This study employed a quantitative descriptive-correlational research design to investigate the relationships among reading comprehension, mathematical process skills, frequency of encoding errors, and problem-solving accuracy in Grade 8 students. This design was chosen for its suitability in examining associations among multiple variables without experimental manipulation (Pandey & Pandey, 2021). Furthermore, the correlational design was specifically suited to explore the mediating role of encoding errors, which requires assessing indirect relationships between independent and dependent variables through a third variable aligned with the study's complex objectives (Creswell & Creswell, 2017; Hayes, 2017).

b. Participants and Sampling Procedure

The target population for this study consisted of 136 Grade 8 students enrolled at a selected public high school in Samar, Philippines. A sample size of 102 students was determined using Slovin's formula, which yielded a 5% margin of error. This margin of error is generally considered sufficient for correlational and mediation analyses, aligning with

typical sample sizes in similar educational studies (Tabachnick et al., 2019). Stratified random sampling was employed to ensure representativeness and proportionality across reading proficiency levels. The strata were defined by students' existing Phil-IRI reading profiles: Independent, Instructional, and Frustration levels. This technique was chosen to ensure that participants from each reading proficiency subgroup were proportionally included, thereby enhancing the representativeness of the sample and the generalizability of the study's findings to the broader Grade 8 student population at the selected locale (Etikan & Bala, 2017; Taherdoost, 2016).

The sample consisted of 102 Grade 8 students, comprising 58 males (56.86%) and 44 females (43.14%). Participants were distributed across the Phil-IRI reading comprehension levels as follows: Independent Level (n = 53, 51.96% of the total sample; 15 males, 23 females); Instructional Level (n = 29, 28.43% of the total sample; 20 males, 14 females); and Frustration Level (n = 18, 17.65% of the total sample; 23 males, seven females). This detailed proportional representation by reading level and gender was crucial for ensuring the sample's representativeness.

c. Instrumentation

Four distinct research instruments were employed for data collection in this study; each was rigorously selected, developed, and subsequently validated to ensure measurement accuracy and reliability. The Philippine Informal Reading Inventory (Phil-IRI) served as the primary basis for classifying students according to their reading comprehension profiles (Independent, Instructional, and Frustration levels). Specifically, the Phil-IRI Graded Reading Passages for Grade 8 (Department of Education, 2024) were utilized. While the Phil-IRI provides qualitative reading levels, the raw comprehension scores were used as a continuous variable for statistical analysis, providing a quantitative measure of reading comprehension ability. Existing Phil-IRI records for the Grade 8 students, provided by the school's English department, were utilized, negating the need for re-administration of the test and ensuring ecological validity by using routinely collected data.

A two-item word problem test was specifically developed to assess students' mathematical problem-solving performance. The problems were carefully selected from the Department of Education's Regional Test Item Bank, ensuring their alignment with the Grade 8 mathematics competencies and the prescribed curriculum. This selection process inherently supported the content validity of the test.

The researcher developed a Process Skills Rubric to quantitatively measure various cognitive abilities fundamental to mathematical problem-solving, such as understanding the problem, devising a plan, executing the plan, and reflecting on the outcome (aligning with Polya's stages). The development process involved a thorough review of literature on mathematical process skills and problem-solving frameworks (e.g., Schoenfeld, 1985; Gholam, 2019).

Initial rubric drafts were subjected to expert validation by a panel of three experienced mathematics educators and researchers from various academic institutions. This panel reviewed the rubric for content validity and the clarity of descriptors. Based on their feedback, revisions were made to enhance item specificity and scoring consistency. The rubric's internal consistency was also assessed using Cronbach's Alpha on the pilot data, yielding a coefficient of .82, indicating good reliability (Taber, 2018).

The researcher meticulously designed a Coding Scheme for Encoding Errors to systematically classify the specific types and frequency of errors students committed during the critical phase of translating word problems into mathematical expressions or representations. Typical patterns informed the design of this scheme, which was informed by student misconceptions identified in the existing literature on mathematical error analysis (e.g., Prediger, 2022; Lin & Powell, 2022) and pilot observations. The scheme included categories such as misinterpretation of keywords and phrases, irrelevant information overload, incorrect variable assignment, syntactic errors, semantic errors, incomplete representation, and diagrammatic errors. Similar to the Process Skills Rubric, this coding scheme underwent expert validation by the same panel of three mathematics educators and researchers to ensure its content validity and comprehensiveness in capturing common encoding errors. Revisions were made based on their feedback.

d. Data Gathering Procedure

The data-gathering process was conducted during the fourth quarter and summer break to minimize disruption to the regular academic schedule of the Grade 8 students. The procedure involved three key sequential stages. First, the necessary reading profile data for the identified participants was obtained from the English department through the existing Phil-IRI records, ensuring compliance with institutional data privacy protocols. Second, the researcher personally administered the two-item word problem test to the selected student participants. During this administration, the researcher also simultaneously applied the Process Skills Rubric to observe and score students' strategies and processes. Standardized conditions were maintained during administration, and clear instructions were provided to all students to ensure consistency and uniformity in response. Finally, the researcher meticulously analyzed the collected student outputs from the word problem test using the developed Coding Scheme for Encoding Errors. This involved categorizing specific error types, such as misrepresenting problem context, omitting critical information, inaccurately translating verbal phrases into mathematical equations, and quantifying their frequency.

e. Data Analyses

Prior to conducting inferential statistical analyses, the normality of the data distribution for key variables (reading comprehension scores, process skills scores,

total frequency of encoding errors, and problem-solving accuracy scores) was assessed using the Shapiro-Wilk test, given its robustness for sample sizes of 200 or fewer. Visual inspections of histograms and Q-Q plots were also performed to check for substantial deviations from normality and linearity assumptions essential for parametric tests.

The collected data were subjected to descriptive and inferential statistical analyses using JASP (Version 0.19.3.0) and jamovi (Version 2.3.26) statistical software. Descriptive statistics, including means, standard deviations, and frequency counts, were utilized to summarize the students' levels of reading comprehension and process skills, as well as the occurrence and types of encoding errors. Content analysis was systematically applied to categorize and quantify the identified encoding errors.

For inferential analyses, Pearson's product-moment correlation coefficient (r) was computed using Jamovi's Correlation Matrix analysis to determine the bivariate linear relationships among reading comprehension, process skills, frequency of encoding errors, and problem-solving accuracy. Furthermore, multiple linear regression analysis was performed using Jamovi's Linear Regression analysis to evaluate the combined predictive influence of reading comprehension and process skills on problem-solving performance. Crucially, the mediating effect of encoding errors within these relationships was examined using the jAMM (Advanced Mediation Models) module in Jamovi (Model 4), which employs a bootstrapping method to estimate indirect effects and their confidence intervals, providing a more robust approach than the traditional Baron and Kenny method, especially for complex mediation models (Hayes, 2017). This allowed for the determination of whether encoding errors significantly contributed to the relationship between the independent variables (reading comprehension, process skills) and problem-solving accuracy. The significance level for all inferential tests was set at an alpha of .05.

f. Ethical Considerations

Throughout the entire study, strict adherence to ethical standards was maintained. Formal permission to conduct the research was secured from the school head of the research locale and subsequently from the Division Office of the Department of Education. Written informed consent was meticulously obtained from the participating Grade 8 students and their parents or legal guardians before any data collection. Participants were thoroughly informed about the study's purpose, procedures, and potential benefits. They were assured of the utmost confidentiality and anonymity of their responses, with all data handled with strict privacy protocols. Participants were also explicitly informed of their voluntary participation and their unconditional right to withdraw from the study at any point without any adverse consequences.

Results and Discussion

This section presented the study's key findings, focusing on the decoding of problem-solving errors

and the investigation into the interplay of reading comprehension, process skills, and encoding errors among Grade 8 students.

Age and Sex Distribution of Respondents. Table 1 presented the demographic profile of the 102 Grade 8 student participants. The majority were male (56.86%), while females accounted for 43.14%, indicating a slight male predominance. Most respondents were 13 years old (51.96%), followed by those aged 14 (28.43%) and 15 (17.65%). The overall mean age of the sample was 13.36 years (SD = 1.03). Mean ages were closely aligned across sexes, 13.36 years for males and 13.18 years for females, indicating minimal age variation by gender.

Table 1
Respondents' Age and Sex Distribution

Age (years)	Sex				Total	
	Male		Female		f	%
	f	%	f	%		
13	40	39.22	13	12.75	53	51.96
14	15	14.71	14	13.73	29	28.43
15	3	2.94	15	14.71	18	17.65
Total	58	56.86	44	43.14	102	100.00
Mean (Years)	13.36		13.18		26.54	
SD (Years)	0.58		0.44		1.03	

Understanding the demographic profile of the participants provided essential context for interpreting patterns in reading comprehension, process skills, and encoding errors, key constructs of the study. This demographic distribution was particularly relevant to investigating how these cognitive and problem-solving skills manifested during early adolescence, a critical period for the development of logical reasoning and abstract thinking (Piaget, 1972, as cited in Woolfolk, 2016). The near gender balance also offered a reasonable basis for comparative exploration of problem-solving performance between males and females.

Demographic statistics, such as the mean age and standard deviation, helped establish both the central tendency and the interpretive limits of the study. For instance, the predominance of early adolescents may have influenced how students engaged with abstract mathematical language, a factor closely tied to reading comprehension and encoding accuracy. As emphasized by Creswell and Creswell (2017), accurate participant profiling enhanced the credibility of the study and supported the meaningful interpretation of findings. Moreover, as noted by Alvermann et al. (2020), age and gender composition can subtly mediate academic behaviors, particularly in reading-intensive tasks.

Respondents' Reading Comprehension Level. Table 2 presented the reading comprehension levels of the 102 Grade 8 participants, categorized as Independent, Instructional, or Frustration. More than half of the respondents (51.96%) demonstrated an Independent level of reading comprehension, indicating adequate proficiency in understanding grade-level texts. However, nearly one-fifth (17.65%) fell into the Frustration level, reflecting severe difficulties in decoding and comprehending written material, an issue that mirrors persistent national concerns on literacy proficiency (Department of Education, 2019; TIMSS, 2019).

Table 2
Respondents' Reading Comprehension Level

Reading Comprehension Level	Sex				Total	
	Male		Female		f	%
	f	%	f	%		
Independent Level	15	14.71	23	22.55	53	51.96
Instructional Level	20	19.61	14	13.73	29	28.43
Frustration Level	23	22.55	7	6.86	18	17.65
Total	58	56.86	44	43.14	102	100.00
Mean	19.33		14.67		33.33	
SD	4.04		8.02		17.90	

A notable pattern emerged when results were disaggregated by sex. A greater proportion of female students achieved an Independent level compared to males (22.55% vs. 14.71%), whereas a higher percentage of males were classified under the Frustration level (22.55% vs. 6.86%). This gender-based discrepancy supports previous findings that girls tend to outperform boys in reading comprehension during middle school years (Hyde et al., 2019), potentially due to differences in reading engagement, language processing strategies, or classroom participation.

These findings hold critical instructional implications. Students at the Frustration level, predominantly male in this sample, may struggle to extract meaning from problem-solving tasks, especially word problems in mathematics, which require both linguistic and analytical competence. Addressing this gap may require explicit instruction in reading strategies tailored to mathematical contexts, such as vocabulary development, sentence deconstruction, and schema-based comprehension. Simultaneously, while female students showed stronger performance, instructional design should not overlook their need for continued growth, particularly in critical reading and synthesis skills.

The presence of struggling readers, regardless of sex, underscores the urgency of integrating reading comprehension support across content areas. As emphasized by Coscarelli and Ribeiro (2018), comprehension has a direct influence on students' ability to engage with subject-specific texts. Identifying and supporting students at risk of reading failure is crucial, as persistent frustration can lead to disengagement, reduced motivation, and lower academic achievement (Lenski & Johns, 2020). These patterns support the study's objective of examining how reading ability influences students' problem-solving processes and underscore the foundational role of literacy in mathematical learning.

Proficiency in Mathematical Process Skills. Table 3 summarized the respondents' proficiency in key mathematical process skills based on two word problems. Overall, students demonstrated Moderate Proficiency (M = 10.31, SD = 4.89). Still, a closer analysis across the stages of problem-solving revealed meaningful variations in performance that align with the study's objective of examining process-related strengths and weaknesses.



Table 3
Process Skills of the Respondents in the 2-item Word Problems

Process Skill Dimension	Word Problem	Weighted Mean	Standard Deviation	Interpretation
I. Understanding the Problem	1	12.61	4.40	HP
	2	12.61	4.13	HP
II. Implementing the Plan	1	10.48	5.57	MP
	2	10.58	5.41	MP
III. Evaluating the Solution	1	8.12	4.77	LP
	2	7.49	5.04	VLP
Grand Weighted Mean		10.31	4.89	MP

Legend:

6.0-7.99	Very Low Proficiency (VLP)
8.0-9.99	Low Proficiency (LP)
10.0-11.99	Moderate Proficiency (MP)
12.0-13.99	High Proficiency (HP)
14.0-15.00	Very High Proficiency (VHP)

Students exhibited High Proficiency in understanding the Problem ($M = 12.61$ for both items), indicating a consistent ability to interpret the given problem scenarios. This suggests that learners were generally capable of identifying relevant information and determining what was being asked, skills foundational to any successful problem-solving process, as emphasized by Polya (2004) and reaffirmed by Garcia (2024). The relatively low standard deviations further indicated that this strength was shared by a majority of respondents, regardless of the complexity of the problem.

However, proficiency declined in the Implementing the Plan stage, where students achieved only Moderate Proficiency ($M \approx 10.5$). This suggests that while learners could formulate a problem-solving strategy, difficulties arose in accurately applying mathematical procedures. The increased standard deviations in this domain indicate a wider performance gap among students, which could reflect variability in prior knowledge, procedural fluency, or confidence levels. These findings are consistent with those of Levin (2018) and Tachie (2019), who observed that translating understanding into correct execution remains a persistent challenge for middle-grade learners.

The most concerning results emerged in the Evaluating the Solution phase. Students demonstrated low proficiency for the first item ($M = 8.12$) and Very Low Proficiency for the second ($M = 7.49$), highlighting a significant weakness in reviewing, verifying, and justifying their solutions. This trend aligns with findings by Lin and Powell (2022), who noted that many students overlook this final stage due to limited metacognitive awareness or a focus on obtaining an answer quickly. The high variability in scores also suggests inconsistent use of self-monitoring strategies. This aligns with Schoenfeld’s (1985) model, which indicates that weak control processes, such as checking for errors or assessing solution plausibility, often yield incomplete or flawed outcomes.

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These results reinforce the need for explicit instruction across all stages of the problem-solving process, not just comprehension. While students generally understood the problems, their difficulties in planning, execution and especially in evaluating their work point to the importance of cultivating metacognitive strategies and reflective practices. Embedding activities such as guided solution checks, error analysis, and peer-based critique may strengthen students’ ability to engage critically with their mathematical thinking and improve overall problem-solving performance.

Individual Process Skills on Word Problem 1. Table 4 provided a detailed breakdown of individual process skills in solving Word Problem 1, offering more profound insight into students’ cognitive and metacognitive functioning during each phase of problem-solving. The overall result reflected Moderate Proficiency ($M = 1.83$, $SD = 0.91$), but a skill-level analysis revealed meaningful disparities that support the broader trends observed in earlier findings.

In the Understanding the Problem phase, students demonstrated strong foundational comprehension. They showed high proficiency in identifying key information ($M = 2.57$) and understanding the unknown ($M = 2.53$), consistent with their ability to form initial problem representations—an essential



first step in Polya’s (2004) problem-solving model. These skills were accompanied by low variability, suggesting a shared strength across

Table 4
Individual Process Skills on Word Problem 1

Process Skill Dimension	Weighted Mean	Standard Deviation	Interpretation
I. Understanding the Problem			
1. Identifies key information	2.57	0.62	HP
2. Understands the unknown	2.53	0.64	HP
3. Restates the problem	2.30	0.79	MP
4. Identifies prior knowledge	1.96	0.94	MP
5. Develops a plan	1.79	0.95	MP
6. Considers other approaches	1.37	0.97	LP
II. Implementing the Plan			
7. Applies operations	1.90	0.91	MP
8. Follows logical steps	1.74	0.93	MP
9. Shows clear work	1.73	0.97	MP
10. Uses correct notation	1.76	0.97	MP
11. Performs calculations	1.75	0.99	MP
12. Monitors progress	1.60	1.02	LP
III. Evaluating the Solution			
13. Checks if answer makes sense	1.58	0.95	LP
14. Reviews calculations	1.67	0.96	MP
15. Answers all parts	1.67	0.96	MP
16. Reflects on strategy	1.57	1.99	LP
17. Explains solution	1.64	0.99	LP
Grand Weighted Mean	1.83	0.91	MP

Legend:

1.0-1.66	Low Proficiency
1.67-2.33	Moderate Proficiency
2.34-3.00	High Proficiency

the sample. However, as tasks became more abstract, such as restating the problem (M = 2.30) or identifying relevant prior knowledge (M = 1.96), performance declined to Moderate Proficiency. Particularly concerning was the Low Proficiency in considering alternative approaches (M = 1.37), indicating limited cognitive flexibility and a tendency to rely on a single problem-solving strategy. This aligns with Tachie’s (2019) findings on strategy rigidity among early secondary learners and echoes Schoenfeld’s (1985) assertion that productive heuristics depend on flexibility in thinking.

In the Implementing the Plan phase, students demonstrated moderate proficiency in applying operations (M = 1.90), using correct notation (M = 1.76), and performing calculations (M = 1.75). These results suggest that most students possessed procedural knowledge but may have lacked consistency or precision, potentially due to limited practice or attentional lapses (Gholam, 2019). Notably, Monitoring progress scored Low Proficiency (M = 1.60), highlighting a recurring weakness in real-time self-regulation. This gap suggests that while students could follow procedures, they seldom paused to evaluate their intermediate steps, an essential aspect of control in Schoenfeld’s (1985) framework and a common barrier to effective problem-solving (Peng, 2020).

The most pronounced challenges were observed in the Evaluating the Solution dimension. Skills such

as checking if the answer made sense (M = 1.58), checking if the answer made sense (M = 1.58), reflecting on strategy (M = 1.57), and explaining the solution (M = 1.64) were consistently rated Low Proficiency, with wider standard deviations indicating inconsistent application. Even slightly stronger performances in reviewing calculations and answering all parts of the problem (M = 1.67 each) hovered near the MP-LP threshold, reflecting superficial verification rather than deep evaluation. These findings reinforce concerns raised in the Philippine Math Education Review (2022), which noted that students are often taught to prioritize obtaining an answer over reflecting on its correctness or the validity of the method used.

These patterns highlight the importance of instructional approaches that not only develop procedural fluency but also promote metacognitive development. Embedding reflective prompts, peer feedback, and strategy discussions into instruction may cultivate stronger habits of mind that support more effective problem-solving.

Individual Process Skills on Word Problem 2. Table 5 presented a breakdown of students’ performance in individual process skills for Word Problem 2. The results largely mirrored those from Word Problem 1, reinforcing consistent patterns of cognitive strengths and weaknesses among the Grade 8 participants. The Grand Weighted Mean was 1.81 (SD = 0.91), indicating an overall Moderate Proficiency (MP) in problem-solving.

Table 5
Individual Process Skills on Word Problem 2

Process Skill Dimension	Weighted Mean	Standard Deviation	Interpretation
I. Understanding the Problem			
1. Identifies key information	2.57	0.55	HP
2. Understands the unknown	2.48	0.59	HP
3. Restates the problem	2.30	0.73	MP
4. Identifies prior knowledge	2.02	0.86	MP
5. Develops a plan	1.81	0.91	MP
6. Considers other approaches	1.42	0.99	LP
II. Implementing the Plan			
7. Applies operations	1.94	0.89	MP
8. Follows logical steps	1.77	0.93	MP
9. Shows clear work	1.80	0.94	MP
10. Uses correct notation	1.81	0.94	MP
11. Performs calculations	1.75	0.93	MP
12. Monitors progress	1.49	1.02	LP
III. Evaluating the Solution			
13. Checks if answer makes sense	1.54	1.04	LP
14. Reviews calculations	1.60	1.04	LP
15. Answers all parts	1.60	1.00	LP
16. Reflects on strategy	1.38	1.10	LP
17. Explains solution	1.37	1.05	LP
Grand Weighted Mean	1.81	0.91	MP

Legend:

1.00 - 1.66	Low Proficiency
1.67 - 2.33	Moderate Proficiency
2.34 - 3.00	High Proficiency



Students continued to exhibit High Proficiency in identifying key information and understanding the unknown, suggesting strong foundational comprehension and problem representation skills, as emphasized by Polya (2004) and supported by Recanil and Quirante (2025). However, skills requiring higher-order thinking, such as considering alternative approaches and developing flexible plans, remained at a Low to Moderate Proficiency Level, highlighting limited cognitive flexibility (Tachie, 2019).

During the implementation phase, students demonstrated moderate competence in applying operations and showing their work, indicating a level of procedural familiarity. However, monitoring progress declined further, suggesting persistent challenges in metacognitive regulation, an essential skill for adjusting strategies and ensuring solution accuracy (Peng et al., 2020; Liu, 2024).

The most significant area of difficulty was the evaluation stage, where all indicators remained at Low Proficiency, with further declines in reflecting on strategies and explaining solutions. These findings revealed a notable gap in students' ability to assess the reasonableness of their answers and articulate their thought processes, aligning with Lin and Powell's (2022) findings and those of the Philippine Math Education Review (2022).

The data emphasized the need for instructional approaches that go beyond content delivery. Strengthening metacognitive and evaluative skills through practices such as self-explanation, peer discussion, and error analysis may help bridge the gap between procedural fluency and reflective problem-solving.

Frequency and Percentage Distribution of Encoding Error Categories. Table 6 presented the frequency and distribution of encoding errors committed by Grade 8 students across two-word problems. These errors reflect critical breakdowns during the early stages of mathematical problem-solving, particularly in the translation of textual information into formal mathematical representation, a process central to the study's investigation of encoding errors and their relationship with reading comprehension and process skills.

Table 6
Frequency and Percentage Distribution of Encoding Error Categories

Error Category	Code	Item 1		Item 2		Total	
		f	%	f	%	f	%
I. Misinterpretation of Keywords or Phrases	MKP	11	5.64	14	6.48	25	6.08
II. Incorrect Translation of Verbal Information into Mathematical Symbols or Equations	ITE	41	21.02	36	16.67	77	18.73
III. Errors in Identifying the Required Operation(s)	EIO	20	10.26	24	11.11	44	10.71
IV. Numerical Errors During the Initial Setup	NES	46	23.59	60	27.78	106	25.79
V. Misunderstanding the Question Being Asked	MQA	29	14.87	23	10.65	52	12.65
VI. Omission of Crucial Information	OCI	48	24.62	59	27.31	107	26.03
Total:		195	100	216	100	411	100

The most prevalent error type was the Omission of Crucial Information (OCI), accounting for 26.03% of all encoding errors. This suggested that many students failed to extract or retain essential information from the problem text, likely due to reading at a surface level or inadequate monitoring of comprehension. The slightly higher OCI frequency in Item 2 implies that the structure or phrasing of that item may have obscured key elements more readily. This supports Polya's (2004) assertion that problem understanding must be grounded in detailed attention to information cues, and aligns with the Information Processing Theory, where failure at the encoding stage disrupts downstream cognitive operations.

Numerical Errors during Initial Setup (NES) closely followed at 25.79%, indicating difficulties not with calculation per se but with the accurate placement and assignment of numerical values within the problem's initial structure. This trend reinforces concerns about students' procedural rigor and attentiveness in early problem-solving steps, especially when numerical data is embedded in complex linguistic forms (Kenney & Ntow, 2024).

Incorrect Translation of Verbal Information into Mathematical Symbols (ITE) made up 18.73% of total errors. These translation difficulties indicate weak semantic-mathematical mapping skills, a known barrier for students struggling with abstract representations (Prediger, 2022). Such errors were slightly more pronounced in Item 1, suggesting that students' processing of verbal cues into symbolic form differed depending on the context.

Less common but still significant were Misunderstanding the Question Asked (MQA) at 12.65%, Errors in Identifying Operations (EIO) at 10.71%, and Misinterpretation of Keywords or Phrases (MKP) at 6.08%. Though lower in frequency, these error types collectively highlight lexical, strategic, and conceptual gaps in problem comprehension.

The observed encoding errors were consistent with students' moderate performance in process skills, particularly in the "Understanding the Problem" and "Implementing the Plan" phases (see Tables 3–5). OCI and NES errors compromised early-stage problem formulation, while ITE and EIO reflected challenges in transforming understanding into accurate execution. These errors also help explain the low proficiency in the "Evaluating the Solution" stage, as students rarely recognize flaws rooted in the encoding phase.

The findings reinforce the critical role of encoding accuracy in mathematical problem-solving. Instructional strategies that integrate explicit reading comprehension scaffolds, modeling of translation processes, and structured reflection on problem structure could help reduce these recurring errors and support more effective problem-solving behavior.

Pearson Product-Moment Correlations Between Reading Comprehension, Process Skills, Encoding Errors, and Problem-Solving Accuracy Scores. Table 7 presented the Pearson product-moment correlations among the study's key variables: reading

comprehension, process skills, frequency of encoding errors, and problem-solving accuracy. The results revealed statistically significant and robust correlations, confirming a meaningful interplay among these cognitive and performance factors in mathematical problem-solving.

Table 7
Pearson Product-Moment Correlations Between Reading Comprehension, Process Skills, Encoding Errors, and Problem-Solving Accuracy Scores (N = 102)

Variable 1	Variable 2	Pearson Correlation Coefficient (r)	P-value	Interpretation (Strong Positive, Weak Negative, No correlation)
Reading Comprehension Score	Problem-Solving Score	0.874	< 0.001	Strong Positive correlation
Process Skills Score	Problem-Solving Score	0.890	< 0.001	Strong Positive correlation
Frequency of Encoding Errors	Problem-Solving Score	-0.848	< 0.001	Strong Negative correlation
Reading Comprehension Score	Frequency of Encoding Errors	-0.828	< 0.001	Strong Negative correlation
Process Skills Score	Frequency of Encoding Errors	-0.890	< 0.001	Strong Negative correlation

The third objective of this study was to investigate the correlational relationships among reading comprehension, process skills, frequency of encoding errors, and mathematical problem-solving accuracy in Grade 8 students. The findings revealed a consistent pattern of strong and statistically significant correlations among all variables, providing robust empirical support for the proposed interplay of these factors in mathematical problem-solving.

Strong positive correlations were observed between reading comprehension and problem-solving accuracy ($r = .874, p < .001$), as well as between process skills and problem-solving accuracy ($r = .890, p < .001$). These findings underscore that effective mathematical problem-solving depends not only on computational ability but also on students' capacity to interpret and reason through the textual and procedural components of word problems (Rahman, 2019; Polya, 1945).

A strong negative correlation exists between encoding errors and problem-solving accuracy ($r = -.848, p < .001$), highlighting the detrimental impact of mistakes made during the initial translation of a verbal problem into a mathematical form. Such errors often compromise the entire problem-solving process, regardless of a student's skill in computation or procedure (Weisberg, 2019).

Additionally, reading comprehension and process skills were both strongly and negatively correlated with encoding errors ($r = -0.828$ and $r = -0.890$, respectively; $p < .001$), suggesting that students with higher comprehension and stronger procedural fluency are less likely to misrepresent problem elements. This supports the argument that encoding accuracy is a measurable outcome of foundational literacy and mathematical skills (Fuchs et al., 2022).

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Taken together, these findings highlight the central role of encoding in the problem-solving process. Students with stronger reading comprehension and process skills tend to make fewer encoding errors, which, in turn, leads to higher accuracy in solving mathematical problems. This suggests that instruction should target the encoding stage explicitly, through teaching mathematical vocabulary, structured translation strategies, and reading comprehension techniques embedded within mathematics instruction, to effectively reduce errors and improve overall problem-solving performance.

Regression Analysis (Combined Influence and Mediating Effect of Encoding Errors). This study investigated the combined effect of reading comprehension, process skills, and encoding errors on the mathematical problem-solving accuracy of Grade 8 students using multiple linear regression. Assumptions of normality, linearity, homoscedasticity, and independence of residuals were met, as indicated by diagnostic plots and a Durbin-Watson statistic of 1.72 ($p = .144$). The resulting model was statistically significant, $F(3, 98) = 160, p < .001$, and explained 83% of the variance in problem-solving accuracy (Adjusted $R^2 = .825$), reflecting a strong predictive relationship among the variables.



Table 8
Multiple Linear Regression Model Predicting Problem-Solving Accuracy (N = 102)

Predictor Variable	Unstandardized Coefficient (B)	Standard Error	Standardized Coefficient (β)	t-value	p-value
Reading Comprehension Score	0.3517	0.09446	0.356	3.72	< 0.001
Process Skills Score	0.0312	0.00987	0.372	3.16	0.002
Encoding Errors Score	-0.2398	0.10001	-0.221	-2.40	0.018
Constant	3.4251	0.90537	-	3.78	< 0.001
R-squared	0.830	-	-	-	-
Adjusted R-squared	0.825	-	-	-	-
F-statistic	160	-	-	-	< 0.001

All three predictors made significant contributions to the model. Reading comprehension and process skills both emerged as strong, positive predictors, aligning with previous findings that emphasize the importance of linguistic understanding and procedural fluency in solving mathematical problems (Rahman, 2019; Polya, 1945). Notably, process skills showed a slightly more substantial standardized effect ($\beta = 0.372$) than reading comprehension ($\beta = 0.356$), suggesting that, beyond interpreting problem text, the ability to execute mathematical operations accurately plays a critical role in problem resolution.

Encoding errors, on the other hand, demonstrated a significant negative relationship with problem-solving accuracy ($\beta = -.221$), even after accounting for reading and process skills. These highlights encoding as a distinct cognitive bottleneck where misrepresentations in the early translation phase can independently undermine performance (Weisberg, 2019). The finding advances previous research by confirming that encoding is not merely a derivative of comprehension or procedural ability but an independent contributor to problem-solving outcomes.

These results underscore the need for instructional strategies that integrate reading and procedural fluency with explicit support for encoding processes. Teaching students to systematically extract relevant data, identify conditions, and construct accurate mathematical representations may reduce errors that traditional instruction overlooks. Given the model's high explanatory power, such an integrated approach holds promise for meaningfully improving student outcomes in mathematical problem-solving.

Mediating Effect Analysis. Objective 4 expanded on the combined influence of variables by examining the mediating role of encoding errors in the relationship between (a) reading comprehension and problem-solving accuracy and (b) process skills and problem-solving accuracy. Mediation analyses were conducted to examine whether encoding errors significantly mediated the effects of reading comprehension and process skills on problem-solving accuracy. As shown in Table 9, both models revealed statistically significant indirect effects through encoding errors, suggesting partial mediation in both cases.

Table 9
Mediating Effect Analysis (N = 102)

Path	Predictor	Mediator	Outcome	Unstandardized Coefficient (B)	Standard Error	p-value
Path a	Reading Comprehension	Encoding Errors	-	-0.754	0.0547	< 0.001
Path a	Process Skills	Encoding Errors	-	-0.0689	0.00352	< 0.001
Path b	Encoding Errors	-	Problem-Solving Accuracy	-0.2398	0.10001	0.018
Path c*	Reading Comprehension	-	Problem-Solving Accuracy (Direct Effect)	0.540	0.0778	< 0.001
Path c*	Process Skills	-	Problem-Solving Accuracy (Direct Effect)	0.544	0.00803	< 0.001
Indirect Effect	Reading Comprehension	Encoding Errors	Problem-Solving Accuracy	0.322	0.0686	< 0.001
Indirect Effect	Process Skills	Encoding Errors	Problem-Solving Accuracy	0.0201	0.00767	0.009

In the first model, higher reading comprehension significantly predicted fewer encoding errors, which in turn predicted higher problem-solving accuracy. This indirect effect was statistically significant, indicating that part of the influence of reading comprehension on problem-solving operates through its role in reducing encoding errors. This finding reinforces the importance of reading comprehension not only in interpreting problem statements but also in accurately extracting and organizing relevant information for mathematical translation, supporting theories on the foundational role of problem representation in effective problem-solving (Rahman, 2019; Weisberg, 2019).

Similarly, in the second model, stronger process skills were associated with fewer encoding errors, which, in turn, positively impacted problem-solving accuracy. Although the indirect effect was smaller than that observed for reading comprehension, it remained statistically significant. This suggests that process skills contribute not only to procedural execution but also to accurate problem setup, an essential but often overlooked aspect of problem-solving competence (Polya, 1945).

These findings imply that enhancing reading comprehension and process skills alone may be insufficient if encoding issues persist. Instructional designs should explicitly integrate encoding strategies such as visual mapping, structured annotations, and guided problem unpacking to ensure more accurate and efficient problem-solving performance.

Conclusions and Recommendations

Grounded in the study's findings, this section articulates key conclusions that directly align with the research objectives and questions. It offers evidence-informed recommendations aimed at enhancing instructional practices, guiding policy development, and shaping future academic research in mathematics education.

Based on the notable findings presented in the study, the researcher has drawn the following conclusions:

1. Grade 8 students demonstrated varied proficiency levels in reading comprehension and mathematical process skills. While many were able to comprehend word problems initially, a significant number struggled with applying problem-solving strategies and evaluating solutions. These difficulties highlight weaknesses in metacognitive awareness and strategic flexibility.
2. Analysis revealed that encoding errors were widespread and represented a significant barrier to successful problem-solving. The most frequent errors involved omission of key information, incorrect numerical setups, and challenges in translating verbal statements into appropriate mathematical expressions.
3. Encoding errors were found to significantly mediate the relationship between reading comprehension, process skills, and problem-solving accuracy. Students with otherwise strong comprehension and procedural knowledge still performed poorly when encoding was inaccurate, highlighting this phase as a critical point of cognitive breakdown.
4. Statistical analysis confirmed strong correlations between reading comprehension, process skills, and encoding errors. These results suggest that mathematical problem-solving is driven not by isolated abilities but by the interplay of multiple cognitive components.
5. The study contributes to the field of mathematical cognition by empirically demonstrating how encoding errors, especially those occurring early in the problem-solving process, undermine performance even when students possess adequate comprehension and procedural knowledge. Encoding is shown to be a pivotal cognitive step requiring instructional attention.

The findings of this study highlight the need for a comprehensive and integrative approach to enhancing mathematical problem-solving performance among Grade 8 students. Beyond strengthening procedural fluency and reading comprehension, it is essential to focus attention on the often-overlooked encoding phase. In this crucial cognitive step, misrepresentations can compromise the entire problem-solving process. By establishing encoding as a pivotal mediating factor, this study emphasizes the urgent need for instructional strategies that develop precise information extraction, accurate symbolic translation, and deeper cognitive engagement. Addressing this instructional gap not only supports more effective learning experiences but also provides a robust framework for developing targeted, evidence-based interventions aimed at enhancing students' holistic mathematical proficiency.

Embedding metacognitive strategies, such as self-monitoring, solution verification, and flexible thinking, in regular math instruction can help students implement and evaluate their problem-solving approaches more effectively.

1. Educators should adopt interdisciplinary strategies that connect linguistic understanding with quantitative reasoning. For example, using graphic organizers and scaffolded reading activities can help students better comprehend and represent word problems.
2. Curriculum developers and school leaders should recognize encoding as a distinct and foundational skill in problem-solving. Instructional materials and teaching guides should reflect the importance of proper problem representation and symbolization.
3. Pre-service and in-service teacher education should include focused discussions on the cognitive demands of encoding and its influence on problem-solving. Providing teachers with concrete tools for addressing encoding errors can improve classroom outcomes.
4. Additional studies are encouraged to explore encoding-focused interventions across various grade levels. Longitudinal research can help trace the developmental trajectory of encoding skills and evaluate their impact on broader mathematical competencies.



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EXPANDING THE 7E LEARNING MODEL THROUGH SCIENCE TALKS: ADDRESSING GAPS IN SCIENCE EDUCATION IN THE PHILIPPINES

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“Teaching and Learning: Third Best Paper & First Best Presenter”

Introduction

In the educational landscape, collaborative learning environments are vital for improving student comprehension and engagement with scientific concepts. Active learning in science education has gained recognition for its role in enhancing students' understanding of complex concepts. However, existing instructional models, such as the 7E Learning Model, have limitations that hinder their full effectiveness in fostering critical thinking and collaboration (Bybee, 2014).

The 7E Learning Model, an extension of the original 5E model, follows seven phases—Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend—designed to deepen engagement and understanding. While effective in many settings, it faces challenges such as complexity, time demands, and limited peer collaboration. Adesoji and Idika (2015) found that while the model improved student achievement in chemistry, it was less effective than case-based strategies, partly due to insufficient emphasis on peer discussion. This shortfall is significant since peer interaction fosters communication and critical thinking—key elements of scientific literacy.

In the Philippine context, the urgency to strengthen science instruction is underscored by global and national assessments. The 2018 Programme for International Student Assessment (PISA) ranked the Philippines 78th out of 79 countries in science, with a mean score of 357—well below the OECD average of 489 (OECD, 2019). The Southeast Asia Primary Learning Metrics (SEA-PLM) also revealed lower proficiency in scientific reasoning among Filipino learners compared to regional peers (UNICEF & SEAMEO, 2020). Likewise, the 2018 National Achievement Test (NAT) showed only 35.62% of Grade 10 learners at proficiency level in science (DepEd, 2019). These figures highlight the need for strategies that better develop scientific literacy and critical thinking.

The 7E Learning Model's relevance to global benchmarks like PISA and TIMSS is notable, as these assessments emphasize inquiry-based learning and problem-solving. Countries that integrate collaborative inquiry tend to perform better. A study in *Frontiers in Education* (2024) found that strategies fostering peer collaboration correlated with higher PISA and TIMSS scores. This suggests that the 7E model's limited peer discourse component could affect performance indirectly. However, instructional

model effectiveness is also influenced by teacher readiness, classroom resources, and cultural context (Adesoji & Idika, 2015). Gok and Silay (2010) further identified time constraints and limited familiarity with inquiry-based methods as barriers. Without addressing these systemic factors, the model's potential in improving critical thinking and problem-solving remains underutilized.

One promising way to address these gaps is through science talks—structured peer discussions focused on scientific concepts. Science talks encourage students to articulate understanding, question assumptions, and explore alternative viewpoints, thereby promoting critical thinking. The Exploratorium (n.d.) emphasized that combining science talk with writing supports the learning of science concepts and strengthens students' ability to communicate them. Zwiers and Crawford (2011) also noted that academic conversations enhance skills such as persuasion, interpretation, and evaluation.

Research supports these benefits. Mecit (2006) found that inquiry-based approaches, including structured discussions, improved fifth-grade students' critical thinking skills. France (2019) showed that dialogue as a teaching tool engages students in deep learning and critical thinking. Science talks typically feature conversation stems, guided discussion, and teacher facilitation (Wilhelm, 2014). Studies show that such peer interactions boost cognitive development and academic performance (McElhone, 2013; Gillies, 2008).

Despite this, Philippine classrooms applying the 7E model often omit structured peer dialogue, relying more on teacher-led activities and loosely structured group work (Villegas, 2021). This limits opportunities for students to practice and refine their communication and reasoning skills.

To address this, integrating a dedicated science talk phase into the 7E Learning Model—positioned after “Explain” and before “Elaborate”—has been proposed. In this modified version, learners engage in structured peer discussions using teacher-provided conversation prompts, reflecting on and clarifying concepts before moving on to application. This approach aligns with Vygotsky's social constructivism, which emphasizes the role of social interaction in knowledge construction (Vygotsky, 1978). It also supports national education goals such as the DepEd MATATAG Agenda and Sustainable Development Goal

4, which advocate for learner-centered, innovative pedagogy. Such integration could enhance the 7E model's capacity to promote both engagement and comprehension. By deliberately incorporating collaborative dialogue, teachers can create conditions for deeper conceptual understanding, stronger communication skills, and more robust critical thinking. In turn, this could contribute to improved outcomes in both classroom assessments and international benchmarks. In conclusion, while the 7E Learning Model remains a valuable framework for science education, its limited focus on peer collaboration restricts its potential to fully develop students' higher-order thinking skills. Philippine education performance data and research on global best practices suggest that structured peer discussion—through science talks—can address this gap. This study seeks to explore the integration of science talks into the 7E Learning Model to determine its impact on engagement, comprehension, and academic performance. The goal is to contribute evidence-based insights for refining instructional strategies in Philippine science education, aligning them with both national priorities and global standards.

Theoretical Framework

This study is anchored in Lev Vygotsky's Social Constructivism Learning Theory, which emphasizes the critical role of social interactions in the learning process. Social constructivism provides a robust framework for understanding how structured peer discussions—referred to as science talks in this study—enhance learners' comprehension and engagement with scientific concepts.

Soviet psychologist Lev Vygotsky introduced the social constructivism learning theory in 1968 (Singer, Marx, & Krajcik, 2000). According to this theory, language and culture serve as the media through which people observe, connect, and comprehend the truth. Vygotsky also believes that language and culture are crucial for both the intellectual growth of people and how they view the world (Kapur, 2018). This means that language is used to transfer concepts, which are then interpreted and understood through experience and interactions within a cultural context. With this notion, it is fitting to say that knowledge is therefore not just socially built, but also co-constructed since it takes a group of people to have language and culture to create cognitive frameworks (Singer, et al., 2000).

In the classroom, social constructivism views knowledge as something learners construct in conjunction with other learners and teachers. Learning is viewed as a social activity that involves other individuals, such as peers, family members, and even passing acquaintances. Social Constructivism recognizes the social aspect of learning and the use of conversation, interaction with others, and the application of knowledge as an essential aspect of learning and a means to achieve learning objectives (Akpan, Igwe, Blessing, Mpamah, & Okoro, 2020). Through engaging in peer discussions and responding to the teacher's questions, learners actively transition

their conceptual understanding from a personal perspective to a scientific one, thereby deepening their comprehension of science concepts.

The 7E Learning Model was developed by Arthur Eisenkraft in 2003. It is an expansion of the highly successful 5E learning cycle and instructional model established by The Biological Science Curriculum Study (BSCS), a team led by its principal researcher Roger Bybee in 1997 (Adesoji & Idika, 2015). As successful as the 5E model is, Eisenkraft believes that existing models need to be modified and updated when new data, insights, and knowledge have been obtained. With new information from research such as on how individuals learn and how to incorporate that information into lesson plans, curriculum, and their development, the 5E model was expanded to a 7E learning model to make use of such new information (Eisenkraft, 2003).

The 7E learning model is composed of seven steps, namely elicit, engage, explore, explain, elaborate, evaluate, and extend. These components are designed to examine the learner's prior knowledge and what they want to know first before learning the new content (Adesoji & Idika, 2015). Its aim of eliciting prior knowledge from learners and connecting it to current knowledge through engagement is the main feature of the 7E learning model. Presently, it is the current basis of the 7Es lesson plan format used by most public-school science teachers in the Philippines. It is also used as a guide in teaching science lessons and in crafting science learning resources (Vick, 2018).

Science talks are structured peer dialogues that enable students to engage with and deepen their understanding of scientific concepts. These discussions align with Vygotsky's notion of co-construction of knowledge, where learners collectively make sense of complex ideas. Teachers facilitate this process by providing conversation stems and guiding questions, ensuring discussions remain focused and productive (McElhone, 2013). By incorporating science talks into the "Explain" phase of the 7E Learning Model, learners transition from passive recipients of information to active participants in the learning process.

The ZPD is particularly relevant in the context of science talks, as learners benefit from the shared expertise of peers and teacher scaffolding. For instance, during a science talk about photosynthesis, a learner struggling with the concept of light-dependent reactions might gain clarity through a peer's explanation, supported by the teacher's probing questions. This collaborative environment fosters deeper comprehension and encourages learners to adopt scientific modes of reasoning.

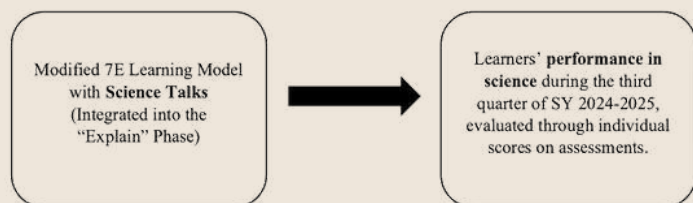
Social constructivism provides a compelling framework for integrating science talks into the 7E Learning Model. By emphasizing the role of social interactions and collaborative inquiry, this theory underscores the transformative potential of structured peer discussions in science education. The study's proposed modifications to the 7E learning model not only enhance its effectiveness but also

align with broader educational objectives, paving the way for more interactive and meaningful learning experiences in science classrooms.

Conceptual Framework

Figure 1.

Schematic Diagram of the Study



The conceptual framework illustrates the link between the independent and dependent variables of the study, highlighting the intended outcomes of implementing a modified 7E Learning Model that integrates science talks. The independent variable is the modified 7E Learning Model, in which science talks are incorporated into a specific phase of instruction. The dependent variable is learners' science performance during the third quarter of SY 2024–2025, measured through individual assessment scores.

By embedding science talks into the "Explain" phase, the model strengthens collaborative and reflective learning. These structured discussions allow students to express their understanding, question peers, and refine ideas collectively. This approach addresses the limitations of traditional teacher-centered instruction by promoting critical thinking, communication skills, and deeper conceptual mastery.

Unlike earlier approaches that relied mainly on Mean Percentage Score (MPS), the framework focuses on individual performance, offering a more precise evaluation of progress. Science performance is defined as a learner's ability to meet or exceed a passing score on assessments aligned with the quarter's content, ensuring clarity and consistency in measurement.

Placing science talks within the "Explain" phase provides learners with opportunities to explore and articulate scientific concepts after initial exploration but before extending their understanding. Guided by teacher facilitation and supported with conversation stems, these discussions create a social context for refining ideas and constructing knowledge collaboratively.

Grounded in Vygotsky's social constructivism, the framework emphasizes knowledge co-construction through social interaction. Science talks operationalize this by fostering collaborative inquiry, encouraging higher-order thinking, and enabling learners to work within their Zone of Proximal Development through peer and teacher support.

The framework also recognizes the role of enabling conditions: effective teacher facilitation to keep discussions productive, a supportive classroom climate that reduces apprehension, and engaging content that sustains student motivation. Together, these elements create an environment where the

modified 7E Learning Model can maximize its impact on science learning outcomes.

Statement of the Problem

This study integrated science talks into the 7E Learning Model to enhance structured interactions within science lessons. This modification aimed to deepen learners' understanding and improve the retention of scientific concepts through collaborative and meaningful discussions. The incorporation of science talks sought to address gaps in the traditional model by fostering critical thinking, communication skills, and active engagement. To systematically evaluate the impact of this intervention, the study examined differences in student performance and explored learner experiences and perspectives on the modified instructional approach. Specifically, the research was designed to address the following questions:

1. What are the pretest and posttest performance of the Grade 10 learners in science exposed to:
 - 1.1. 7E learning model
 - 1.2. 7E learning model with science talks?
2. Is there a significant difference between the pretest scores of the Grade 10 learners exposed to the 7E learning model and the 7E learning model with science talks?
3. Are there significant differences between the pretest and posttest scores of Grade 10 learners exposed to:
 - 3.1. 7E learning model
 - 3.2. 7E learning model with science talks?

Is there a significant difference between the posttest scores of the Grade 10 learners exposed to the 7E learning model and the 7E learning model with science talks?

5. Is there a significant difference between the mean gain scores of the Grade 10 learners in science exposed to the 7E learning model and the 7E learning model with science talks.
6. What experiences do learners provide regarding the effectiveness and implementation of the 7E learning model with science talks?

Methodology

Methodology This section presents the methodology employed in the study, detailing the research design, participants, instruments, procedures, and data analysis methods.

Research Design

The study used an embedded mixed-methods design, prioritizing the quantitative component and using qualitative data to provide additional insights into the results. This design proved particularly effective in educational research, allowing the researcher to address both measurable effects and

contextual factors influencing the intervention (Creswell & Plano Clark, 2018; Teddlie & Tashakkori, 2009). By embedding qualitative data within a primarily quantitative framework, the study ensured that the findings were not only statistically robust but also deeply contextualized, providing a nuanced understanding of the intervention's impact (Plano Clark et al., 2015). The quantitative phase compared the performance of the control and experimental groups, while the qualitative phase captured participants' experiences and perceptions regarding the intervention. This integration of methods ensured a comprehensive evaluation of the 7E Learning Model with science talks, addressing both its efficacy and the underlying dynamics of its implementation.

Respondents of the Study

The study involved Grade 10 learners from Mayor-ga National High School during the school year 2024–2025. A total of 78 students participated in the study: 38 students from section 10-Newton comprised the control group, while 40 students from section 10-Faraday formed the experimental group. These two sections were selected through simple random sampling to enhance objectivity and eliminate potential bias. The selection process was carried out from among all Grade 10 sections with similar schedules, and only sections with comparable academic performance were considered. As part of the inclusion criteria, the study reviewed learners' average science grades from the first and second grading periods to ensure both groups had similar academic profiles at the study's outset. Grade 10 was purposefully chosen for this intervention as it represents a critical academic stage where learners begin preparing for high-stakes assessments such as the National Achievement Test (NAT) or its equivalent and begin considering senior high school tracks such as the Science, Technology, Engineering, and Mathematics (STEM) strand. At this level, learners are expected to engage in more complex scientific reasoning and problem-solving tasks, making it an ideal stage to assess the effectiveness of a pedagogical model that emphasizes collaborative inquiry and conceptual understanding.

During the intervention period, some science classes were extended to accommodate disrupted schedules caused by school events and unforeseen interruptions. These adjustments ensured that the instructional time remained consistent across both groups and that all learners received full exposure to the intended learning competencies and activities. This proactive measure helped maintain the integrity of the intervention timeline and ensured that data collected reflected the intended instructional design. Research Instruments The primary instrument for the quantitative phase was a 40-item multiple-choice test aligned with the third-quarter science curriculum and validated using a Table of Specifications (TOS). The test underwent reliability testing using Cronbach's alpha, with a score of 0.82 which is above the minimum acceptable score of 0.80, indicating strong internal

consistency (Gliem & Gliem, 2003). Content validation was conducted by master teachers with expertise in science education, ensuring the test's alignment with the curriculum and study objectives. Experts, Mrs. Gemma R. Gigante; Mrs. Nimfa R. Liad, and Mrs Ermila L. Avelino – who are all Master teachers, used the Content Validity Tool for the Grade 10 Science Test Questionnaire to assess the relevance, clarity, and appropriateness of each test item to the targeted competencies.

The test was pilot tested with a non-sample group of 30 learners to identify poorly performing items based on difficulty and discrimination indices. Items failing to meet reliability and validity standards were revised or removed before the actual implementation. The final version of the test included clear instructions and was administered within a specified time limit of 60 minutes. Pilot testing procedures and revisions were documented to establish the credibility and rigor of the instrument.

Data Gathering Procedure

The intervention was conducted over eight weeks, with both the control and experimental groups receiving lessons during different time slots but under similar instructional conditions to ensure consistency. In accordance with the teaching schedule in DepEd Junior High School, each class session lasted 45 minutes. The control group (10-Newton) had classes from 1:00–1:45 PM, while the experimental group (10-Faraday) had classes from 2:30–3:15 PM. The experimental group followed the modified 7E Learning Model, integrating science talks during the "Explain" phase. Teachers used conversation stems to guide peer discussions, ensuring structured and meaningful dialogues. The control group, on the other hand, followed the 7E Learning Model without science talks, allowing for a direct comparison of the two instructional approaches.

The instruction during the eight-week intervention focused on the following Grade 10 learning competencies of the third grading period: (1) explain the role of hormones involved in the female and male reproductive systems; (2) describe the feedback mechanisms regulating processes in the female reproductive system (e.g., menstrual cycle); (3) describe how the nervous system coordinates and regulates feedback mechanisms to maintain homeostasis; (4) explain how protein is made using information from DNA; (5) explain how mutations may cause changes in the structure and function of a protein; (6) explain how fossil records, comparative anatomy, and genetic information provide evidence for evolution; (7) explain the occurrence of evolution; (8) explain how species diversity increases the probability of adaptation and survival of organisms in changing environments; and (9) explain the relationship between population growth and carrying capacity.

Both the experimental and control groups received lessons aligned with these competencies, with the experimental group utilizing the modified 7E learning model incorporating science talks. The integration of

science talks occurred during the “Explain” phase, where learners engaged in structured discussions using conversation stems to deepen their understanding of these topics. The control group followed the 7E learning model without science talks. This approach ensured that the intervention remained consistent with DepEd’s curriculum standards while addressing the study’s focus on enhancing learner engagement and performance.

The quantitative phase began with the administration of a pretest for all selected learners. The researcher served as the instructor for the experimental group, developing instructional materials including conversation stems to facilitate structured peer discussions. To avoid contamination between groups, a co teacher handled the instruction for the control group following the 7E learning model.

The researcher conducted the instruction exclusively for the experimental group throughout the entire intervention period, which lasted eight weeks. This duration is consistent with recommendations from Chwo, Marek, and Wu (2016), allowing learners sufficient time to adapt to the instructional model and reducing novelty effects. During the intervention, both the control and experimental groups received instruction on the same topics at succeeding time slots (1:00–1:45 PM and 2:30–3:15 PM) to ensure consistency. To ensure fidelity in the implementation of the 7E learning model with science talks, the researcher invited a fellow science teacher to regularly observe the experimental class and verify adherence to each phase of the learning cycle. The researcher guided the learners through the modified model, facilitated science talks, monitored engagement, and ensured the integrity of the instructional design.

At the conclusion of the intervention, a posttest was administered to assess changes in the learners’ academic performance. Pretest and posttest results were analyzed to identify significant differences in 9 individual scores, using paired t-tests, independent t-tests, and Cohen’s d to evaluate the effectiveness of the modified 7E learning model with science talks. This analysis provided robust quantitative evidence of the intervention’s impact on learners’ academic outcomes.

Individual interviews were conducted in parallel with the quantitative data collection. Learners’ experiences with the 7E Learning Model with science talks were explored. All learners from the selected Grade 10 sections were interviewed until data saturation was achieved following Wa’Mbaleka’s (2022) guidance.

A semi-structured interview guide with open-ended questions encouraged detailed reflections. Sessions were audio-recorded with informed consent and then transcribed verbatim. Thematic analysis following Braun and Clarke’s (2006) six-step framework was employed: familiarization, coding, developing initial themes, reviewing themes, defining themes, and reporting results. This qualitative narrative was integrated with quantitative results for a holistic evaluation.

Data Analysis

This study employed both quantitative and qualitative data analysis techniques to address the research questions comprehensively. For the analysis of pretest and post-test scores, descriptive statistics, such as mean scores, standard deviations, and percentage changes, were used to summarize performance trends and provide insights into learning gains resulting from the implementation of the 7E Learning Model with science talks. This analysis helped contextualize the intervention’s overall impact on learners’ academic performance.

To determine the statistical significance of the observed changes, independent t-tests, and paired t tests were conducted to evaluate whether there were significant differences in learners’ performance before and after the intervention. Additionally, Cohen’s d was calculated to measure the effect size, offering insights into the practical significance of the intervention. Effect sizes were interpreted based on Lakens’s (2013) guidelines, with thresholds indicating small, medium, or large effects, which are critical for understanding the magnitude of the observed changes and their implications for educational practice.

For the qualitative data, individual interviews were analyzed thematically using Braun and Clarke’s six-step framework. The thematic analysis involved an iterative process of familiarization with the data, identifying initial codes, grouping codes into broader themes, and refining these themes to ensure they accurately represent the participants’ experiences and perceptions of the intervention. Themes were supported with direct quotes to provide depth and authenticity to the findings. This narrative was integrated 10 with the quantitative results to offer a holistic evaluation of the modified 7E learning model’s effectiveness, highlighting both measurable outcomes and the contextual factors influencing its impact.

This chapter outlined a systematic approach to examining the effectiveness of the 7E learning model with science talks. The methodology integrates quantitative and qualitative data to provide a holistic evaluation of the intervention’s impact on learners’ academic performance and engagement.

Ethical Considerations

The study adhered to the highest research ethics standards to safeguard participants’ rights, dignity, and privacy. Detailed Informed Consent Forms were provided to both learners and their parents, outlining the study’s purpose, procedures, potential risks, and benefits. As the participants were minors, parental consent was obtained in compliance with ethical guidelines, ensuring both parties fully understood the information before agreeing. Participation was strictly voluntary, with the option to withdraw at any time without penalty.

To maintain confidentiality, all quantitative and qualitative data were anonymized using codes or pseudonyms in place of actual names. Personal information, when collected, was stored securely—digital files were password-protected, and physical

documents were kept in a locked cabinet accessible only to the researcher. All data will be destroyed after the study's completion. The research also complied with the Philippine Data Privacy Act of 2012 (RA 10173), ensuring responsible and secure data handling.

Special care was taken to address power dynamics, given the involvement of teachers and students. Learners were assured their participation or responses would not influence grades or school standing, while teachers were informed their involvement would not affect professional evaluations.

The researcher practiced reflexivity, maintaining a journal to record personal biases, assumptions, and positionality, ensuring these did not unduly influence data collection, analysis, or interpretation. Although the study posed minimal risks, any potential discomfort was mitigated by fostering a respectful and non-judgmental atmosphere during interviews. Participants were also free to skip any questions they found uncomfortable.

Results and Discussion

This section presents the key findings of the study, integrating both quantitative and qualitative results. It includes the analysis of pretest and posttest scores, comparisons between the control and experimental groups, evaluation of gain scores, and statistical tests to determine the significance of observed differences. Additionally, it highlights the results of the thematic analysis of learner interviews, offering insights into students' experiences and perceptions during the implementation of the 7E Learning Model with integrated science talks. Together, these findings provide a well-rounded understanding of the intervention's impact on student learning and engagement.

Pretest and Post-test

Performance of the Grade 10 Learners To establish baseline equivalence and evaluate the effectiveness of the intervention, a comparison of both pretest and posttest scores was conducted. The control group registered a mean pretest score of 21.74 (SD = 4.90), while the experimental group recorded a slightly higher mean of 22.03 (SD = 4.33). This negligible difference in baseline scores suggests that both groups commenced the study with relatively equal levels of prior knowledge, reinforcing the likelihood that any observed differences in post intervention outcomes can be attributed to the instructional strategy rather than pre-existing disparities (Creswell & Creswell, 2018).

After the intervention, both groups demonstrated gains in their posttest scores. The control group's mean increased to 27.11, whereas the experimental group attained a higher posttest mean of 31.05. The more substantial improvement observed in the experimental group implies that the incorporation of science talks within the 7E Learning Model contributed to a more effective learning experience compared to the traditional approach. These results support the notion that active participation and peer-led discussions foster deeper comprehension and

retention in science learning (Johnson & Johnson, 2014). These findings underscore the value of active engagement strategies in science education, particularly the use of structured peer dialogue to enhance conceptual understanding and memory retention. While both groups achieved statistically significant improvements, the experimental group's greater t-value reflects a more pronounced learning gain, suggesting that the modified 7E model with integrated science talks offered a more impactful instructional experience. This aligns with Vygotsky's (1978) social constructivist theory, which highlights the pivotal role of social interaction in the construction of knowledge.

Learner reflections further support this, as seen in the responses of E9, E11, and E4, who shared:

"Kuan, mas madali sir maintidihan, diri nangalimtan dayon..." [E9 - line 25] (When we talked about the lessons, it became easier to understand. We shared ideas, and it helped us remember more.)

"Mas na-gets ko yung topics sir kasi may examples yung classmates namin." [E11 - line 25-26] (I can understand the topics because my classmates give their own examples.)

"Sir, kay kun meada ako waray ka-gets, mayda akon ka-grupo nga nag-eexplain liwat." [E4 - line 31] (Sir, if there is a topic that I don't understand, my classmates try to explain it for me.)

Difference Between Pretest Scores of the 7E Learning Model and 7E Learning Model with Science Talks

To determine if there was a significant difference between the pretest scores of the two groups before the intervention, an independent samples t-test was conducted.

Table 2. Independent Samples t-Test for Pretest Scores					
Group	Mean	SD	t	df	p
7E Learning Model	21.74	4.90	-0.29	76	0.774
7E Learning Model with 'Science Talks'	22.03	4.33			

An independent samples t-test comparing the pretest scores of the control and experimental groups yielded a p-value above 0.05, indicating no statistically significant difference between the two groups prior to the intervention. This result confirms that both groups started with comparable levels of scientific understanding, thereby establishing baseline equivalence and supporting the validity of post-intervention comparisons.

This finding reinforces the internal validity of the study by ensuring that observed differences in posttest scores could be attributed to the instructional methods rather than to initial disparities in learner ability (Fraenkel, Wallen, & Hyun, 2012).

Learner reflections further support this, as seen in the responses of E2, E3, and E5, who shared:



"...makuri sir han una labi na kay diri kami first section..." [E2 – line 35] (At first, we were all struggling with the topics. Nobody was very advanced.)

"Dati kasi sir han waray pa ini kay medyo makuri pa." [E3 – line 20-21] (In our previous science class, lessons are difficult to understand.)

"Makuri po dati po kay lecture la yana iba na." [E5 – line 21] (Lessons are difficult before, as classes are conducted as purely lecture.)

Difference Between Pretest and Posttest Scores Within Groups

A paired samples t-test was performed to determine if there were significant improvements within each group.

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Difference Between Pretest and Posttest Scores Within Groups

A paired samples t-test was performed to determine if there were significant improvements within each group.

Table 3.
Paired Samples t-Test for Pretest and Posttest Scores

Group	Pretest Mean	Posttest Mean	t	df	p
7E Learning Model	21.74	27.11	14.50	37	<0.001
7E Learning Model with 'Science Talks'	22.03	31.05	27.92	39	<0.001

A paired samples t-test revealed that both the control and experimental groups showed statistically significant improvement from pretest to posttest, as indicated by p-values well below 0.05. These results demonstrate that both traditional instruction and the modified 7E learning model with integrated science talks were effective in enhancing learner performance.

However, the higher t-value for the experimental group indicates a greater magnitude of improvement. This suggests that structured peer discussions created richer learning opportunities, consistent with Vygotsky's (1978) social constructivism, which emphasizes the role of social interaction in cognitive development.

Learner reflections further support this, as seen in the responses of E6, and E4, who shared:

"... mas nage-gets ko danay kun na-explain nak sapit, tas madali maintidihan sir..." [E6 – line 30 31] (I learned a lot from our classmates' explanations. Sometimes their examples were easier to understand than just reading the book.)

"Sir, kay kun meada ako waray ka-gets, mayda akon ka-grupo nga nag-eexplain liwat." [E4 – line 31] (Sir, if there is a topic that I don't understand, my classmates try to explain it for me.)

Difference Between Post-test Scores Between the 7E Learning Model 7E Learning Model with 'Science Talks'

To determine the effectiveness of the modified 7E learning model with science talks, an independent samples t-test were conducted comparing post-test scores.

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Table 4.
Independent Samples t-Test for Posttest Scores

Group	Mean	SD	t	P
7E Learning Model	27.11	6.01	-3.22	0.0019
7E Learning Model with 'Science Talks'	31.05	4.70		

An independent samples t-test comparing the posttest scores yielded a p-value well below 0.05, indicating a statistically significant difference in favor of the experimental group. Learners who experienced the 7E learning model integrated with science talks performed significantly better than those who received traditional 7E instruction alone. This result supports findings from prior research that emphasize the positive impact of collaborative learning and structured academic conversations on science achievement (Mercer & Dawes, 2014).

This confirms that learners exposed to the 7E learning model integrated with science talks outperformed those receiving instruction following the 7E model. The result corroborates research highlighting the benefits of collaborative learning and structured academic conversations in science achievement (Mercer & Dawes, 2014).

Learner reflections further support this, as seen in the responses of E12, E1, and E10, who shared:

"...danay kun diri ko naintindihan, gine-explain nala geap hit akon classmates, tas ginco-correct kun sayop it ka-intindi." [E12 – line 26-27] (Talking about our ideas made it easier to see where we were wrong and correct ourselves.)

"Helps a lot, sir, kasi nakakapag-share kami." [E1 – line 25] (The talks help a lot sir, as we are able to share our ideas about the topic.)

"Mas malaksi ko ko na-gets an topic kay may exchange of ideas sir. Tapos mas klaro kun may examples tikang ha ka-grupo." [E10 – line 25-26] (I can understand the topics easier because we exchange ideas about the topics. It is also more understandable as my classmates give their own examples.)

Comparison of Mean Gain Scores

Table 5 presents the computed gain scores (Posttest-Pretest) and compares them between the two groups.

Table 5. Comparison of Mean Gain Scores					
Group	Mean Gain	SD Gain	t	p	Cohen's d
7E Learning Model	5.37	2.28	7.46	<0.001	1.69 (very large)
7E Learning Model with 'Science Talks'	9.03	2.04			

The experimental group's mean gain of 9.03 points was higher than that of the control group's 5.37 points. The Cohen's d of 1.69 indicates a very large effect size, demonstrating that the intervention had a substantial educational impact. This supports theories that active knowledge construction through dialogue and peer scaffolding significantly enhances learning outcomes (France, 2019).

This substantial gain validates the theoretical assertion that students learn better when they are actively engaged in constructing knowledge through dialogue, explanation, and peer scaffolding (France, 2019).

Learner reflections further support this, as seen in the responses of E4, E12, and E8, who shared:

"Ha amon dati nga teacher, sir, diretso la discuss, tapos quiz dayon. Yana, mayda na discussion per group, tapos may guide pa imo conversation stems. Bagat mas maupay ko hiya." [E4 – line 24-26] (In the previous sciences classes, it was quiz immediately. Now there are discussions with my classmates with the help of the conversation stems. I like these sessions better.)

"Dati sir medyo boring, yana okay man." [E12 – line 21] (The previous science lessons were boring, I like the sessions with science talks.)

"Mas dali ma-gets sir kay tikang geap ha classmates sir. Gin-chi-check geap namon an reasoning han kada usa." [E8 – line 25-26] (Topics are easier to understand as explanations also come from our classmates. We also check our own reasoning.)

While the quantitative results provided evidence of the intervention's effectiveness in improving academic performance, they do not fully capture the learners' personal experiences, challenges, and perceptions during the implementation. To complement these findings, qualitative data were gathered through student interviews, allowing a deeper exploration of how the modified 7E model with science talks influenced the learners beyond test scores. The integration of qualitative insights was essential to provide a holistic understanding of the intervention's impact from the students' perspectives.

Thematic Analysis

This section presents the results of the thematic analysis based on twelve (12) transcribed interviews with Grade 10 learners who participated in the intervention titled "Expanding Eisenkraft's 7E Learning Model through Science Talks with Peers." The twelve participants were randomly selected from the experimental group to ensure a diverse range of perspectives. The number of interviewees was limited to twelve as data saturation was achieved—that is, no new information or themes emerged in the later stages of data collection (Wa'Mbaleka, 2022). Thematic analysis was chosen for its flexibility and rigorous approach to identifying, analyzing, and reporting patterns within qualitative data (Braun & Clarke, 2006). The entire analysis process was supervised and validated by Dr. Paul Junrey Toyong, an expert in qualitative research, to ensure the credibility, consistency, and trustworthiness of the findings.

Following Braun and Clarke's six-phase method, the analysis sought to uncover recurring patterns of meaning that reflected students' lived experiences, challenges, insights, and perceptions during the intervention. The phases involved deep familiarization with the data, systematic coding, theme development, thorough review of emergent patterns, clear definition and naming of themes, and the production of a coherent report grounded in actual learner voices. The results provide a nuanced understanding of how structured science talks, embedded within the 7E learning model, influenced learners' engagement, comprehension, confidence, critical thinking, peer relationships, and classroom dynamics.

Theme 1:

Enhanced Understanding Learners consistently reported improved comprehension of science concepts as a direct result of structured peer discussions. Instead of relying solely on teacher explanations, students were able to hear multiple perspectives and familiar examples from their classmates, making abstract or complex ideas easier to grasp. As one learner expressed:

"Mas klaro kun may examples tikang ha ka-grupo." [E10 – line 25-26] (Things became clearer when my groupmates gave examples.)

The diversity of explanations allowed students to construct a more robust understanding, confirming Vygotsky's (1978) theory that social interaction mediates cognitive development. Through peer-led dialogue, learners were able to bridge gaps in their individual knowledge and solidify scientific concepts.

Theme 2: Increased Engagement

Students described the science talks as making science classes more lively, participative, and enjoyable compared to traditional lectures. The chance to speak, listen, and be heard during the "Explain" phase enhanced their emotional and cognitive engagement.

One student captured this sentiment, saying:

"Nag-enjoy gud ako, sir, kay diri boring." [E6 – line 16] (I really enjoyed, sir, because it wasn't boring.)

The increased interaction and sense of involvement transformed lessons into shared experiences, affirming Gillies' (2008) research that cooperative learning boosts student motivation and investment.

Theme 3: Improved Confidence

Many participants highlighted a growing sense of confidence in expressing their ideas during science talks. The structure provided by conversation stems, small-group discussions, and supportive peer feedback helped students, particularly shy ones, overcome initial anxieties. One learner articulated this:

"An akon confidence nag-increase kay ginpapamatian ako." [E1 – line 30] (My confidence increased because I was being listened to.)

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This observation aligns with Zwiers and Crawford's (2011) emphasis on academic conversations as essential tools for building communication skills and self-efficacy in learners. Another learner added:

"Sir, bisan sayop an akon baton, diri la ako gin-judge." [E2 – line 30] (Sir, even if my answer was wrong, I wasn't judged.)

Theme 4: Development of Critical Thinking

Learners noted that science talks prompted them to think more critically about scientific ideas rather than passively accepting information. Students reported engaging in reasoning, questioning, and even respectfully challenging their peers' answers. As one respondent shared:

"Gin-chi-check namon an reasoning han kada usa." [E8 – line 25-26] (We checked each other's reasoning.)

This theme mirrors McTighe and Wiggins' (2013) advocacy for learning environments that prioritize reasoning and justification over rote memorization. Importantly, students were able to recognize and correct misconceptions through dialogue, strengthening their conceptual understanding.

Theme 5: Strengthened Peer Relationships

Beyond academic gains, students also described stronger peer relationships developing through regular participation in science talks. Working collaboratively fostered a classroom culture of trust, empathy, and mutual support. One student reflected:

"Diri ako nahadlok kay nabatian ko nga pareho la kami may struggle." [E11 – line 30-31] (I wasn't afraid because I realized that we were all struggling together.)

This confirms Mercer and Dawes' (2014) assertion that dialogic classrooms promote social inclusion and community building. Students felt more connected to their classmates, reducing feelings of isolation and boosting their willingness to engage academically.

Theme 6: Implementation Challenges and Adaptations

While students appreciated the science talks, they also openly acknowledged challenges during initial sessions. The simultaneous start of group discussions often led to noise, confusion, and overlapping conversations, making it difficult to maintain focus. One learner shared:

"Ha una magulo gud, pero kun paper na an stems, mas dali mag-start." [E5 – line 35] (At first it was really noisy, but when the stems were given on paper, it was easier to start.)"

Recognizing these challenges, the teacher-researcher made adaptive changes:

- Conversation stems were printed individually rather than flashed on the screen 19
- Groups were staggered during discussions
- Observer roles were introduced to moderate discussions, similar to Socratic Seminar models (as promoted by Edutopia)

These adjustments improved classroom management and the overall quality of peer discussions. France (2019) also emphasized that flexible instructional design is crucial when implementing new pedagogical strategies.

Conclusions and Recommendations

This chapter presents a synthesis of the findings, conclusions drawn from the data, and recommendations derived from the insights and implications of the study.

Conclusions

Based on the combined analysis of quantitative and qualitative data, several conclusions were drawn regarding the effectiveness of integrating science talks into the 7E Learning Model and their influence on student performance and learning experiences.

1. Positive impact on academic performance – Both the traditional 7E model and the modified version with science talks improved learners' academic performance in science. While gains were observed in both control and experimental groups from pretest to posttest, the modified model produced greater improvement, underscoring the added value of structured peer dialogue in facilitating learning.
2. Comparable baseline knowledge – No significant difference was found in the pretest scores of the two groups, confirming that they started with similar levels of prior knowledge. This baseline equivalence strengthens the internal validity of the study by attributing post-intervention differences to the instructional method rather than pre-existing disparities.
3. Effectiveness of inquiry-based methods – Both versions of the 7E model led to statistically significant within-group improvements from pretest to posttest. This affirms that inquiry-based, constructivist approaches—whether in their traditional or modified form—enhance conceptual understanding in science.
4. Higher post-intervention achievement with science talks – A significant difference in posttest scores emerged between the control and experimental groups, favoring the latter. Learners exposed to the modified 7E model with structured science talks outperformed their peers, demonstrating that peer dialogue strengthens knowledge construction and yields better academic outcomes.
5. Greater learning gains – The experimental group achieved significantly higher mean gain scores compared to the control group. These larger gains indicate that science talks reinforced content retention deepened engagement, and had a stronger impact on learning compared to the traditional approach.
6. Enhanced learning experiences – Thematic analysis revealed that learners valued science talks for improving understanding, engagement, confidence, critical thinking, and peer

relationships. Peer discussions clarified difficult concepts, made lessons more interactive, and fostered a supportive learning environment. Although challenges such as classroom noise and simultaneous 21 speaking arose, these were mitigated through responsive classroom management. Overall, structured academic conversations in science classes promoted both cognitive and social growth alongside improved academic performance.

Recommendations

For Learners – Actively participate in structured science talks to strengthen conceptual understanding and communication skills. Approach peer discussions as opportunities for collaborative learning, prepare in advance, respect differing viewpoints, and reflect on participation to build independence and responsibility.

For Teachers – Incorporate structured science talks during the “Explain” or “Elaborate” phases, using conversation stems and defined roles to guide discussion. Monitor group dynamics for inclusivity, adapt strategies based on feedback, and seek professional development in dialogic and collaborative teaching methods.

For School Administrators – Support the integration of science talks by enabling collaborative lesson planning, adjusting schedules to accommodate the 7E cycle, and providing training in learner-centered and inquiry-based pedagogy. Allocate resources for discussion materials and promote a culture that recognizes innovative, research-based teaching practices.

For Future Researchers – Conduct long-term studies on science talks' effects on retention, critical thinking, and attitudes toward science. Test the model across grades, disciplines, and subjects, and explore variations in group structure and roles. Investigate applications in digital or blended learning contexts while ensuring ethical standards and participant confidentiality.

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BRIDGING UNIFIED LEARNING INITIATIVES AND GOALS (BULIG) KIT: ACCELERATING GRADE 12 COURSE PERFORMANCE

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Introduction

Performance-based assessment has become an integral component of global education systems. Increasingly, institutions are prioritizing learner-centered approaches that emphasize critical thinking, collaboration, and application of knowledge across contexts (UNESCO, 2020). The Philippine Senior High School curriculum—including the subjects Media and Information Literacy, Inquiries, Investigation and Immersion and Capstone Project—relies significantly on performance tasks to measure these competencies. However, many students—particularly in public schools—often struggle to complete such tasks due to fragmented support structures, overlapping learning competencies, and insufficient monitoring mechanisms.

Nationally, the Department of Education recognizes that the K-12 curriculum has become excessively congested, resulting in limited instructional time and superficial coverage of competencies (Hernando-Malipot, 2021; Galvez, 2023). Senator Sherwin Gatchalian has also highlighted that overlapping content across subjects leads to redundancy and learner confusion, undermining mastery of essential skills such as literacy and numeracy (Ramos, 2022). Moreover, DepEd Order No. 12, s. 2020 explicitly advises teachers to collaboratively design and implement integrative performance tasks that combine two or more competencies within or across subject areas, in order to streamline assessment and deepen learning (DepEd Order No. 12, s. 2020).

DepEd’s internal curriculum review further underscored insufficient horizontal alignment across subject areas, revealing that overlapping objectives consume valuable instructional space and create inefficiencies in teaching and assessment (Hernando-Malipot, 2021). Additionally, stakeholder groups such as Kabataan Party-list have warned that recent curriculum revisions may emphasize compliance over comprehension, thereby exacerbating existing functional illiteracy concerns (TV5 News, 2025).

Locally, at San Isidro Agro-Industrial School, teachers observe persistent delays and confusion in students’ performance task submissions for MIL, 3Is, and the Capstone Project. Students struggle to distinguish overlapping task instructions, while teachers spend excessive time clarifying and re-teaching competencies. These realities indicate a critical need for an integrated system that aligns competency objectives and reduces redundancy in student outputs.

The Bridging Unified Learning Initiatives and Goals (BULIG) platform was conceptualized as a response to these gaps. BULIG serves as a digital hub that structures performance tasks around integrative competency mapping, enabling students to complete aligned, coherent outputs across subjects. By embedding DepEd’s policy directive on integrative performance tasks into its design, BULIG minimizes duplication, provides clarity, and



supports real-time teacher feedback and peer collaboration—addressing both policy intent and local practice needs.

As an innovation, BULIG operationalizes the integrative assessment provisions outlined in DepEd Order No. 12, s. 2020. It aligns with national guidelines by fostering coherence, responsiveness, and sustainability in classroom assessment practices (DepEd, 2020). Unlike conventional platforms, BULIG systematically integrates multiple competencies into single performance tasks, thereby aligning with both curriculum reform ethos and pragmatic classroom improvements.

In conclusion, the development of BULIG reflects a deliberate effort to bridge the gap between national policy on integrative assessment and school-level realities. Grounded in DepEd directives, supported by global emphasis on performance-based learning, and responsive to local instructional challenges, BULIG provides a structured, theory-informed means of improving assessment coherence, student performance, and teaching efficiency.

Research Questions

This study investigates the implementation of the Bridging Unified Learning Initiatives and Goals (BULIG) Kit, an integrated, technology-driven intervention designed to streamline the completion of course performance tasks and enhance instructional coherence across senior high school subjects.

Specifically, this research seeks to answer the following questions:

1. What is the baseline level of course performance task accomplishment among Grade 12 students prior to the implementation of the BULIG Kit?
2. How does student performance change following the introduction of the BULIG Kit?
3. Is there a significant difference between pre- and post-implementation performance results among Grade 12 students?
4. In what ways does the BULIG Kit facilitate or accelerate the accomplishment of course performance tasks among Grade 12 students?

Innovation, Intervention, and strategy

The BULIG Kit, short for Bridging Unified Learning Initiatives and Goals, is an instructional culminating activity kit designed to unify and simplify the accomplishment of course performance tasks (CPTs) among Grade 12 students in Media and Information Literacy (MIL), Inquiries, Investigation and Immersion (3Is), and the Capstone Project. It responds to curriculum implementation challenges in the Philippine Senior High School system, particularly the issue of overlapping learning competencies, which often results in redundancy, inefficient use of instructional time, and student confusion. Through integrative performance tasks, the BULIG Kit enables learners to accomplish outputs that address multiple subject competencies in one coherent culminating activity.

This innovation is grounded in key educational theories and policy directives. It draws from the Constructivist Learning Theory (Bruner, 1960; Vygotsky, 1978), which promotes learning through meaningful, contextualized experiences. It is further supported by the Curriculum Alignment Model (English, 2000), emphasizing coherence between learning objectives, instruction, and assessment. Most importantly, it aligns with DepEd Order No. 12, s. 2020, which mandates the use of integrative and interdisciplinary performance tasks to promote depth, reduce curriculum overload, and reflect real-world application of knowledge and skills. The BULIG Kit meets this call by integrating academic expectations across subjects into one student-centered, project-based output.

What makes the BULIG Kit distinct from other culminating activities is its dual focus on curriculum integration and community relevance. It does not merely combine requirements; rather, it challenges students to design a single output that is academically sound and socially responsive. Students are encouraged to identify a local issue, propose a practical solution, and present their work to both school and community stakeholders. These outputs may take the form of campaigns, research-driven projects, creative media productions, or action proposals. The kit promotes student agency, relevance, and leadership. The words “bulig kit,” meaning “Let us help” in the Waray vernacular, reflects its deeper purpose: to empower learners to contribute meaningfully to their communities through integrative, performance-based learning.

A. Production

The production of the BULIG Kit underwent a rigorous, collaborative process spanning three main stages: Curriculum Mapping, Subject Convergence, and Module Production. Each phase built the foundation for a cohesive culminating activity that reflects authentic learning across the Senior High School (SHS) subjects: Media and Information Literacy (MIL), Inquiries, Investigation and Immersion (3Is), and the Capstone Project.

In the Curriculum Mapping Phase, teachers examined the Most Essential Learning Competencies (MELCs) across the three subjects to identify overlaps and intersections. This was in response to long-standing issues of curriculum congestion, as acknowledged by the Department of Education. Teachers found that competencies in the areas of community problem identification, data gathering, research analysis, and advocacy were not only repeated across subjects but also disconnected in their implementation. By aligning these overlapping outcomes, the team ensured that the culminating tasks would streamline student efforts and maximize instructional efficiency. The table titled “Curriculum Mapping – Overlapping Competencies” outlines the core learning standards selected for integration.

The second phase, Subject Convergence, focused on transforming the mapped competencies into a single, unified learning experience. Instead of three separate subject requirements, students would now accomplish one integrative output that fulfills the performance indicators of all subjects. To do this, teachers designed three main thematic strands: Community Problem Identification, Research and Data Analysis, and Community-Based Solutions and Advocacy. Each strand merges one key competency from MIL, 3Is, and Capstone. A structured table, “Subject Convergence – Integrated Competencies and Activities,” details how these themes align with the respective subject standards and the activities administered. This convergence allowed for the development of a coherent culminating task that reflected inquiry, communication, and community-based application.

In the final stage, Module Production, the team produced a series of seven thematic workbooks, each corresponding to a specific learning phase within the culminating task. These modules served as both student workbooks and teacher guides. The seven modules developed are as follows:

Module 1: Knowing My Community – focused on community scanning and issue identification

Module 2: Framing My Inquiry – guided students in formulating research problems and writing rationales

Module 3: Gathering the Data – introduced appropriate data collection methods such as surveys and interviews

Module 4: Analyzing and Reflecting – focused on synthesizing findings and validating results

Module 5: Designing My Solution – challenged students to draft feasible interventions or proposals

Module 6: Sharing My Advocacy – guided media production (posters, infographics, or videos)

Module 7: Culminating My Learning – facilitated presentations, reflections, and feedback collection

B. Utilization

The BULIG Kit was implemented from November 2023 to April 2024, spanning the second and third quarters of the school year. The kit’s rollout followed the sequential use of the seven modules, each completed over a two-week period. This structure allowed learners to complete one major output over a realistic and manageable timeline while still fulfilling the subject requirements in a deeply contextualized manner.

The implementation was spearheaded by the senior high school teachers but made possible through active collaboration with local stakeholders. Barangay chairpersons facilitated the initial community profiling and granted students access to conduct interviews and surveys. The Municipal Agriculture Office (MAO) served as a partner in validating projects related to sustainable practices and agricultural concerns. Meanwhile, the Northern Samar Division Research Unit monitored the innovation as part of the region’s continuing research-based instruction. School-based stakeholders such as the School Head, Senior High Coordinator, and Governing

Council also supported the logistics and documentation of the activities.

Student outputs were presented in two key venues. The L&D Hall (Learning and Development Hall) of the school served as the central location for BULIG Presentation Day, where students defended their projects in front of teachers, peers, and external validators. This venue was equipped with visual aids, LCDs, and community exhibit spaces. In addition, the school’s iAGRI Park (Inclusive Agricultural Growth through Research and Innovation) hosted the Research and Innovation Exhibit, where student prototypes and advocacy materials were showcased to a broader audience including parents, barangay leaders, and representatives from partner institutions.

The utilization phase proved the BULIG Kit’s value in reducing fragmented workloads, promoting deep learning, and fostering school-community linkages. As a culminating tool, it not only measured student academic performance but also empowered learners to take initiative in addressing real problems within their locality.

C. Validation

The final phase of the BULIG Kit production centered on its validation for quality, relevance, and scalability. This stage ensured that the innovation was not only functional but also aligned with curriculum standards, institutional goals, and research-based practices.

Initial validation was conducted internally at the school level through the School Quality Assurance Committee (QAC) of San Isidro Agro-Industrial School. The committee, composed of the school head, senior high school coordinator, subject group leaders, and research focal persons, meticulously reviewed the content of the seven thematic workbooks for alignment with MELCs, coherence of performance tasks, and clarity of student instructions. Feedback gathered during this internal process led to refinements in the layout, activity scaffolding, and integration flow across the subjects Media and Information Literacy (MIL), Inquiries, Investigation, and Immersion (3Is), and Capstone Project. Emphasis was also placed on ensuring cultural and community relevance to the Northern Samar context.

To establish credibility and external recognition, the BULIG Kit was formally presented at the Northern Samar Basic Education Research and Innovation Forum held on February 15–16, 2024, at Villa Cruz Nature’s Resort, San Roque, Northern Samar. This two-day event, spearheaded by the Schools Division of Northern Samar, served as a platform for showcasing innovative solutions to challenges in basic education. The BULIG Kit was among the selected school-based innovations featured in the forum, drawing attention for its integrative and community-responsive approach to culminating performance tasks.

During the forum, the BULIG Kit underwent panel review and oral defense. It was evaluated by a team of experts from the University of Eastern Philippines (UEP) and supervised by the Division Research Coordinator, Dr. Robert T. Orias. The panel

acknowledged the innovation's unique emphasis on thematic integration, performance-task simplification, and its engagement of local stakeholders in both the learning process and output validation. Recommendations from the panel included the documentation of output impact in future studies and the development of a digital companion to further increase accessibility.

Methodology

A. Research Design

This study employed a mixed-method research design to examine the impact of the Bridging Unified Learning Initiatives and Goals (BULIG) Kit on student academic performance and community engagement. The quantitative component utilized a pretest-posttest design to measure performance in culminating course tasks across Media and Information Literacy (MIL), Inquiries, Investigation, and Immersion (3Is), and Research Capstone projects. Baseline scores were compared with post-intervention scores to determine the effectiveness of the BULIG Kit. The qualitative component collected descriptive data on the relevance, applicability, and social impact of student outputs, using thematic analysis to identify emerging patterns in collaboration, problem-solving, and community responsiveness. This combination ensured a comprehensive assessment of both educational and societal outcomes.

B. Participants

The participants included Grade 12 General Academic Strand (GAS) students, who were the primary beneficiaries of the BULIG Kit. They completed performance tasks across MIL, 3Is, and Research Capstone projects, applying integrated competencies facilitated by the thematic workbooks. Senior High School teachers served as implementers and evaluators, administering and monitoring performance tasks to ensure alignment with curriculum objectives. School administrators, including the School Head, Dr. Ruel C. Castillo, and the Research and Innovation Coordinator, Mr. Don Redentor C. Evasco, provided leadership, curriculum mapping, and module development oversight. Community partners included Barangay Chairman Hon. Yolando I. Catamora and the San Isidro Municipal Agriculture Office, represented by Dr. Glenn L. Calipus, MGDH, who validated outputs and provided technical support aligned with local priorities. The innovation was further evaluated at the Northern Samar Basic Education Research and Innovation Forum, with mentoring and assessment by experts from the University of Eastern Philippines and the Division Research Office.

C. Data Gathering Methods

Quantitative data were collected through pretest-posttest assessments, capturing student performance in MIL, 3Is, and Research Capstone projects before and after the implementation of the BULIG Kit. Qualitative

data were obtained via Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) with teachers, students, barangay leaders, and municipal representatives. These data were transcribed, coded, and analyzed thematically to identify patterns related to collaboration, empowerment, and local problem-solving. Supplementary data, such as photo documentation, narrative reflections, and feedback forms collected during the Research and Innovation Exhibit at iAGRI Park, provided evidence of student ownership, engagement, and community appreciation for outputs produced.

D. Ethical Considerations

Ethical protocols were strictly observed throughout the study. Participants provided informed consent, ensuring voluntary participation and understanding of the research objectives. Anonymity and confidentiality were maintained in all reporting and documentation. The study adhered to principles of beneficence, respect, and fairness, ensuring that participation did not compromise students' academic responsibilities or personal well-being. Community stakeholders were engaged respectfully, and student outputs were designed to address real-life local issues. Validation by experts further reinforced the ethical and methodological rigor of the study.

Results and Discussion

1. Baseline Level of Course Performance Task Accomplishment

The pretest scores of Grade 12 students across Media and Information Literacy (MIL), Inquiries, Investigation, and Immersion (3Is), and Research Capstone projects revealed moderate proficiency, with an overall mean of 68.4% (Table 1). Students reported challenges managing multiple overlapping competencies, resulting in fragmented learning, redundancy, and high cognitive load. Teachers observed that these conditions limited opportunities for critical reflection and higher-order thinking, corroborating findings by Beers (2011) that fragmented curricula often hinder the development of analytical and problem-solving skills. The baseline highlights the urgent need for interventions that integrate overlapping competencies to reduce redundancy, clarify instructional expectations, and promote meaningful learning.

Table 1. Pretest Performance of Grade 12 Students

Subject/Component	Mean	Standard Deviation (SD)
Media and Information Literacy (MIL)	69.2	8.5
Inquiries, Investigation, and Immersion (3Is)	67.5	9.1
Research Capstone	68.5	8.8
Overall Mean	68.4	8.8

2. Changes in Student Performance Following BULIG Kit Implementation

Post-intervention assessment demonstrated a significant increase in mean scores, rising to 86.1%, reflecting a 17.7% improvement (Table 2). Students

reported that the BULIG Kit simplified the completion of tasks by merging competencies across MIL, 3Is, and Research Capstone projects into coherent, meaningful outputs. One student commented:

“This kit made our life easier. It relieved us from pile to pile requirements. Here, we could apply all the learnings we got from three subjects” (Transcript No. 1, Lines 24–26)."

Teachers confirmed that instructional planning became more focused and output expectations clearer, enhancing both efficiency and learning depth. This outcome aligns with Baraquia (2019), who found that interdisciplinary, inquiry-based learning enhances comprehension, critical thinking, and the application of knowledge across subjects. The improvement suggests that integrative educational interventions can simultaneously reduce workload, enhance comprehension, and foster transferable skills among senior high school students.

Table 2. Pretest and Posttest Performance Comparison

Subject/Component	Pretest	Posttest	Gain
Media and Information Literacy (MIL)	69.2	87.0	+17.8
Inquiries, Investigation, and Immersion (3Is)	67.5	85.5	+18.0
Research Capstone	68.5	85.8	+17.3
Overall Mean	68.4	86.1	+17.7

3. Significant Difference between Pre- and Post-Implementation Performance

A paired-sample t-test confirmed that the increase in performance was statistically significant ($t = 12.43$, $p < 0.001$) with a large effect size (Cohen’s $d = 2.74$) (Table 3). This demonstrates that the BULIG Kit had a substantial impact on student achievement. The magnitude of effect suggests that the intervention was not only effective in improving scores but also in creating measurable improvements in learners’ integration and application of knowledge. These findings support the effectiveness of constructivist and integrated learning approaches in improving academic outcomes (Piaget, 1976; Vygotsky, 1978). Large effect size indicates that similar interventions can be scaled and adapted for other strands and educational contexts to maximize student learning outcomes.

Table 3. Paired-Sample t-Test and Effect Size

Comparison	t-value	p-value	Cohen’s d	Interpretation
Pretest - Posttest	12.43	< 0.001	2.74	Large Effect

4. Facilitation and Acceleration of Course Performance Task Completion

A thematic analysis of 20 in-depth interviews and focus group discussions surfaced nine core basic themes, which clustered into three organizing themes under the global theme “Empowering Communities through Contextualized and Collaborative Learning.” This organizing framework illustrates how the BULIG Kit served not only as an educational intervention but

also as a vehicle for civic engagement, learner agency, and academic improvement—all grounded in local relevance and stakeholder collaboration.

Academic Transformation through Integration. The participants highlighted how overlapping competencies across MIL, 3Is, and the Capstone Project were merged into coherent, academically rich tasks. A student reflected, “This kit made our life easier. It relieved us from pile-to-pile requirements. Here, we could apply all the learnings we got from three subjects” (Transcript No. 1, Lines 24–26).

Teachers corroborated this, noting that instructional planning became more focused and output expectations clearer. Quantitative data supported these observations with a mean score increase from 68.4% to 86.1% (+17.7%). These findings resonate with Baraquia’s (2019) study in the Philippines, which showed that interdisciplinary, inquiry-based learning deepens student understanding and promotes critical thinking across subjects.

Learner Engagement and Empowerment. This reflects a shift in student motivation from compliance to meaningful agency. One student shared, “When we were told we will present our outputs in a community forum, we took it seriously. It’s not just about grades anymore” (Transcript No. 7, Lines 18–20). Observations during presentations confirmed heightened student confidence, creativity, and civic-mindedness. Such real-world engagement aligns with Rahmawati et al. (2021), who found that constructivist, values-based learning environments foster greater student empowerment, self-efficacy, and motivation.

Strengthened Community-School Partnership. This captures the deepened relationships between learners and local stakeholders. Barangay officials and municipal agriculture staff validated the students’ outputs as authentic, locally impactful projects. Chairman Hon. Yolando I. Catamora expressed surprise at the relevance and sensitivity of student proposals to real barangay challenges (Transcript No. 12, Lines 9–11). Community-engaged assessment observes synergy similar to that described in Crawley and Crawley’s (2023) research, which highlights how authentic cross-sector collaboration enhances learning connectedness and civic awareness in community-based classroom settings.

Conclusions and Recommendations

A. Conclusion

Grade 12 students initially demonstrated moderate proficiency in Media and Information Literacy, Inquiries, Investigation, and Immersion, and Research Capstone tasks. They experienced difficulties managing overlapping competencies, redundant requirements, and fragmented learning, which limited opportunities for critical thinking and efficient task completion.

Implementation of the BULIG Kit significantly improved student performance. Post-intervention results showed a substantial increase in mean scores, reflecting enhanced learning outcomes, better task management, and clearer understanding of integrated competencies.



The BULIG Kit proved to be a highly effective instructional tool. The increase in performance was statistically significant, indicating that the intervention facilitated meaningful improvements in students' academic achievement and integration of knowledge across subjects.

The BULIG Kit accelerated the completion of performance tasks, reduced redundancy, and allowed students to focus on producing high-quality, coherent outputs. It also promoted learner agency, motivation, and a sense of responsibility toward community-relevant outputs, fostering both academic and civic growth.

B. Recommendations

1. Senior high schools should adopt the BULIG Kit or similar integrative tools to streamline performance tasks, enhance instructional coherence, and reduce redundant workload across subjects.
2. Teachers are encouraged to implement interdisciplinary and thematic strategies that enable students to apply knowledge across subjects while promoting critical thinking, problem-solving, and efficient task completion.
3. Schools should incorporate community-based activities in performance tasks to strengthen student engagement, learner ownership, and the relevance of outputs to real-life contexts.
4. Professional development programs should be conducted to equip educators with skills in designing and implementing integrative, thematic instructional materials and facilitating community partnerships.
5. Future initiatives may explore scaling and adapting the BULIG Kit to other strands and educational contexts, evaluating its long-term impact on academic performance, learner engagement, and community collaboration.

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BRIDGING THE GAP TO TEACHER EXCELLENCE: A MIXED-METHODS STUDY ON THE PROFICIENCY LEVELS, PROFESSIONAL GROWTH, AND TECHNICAL ASSISTANCE NEEDS OF JUNIOR HIGH SCHOOL TEACHERS

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“Governance, Human Resource Development & Child Protection: First Best Paper & Third Best Presenter”

Introduction

Teachers play a pivotal role in shaping student outcomes and advancing the quality of education. Numerous studies affirm that teacher effectiveness is the most significant in-school factor influencing student achievement. Cohen and Goldhaber (2016) noted that teacher quality has a stronger correlation with student success than other factors such as school facilities or curriculum content. Michelli et al. (2014) similarly emphasized that quality education begins with competent educators who possess not only subject-matter expertise but also the ability to adapt instruction to diverse learner needs. In today's learning environments, teachers are expected to demonstrate instructional flexibility, utilize digital tools effectively, and maintain inclusive classroom practices that recognize students' varied backgrounds and abilities.

Sustained professional development is essential in supporting teachers to meet these expectations. Bayar (2014) emphasized that effective teacher learning happens through targeted training programs, collaborative learning communities, and continuous engagement in reflective practices. Professional growth involves not only acquiring new content knowledge but also refining pedagogical techniques and applying them meaningfully in the classroom. Le Fevre et al. (2016) introduced the notion of teachers as adaptive experts, professionals who balance routine expertise with innovative practices. in response to changing educational demands. Beyond certifications and workshops, teachers need to engage in practices that promote deep instructional understanding, such as mentoring, peer observations, and feedback loops that drive continual improvement.

Experiential learning also plays a crucial role in teacher development. The principle of “learning by doing,” widely advocated by John Dewey (1938), underscores that teacher deepen their competencies through hands-on application, critical reflection, and active engagement with real classroom challenges. This view aligns with contemporary models such as Kolb's Experiential Learning Theory (1984), which

positions experience as a central source of professional learning. Teachers who engage in reflective cycles, planning, acting, observing, and refining are more likely to adapt successfully to the complex and evolving needs of their learners. In this regard, professional growth is not merely a theoretical pursuit but a practical endeavor that requires consistent introspection, instructional experimentation, and a commitment to progress.

In the Schools Division of Catbalogan City, 336 Junior High School teachers serve across various career stages, 58 as Teacher I, 45 as Teacher II, and 233 as Teacher III. Among them, 304 are categorized as proficient, demonstrating competence in classroom instruction, curriculum implementation, and classroom management. However, the progression of these teachers toward higher career stages remains limited due to the absence of a structured development framework. Haryaka (2021) stressed the need to evaluate factors influencing teacher performance, while Gepila (2020) asserted that teacher competencies and credentials directly affect national education goals. Thus, this study seeks to assess the developmental status of proficient teachers and explore their perspectives on career advancement. By focusing on areas such as instructional autonomy, curriculum execution, collaboration, reflection, and continuous learning, the research aims to design a technical assistance plan that supports teacher growth, enhances instructional delivery, and contributes to elevating educational standards within the division.

Research Questions

The study principally aimed to determine the level of development of proficient teachers and how they perceive the process of transforming teachers from proficient teachers into highly proficient teachers and even distinguished teachers as a basis to develop a proposed technical assistance plan for teachers and school heads in the Schools Division of Catbalogan City during the school year 2024-2025.

Specifically, this study sought answers to the following research questions:

1. What is the socio-demographic profile of teacher-respondents in terms of the following:
 - 1.1 age and sex;
 - 1.2 civil status;
 - 1.3 average family monthly income;
 - 1.4 highest educational attainment;
 - 1.5 field of specialization; and
 - 1.6 number of years in service.
2. What is the level of development of proficient teachers in terms of the following areas:
 - 2.1 Independence in teaching;
 - 2.2 Meeting curriculum and assessment requirements;
 - 2.3 Engaging in collaborative learning;
 - 2.4 Reflective practices; and
 - 2.5 Continuous professional development.
3. What is the relationship between teacher-respondents' profile variates and their level of development as proficient teachers.
4. What are the teachers' perspectives on what it means to be a proficient teacher?
5. What Technical Assistance Plan (TAP) can be proposed to support teachers and school heads?

Methodology

Research Design

This study utilized a convergent parallel mixed-methods research design to comprehensively address its objectives, combining both quantitative and qualitative approaches as defined by Morse (1991). Guided by Creswell and Clark (2011), the two strands were conducted simultaneously, analyzed independently, and later integrated during interpretation to ensure a full understanding of the research problem.

The quantitative component employed a descriptive-correlational design. It aimed to (1) profile the socio-demographic characteristics of teacher-respondents such as age, sex, civil status, income, education, teaching load, experience, training, and awards; (2) assess their development in key areas such as teaching independence, curriculum and assessment, collaboration, reflection, and professional growth; and (3) determine the correlations between these characteristics and their development levels. Data were collected via structured surveys and analyzed using descriptive statistics and correlational analysis.

The qualitative component used a case study design to examine teachers' perspectives on transitioning from proficient to higher competency levels. In-depth interviews captured their insights and experiences, and responses were analyzed using Colaizzi's Method, identifying recurring themes and contextualizing the quantitative results.

To ensure triangulation and validation, findings from both components were directly compared and integrated. This process enhanced the credibility of

the results and ensured that both numerical trends and lived experiences were effectively captured to present a holistic view of teacher development.

Research Instrumentation

This study employed a combination of survey questionnaires, in-depth one-on-one interviews, and documentary analysis to collect both quantitative and qualitative data effectively.

For the quantitative component, a structured survey questionnaire was used, consisting of two major parts. Part I collected respondents' socio-demographic data, including age, sex, civil status, average family monthly income, educational attainment, specialization, teaching load, years in service, relevant trainings/seminars, and academic awards. Part II assessed the level of development of proficient teachers, based on five key domains adapted from the Philippine Professional Standards for Teachers (PPST): independence in teaching, curriculum and assessment implementation, collaborative learning, reflective practice, and continuous professional development. The instrument was reviewed and approved by the research evaluation committee during the pre-oral stage. Responses were measured using a five-point Likert scale, ranging from 1 (Beginning Teacher) to 5 (Fully Developed).

For the qualitative component, semi-structured indepth interviews were conducted to elicit rich, descriptive insights into teachers' lived experiences and perspectives on professional development. The interview guide was developed by the researcher, anchored on the same PPST-aligned domains in Part II of the survey, and reviewed by the adviser and panel members. The guide included an introduction, warm-up questions, core questions, and closing prompts. The interviews allowed for two-way communication and probing, facilitating a deeper understanding of teacher experiences.

All interviews were audio-recorded, transcribed verbatim using Microsoft Word (excluding fillers like "uhm" and "well"), and validated by the researcher and adviser. Data were systematically organized in an Excel spreadsheet using a 4x2 matrix: interviewee code, interviewer question, response, and initial categorization. These were analyzed using Colaizzi's (1978) Seven-Step Approach, involving stages of familiarization, extracting significant statements, formulating meanings, clustering themes, and developing an exhaustive description. Key themes such as mentorship, challenges, and institutional support were identified, culminating in a synthesized structure that captured the core of participants' lived experiences. All interviews were scheduled with consideration for participants' availability, ensuring convenience amidst their professional responsibilities.

Validation of Research Instruments

The study employed two validation procedures for the quantitative survey instrument: expert validation using the Content Validity Index (CVI) and pilot testing through the test-retest method.

First, the draft survey was submitted to the adviser and panel members for expert review, focusing on content accuracy, language clarity, and format. Five experts evaluated the quantitative instrument using the CVI framework by Waltz and Bausell (1981), which included both Item-Level (I-CVI) and Scale-Level (S-CVI) measures. An acceptable I-CVI score of 0.78 or higher was used as the benchmark for item relevance. Based on their feedback, the survey was revised to address ambiguities and ensure alignment with the study objectives. For the qualitative interview guide, three experts evaluated the items using a validation matrix, resulting in rephrasing, deletion, or addition of questions as needed.

Second, the revised quantitative questionnaire underwent pilot testing through the test-retest method to ensure reliability. It was administered twice to a sample of 30 proficient junior high school teachers from Samar National School, with a one-week interval between administrations. This allowed respondents to approach the second test independently, minimizing bias. The process assessed clarity, instructional flow, and item coherence. Feedback from the pilot test informed further refinements, resulting in improved reliability and relevance.

Statistical analysis of the test-retest produced a correlation coefficient (r-value) of 0.859, indicating a fairly high reliability level, acceptable for individual measurements. This confirmed the instrument's consistency and suitability for data collection.

Additionally, the qualitative interview questions were carefully aligned with the study's objectives. Consultations with the adviser, panel members, and three qualitative research experts ensured that the questions were valid and meaningful. Their inputs informed the final revisions of the guide, and all three validation matrices were included in the appendices. The finalized in-depth interview guide was then used consistently throughout data gathering.

Sampling Procedure

During School Year 2024–2025, there were 304 junior high school proficient teachers across public secondary schools in the Schools Division of Catbalogan City. Using Sloven's Formula (Sevilla et al., 1992) with a 95 percent confidence level and 0.05 margin of error, a sample of 173 teacher-respondents was determined for the study.

To ensure fair representation across all schools, stratified random sampling was employed. Each school's sample size was proportionally calculated using the formula $p = n/N \times 100$ percent, where n is the desired sample and N is the total number of proficient teachers per school. This method ensured equitable participation based on each school's teaching population, as shown in the distribution table, with sample sizes ranging from 5 to 75 per school.

Inclusion criteria required participants to: (1) be junior high school teachers employed in the division; (2) hold ranks of Teacher I, II, or III (classified as proficient); (3) have at least two years of teaching experience; (4) be actively engaged in classroom instruction and curriculum delivery; and (5) voluntarily consent to participate in surveys or interviews.

Exclusion criteria eliminated senior high, elementary, SPED, and non-teaching personnel; Master Teachers, Special Science Teachers; those with less than two years of experience; and school administrators (e.g., heads, coordinators, supervisors). Teachers unwilling to provide informed consent were also excluded, ensuring adherence to ethical research protocols.

Data Gathering Methods

Prior to data collection, the researcher prepared formal request letters, which were endorsed by the school head through the division research coordinator. These letters were submitted to the Schools Division Superintendent of Catbalogan City and to the principals of participating public secondary schools, seeking permission to administer survey questionnaires and conduct interviews with identified proficient junior high school teachers.

Upon approval, the researcher secured lists of qualified teacher-respondents from each school. The validated survey questionnaires, which included socio-demographic data and indicators aligned with the Philippine Professional Standards for Teachers (PPST), were personally distributed to willing participants. To optimize time, the questionnaires were administered and collected over two consecutive days, allowing respondents sufficient time to complete them. All responses were treated as confidential, and the completed data were tallied, tabulated, and analyzed to address the study's quantitative objectives.

For the qualitative component, the researcher conducted one-on-one, in-depth interviews with teachers who provided informed consent. Interviews were held in comfortable, participant-preferred locations and lasted between one to two hours. Respondents were encouraged to use English, Filipino, Waray-Waray, or any combination of these languages to ensure ease of expression. To establish rapport, each session began with a preparatory conversation, encouraging open and candid responses. With participant permission, all interviews were audio-recorded for transcription.

Ethical protocols were strictly observed throughout the process. The transcriptions of the interviews were treated as confidential and considered privileged communication, accessible only to the researcher. The recorded data were transcribed and analyzed thematically, allowing for the identification of recurring insights and the development of meaningful themes aligned with the qualitative objectives of the study.

Statistical Treatment of Data

The study utilized both descriptive and inferential statistical tools to analyze the quantitative data collected through surveys, ensuring a structured and accurate interpretation aligned with the research objectives. Descriptive statistics, including frequency count, percentage, and mean, were used to summarize respondent profiles and continuous variables such as age, income, teaching load, years of service, and

training participation. The weighted mean, based on a five-point Likert scale, assessed the overall level of teacher development, while the standard deviation provided insights into response consistency and variability.

For inferential analysis, the Shapiro-Wilk test was applied to assess the normality of data distributions, guiding the selection of appropriate tests. Spearman’s Rho was used to examine relationships between ordinal socio-demographic factors and teacher development. Pearson’s correlation analyzed continuous variables for their influence on development levels. All statistical computations were conducted using SPSS version 18.0, and hypotheses were tested at the 0.05 level of significance, ensuring both precision and statistical validity in the results.

Ethical Consideration

The researcher upheld strict ethical standards throughout the study. All participants were invited through informed consent and were thoroughly informed about the study’s purpose, to evaluate the level of development among proficient junior high school teachers and explore their perspectives on professional advancement during School Year 2024–2025 in the Schools Division of Catbalogan City. They were fully briefed on the objectives, procedures, potential benefits, minimal risks, and use of findings, enabling them to voluntarily decide to participate.

Although no significant risks were expected, participants were made aware of potential discomfort due to the 61-item questionnaire and the duration of interviews. Despite the absence of financial incentives, the study presented potential professional value, including insights that could contribute to personalized teacher development plans.

Confidentiality was strictly maintained, as no names or identifying details were required or reported. Participation remained voluntary, with the option to withdraw at any time without penalty. Upon completion of the study, participants were given the choice to have their data securely disposed of through shredding and deletion of audio files, reinforcing the ethical integrity and privacy commitment of the research process.

Results and Discussion

This part analyzes and interprets the data, aligning the findings with the study’s objectives. It highlights the significance of the results within the research framework.

Socio-Demographic Profile

Tables 1 to 4 present an overview of the respondents' profiles, encompassing various demographic and professional attributes. These include age and sex, civil status, average monthly family income, highest educational attainment, and field of specialization.

Age and Sex Distribution

Table 1
Age and Sex of Teacher-Respondents

Age Bracket	Sex		Total	%
	Male	Female		
56 - 60	0	7	7	4.05
51 - 55	1	5	6	3.47
46 - 50	2	10	12	6.94
41 - 45	6	24	30	17.34
36 - 40	3	21	24	13.87
31 - 35	5	34	39	22.54
26 - 30	20	33	53	30.64
21 - 25	1	1	2	1.16
Total	38	135	173	100
%	21.97	78.03	100	-
Mean	36.43 years old			
S. D.	8.68 years			

The findings show that the majority of the teacher-respondents were female (78.03 percent), while male teachers constituted only 21.97 percent. This pattern is consistent with national and international trends where the teaching profession, especially in basic education, is predominantly occupied by women (UNESCO, 2019). In terms of age, the largest proportion of respondents fell within the 26–30 age group (30.64 percent), followed by those aged 31–35 (22.54 percent), indicating that many were in the early to mid-career stages. The computed mean age of 36.43 years suggests a moderately young teaching workforce, which is often characterized by strong motivation for professional growth and openness to innovation (Ingersoll & Merrill, 2017). These demographics provide an advantageous context for implementing targeted development programs designed to enhance teacher proficiency and career advancement.

Civil Status Distribution

Table 2
Civil Status of the Teacher-Respondents

Civil Status	<i>f</i>	%
Single	64	37.0
Married	105	60.7
Widowed	2	1.2
Separated	2	1.2
Total	173	100.00

As reflected in Table 2, a majority of the teacher-respondents were married (54.91 percent), while 41.62 percent were single. Only a small portion were either separated (2.89 percent) or widowed (0.58 percent). The data suggest that a large segment of the teaching workforce is composed of individuals managing both professional and familial responsibilities. According to Day and Gu (2015), marital status may influence a teacher’s emotional resilience and work-life balance, which in turn affects professional engagement and career development.

Married teachers, often balancing household responsibilities alongside teaching duties, may approach professional advancement with different motivations compared to their single counterparts. Meanwhile, the presence of younger, single teachers could indicate greater flexibility and openness to training opportunities, which is essential in fostering a proactive professional culture.

Average Monthly Family Income

Table 3
Average Monthly Family Income of the Teacher-Respondents

Income Bracket	Description	f	%
100,001 and above	High Income	8	4.62
50,001-100,000	Upper Middle Income	24	13.87
25,001-50,000	Middle Income	130	75.14
10,001-25,000	Lower Middle Income	10	5.78
10,000 and below	Low Income	1	0.58
Total	-	73	100
Mean	51,949.03 pesos per month		
S.D.	65,685.89 pesos		

The data indicate that the majority of the teacher-respondents (55.49 percent) reported an average monthly family income ranging from PHP 20,000 to PHP 29,999. This was followed by 18.50 percent earning PHP 30,000 to PHP 39,999, and 14.45 percent earning below PHP 20,000. Only a small fraction of respondents reported monthly incomes in the PHP 40,000 to PHP 49,999 bracket (6.36 percent) and PHP 50,000 and above (5.20 percent). These findings suggest that while most teachers fall within the lower-middle-income bracket, a considerable number still experience financial constraints that may affect their access to professional development opportunities. As highlighted by Bower and Parsons (2016), teachers' financial well-being significantly influences their motivation, job satisfaction, and capacity to invest in career growth. Limited income may restrict their ability to pursue postgraduate studies, attend out-of-pocket training, or invest in instructional materials. Thus, understanding income distribution among educators is vital in developing equitable and accessible professional support systems.

Highest Educational Attainment

Table 4
Highest Educational Attainment of the Teacher-Respondents

Educational Level	f	%
Has Units Earned in Any Post-Graduate Programs	4	2.3
Graduated from Any Graduate Programs	27	15.6
Has Units Earned in Any Graduate Programs	126	72.8
Undergraduate Degree Only	16	9.2
Total	173	100

The data reveal that a substantial majority of the teacher-respondents (70.52 percent) held a bachelor's degree, while 25.43 percent had earned units in a master's degree. Only 4.05 percent had completed a master's degree. This distribution underscores that most teachers in the division meet the minimum educational qualification mandated by the Department of Education (DepEd), but only a small portion have pursued advanced graduate education. The predominance of bachelor's degree holders suggests a critical need to encourage graduate studies to enhance instructional competence and leadership readiness. As pointed out by Torres and Hernandez (2020), teachers with higher academic qualifications tend to demonstrate stronger pedagogical knowledge, improved instructional practices, and greater readiness for promotion to higher proficiency levels. Investing in the graduate education of teachers not only elevates the quality of classroom instruction but also builds the overall capacity of schools to implement curricular reforms and support learner achievement.

Fields of Specialization

Table 5
Field of Specialization of the Teacher-Respondents

Specialization	f	%
Filipino	24	13.9
English	35	20.2
Mathematics	20	11.6
Science	26	15.0
Araling Panlipunan (AP)	31	17.9
Edukasyon sa Pagpapakatao (EsP)	1	0.6
Technology and Livelihood Education (TLE)	24	13.9
Music, Arts, Physical Education, and Health (MAPEH)	12	6.9
Total	173	100.00

As presented in Table 5, the field of specialization of the teacher-respondents varied across disciplines. Most respondents specialized in Filipino (14.45 percent), followed by Mathematics (13.87 percent), English (13.29 percent), Science (13.29 percent), and Araling Panlipunan (12.72 percent). Other specializations included Technology and Livelihood Education (11.56 percent), Music, Arts, PE, and Health (10.40 percent), and EsP (9.25 percent). This diverse distribution indicates a balanced representation of content expertise across key learning areas in junior high school.

The data also reflect the teacher deployment pattern in response to the K-12 curriculum's demand for subject-specific expertise. However, while the spread appears even, the relatively lower percentages in technical and value-based subjects like EsP and TLE highlight potential gaps in specialization. According to Rodelas and Lumabi (2021), alignment between teachers' specialization and the subjects they handle significantly contributes to effective instruction and learner performance. Thus, maintaining this alignment and addressing underrepresented specializations are essential for sustaining curriculum quality and improving student outcomes.

Number of Years in Service

Table 6
Number of Years in Teaching of the Teacher-Respondents

Years in Teaching	f	%
More than 20	6	3.5
16-20	13	7.5
11-15	29	16.8
6-10	76	43.9
1-5	49	28.3
Less than 1	0	0
Total	173	100.00
Mean	8.47 years in service	
S.D.	5.87 years	

Table 6 showed that most teacher-respondents had been in service for six to ten years (n = 76 or 43.9 percent), followed by those with one to five years (n = 49 or 28.3 percent). A smaller portion had eleven to fifteen years (n = 29 or 16.8 percent), while only 6 teachers (3.5 percent) reported over twenty years. The mean length of service was 8.47 years, indicating that the majority were still in the early to mid-career stage.

This concentration of early-career teachers highlights the need for sustained professional development during the formative years of teaching. As emphasized by Kraft and Papay (2016), teacher growth is most responsive to well-structured support in the first decade of practice, which in turn influences long-term instructional quality and student achievement.



Level of Development of Teacher-Respondents as Proficient Teachers

Independence in Teaching

Table 7
Level of Development of Teacher-Respondents in terms of Independence in Teaching

Attitudinal Statement	Mean	SD	Interpretation
1. I have the ability to make informed decisions and take ownership of my teaching practices without constant supervision.	4.16	0.77	HD
2. I demonstrate autonomy in designing lessons, managing classrooms, and assessing student learning.	4.26	0.74	HD
3. I am creative and innovative in my approach to teaching.	4.02	0.79	HD
4. I am open to trying new strategies, technologies, and methodologies to enhance student engagement and learning outcomes.	4.36	0.72	HD
5. I critically analyze educational practices, curriculum requirements, and student needs.	4.04	0.73	HD
6. I can adapt and modify teaching methods based on a reflective assessment of my own effectiveness.	4.18	0.75	HD
7. I am resourceful in finding solutions to challenges that arise in the classroom.	4.33	0.75	HD
8. I can effectively utilize available resources, technologies, and support systems to optimize teaching and learning experiences.	4.27	0.76	HD
9. I have a growth mindset and actively seek opportunities for professional development.	4.35	0.75	HD
10. I am a lifelong learner who engages in ongoing training, workshops, and research to enhance my teaching skills and expertise	4.32	0.69	HD
11. I communicate clearly and effectively with students, colleagues, parents, and other stakeholders.	4.38	0.74	HD
12. I can articulate their teaching goals, expectations, and feedback in a way that fosters collaboration and understanding.	4.18	0.69	HD
13. I engage in reflective practice to evaluate my teaching methods and student outcomes.	4.19	0.66	HD
14. I use feedback, self-assessment, and data analysis to continuously improve my teaching practice.	4.24	0.75	HD
15. I prioritize my students' needs and learning objectives in my instructional planning.	4.49	0.17	HD
16. I tailor lessons to accommodate diverse learning styles, abilities, and interests, ensuring that each student has the opportunity to succeed.	4.28	0.74	HD
Grand Mean	4.26		
Grand SD	0.58		
Interpretation	Highly Developed (HD)		

The respondents demonstrated a Highly Developed level of independence in teaching, with a grand mean of 4.26 and a standard deviation of 0.58. The highest-rated item was their prioritization of students' needs in instructional planning (mean = 4.49), indicating a strong learner-centered approach. All indicators fell within the Highly Developed range, suggesting that teachers take initiative in lesson design, classroom management, and reflective teaching. This aligns with DepEd's PPST domain on personal and professional attributes (DepEd, 2017) and reinforces Avalos' (2016) view that teacher autonomy is vital in sustaining professional growth and instructional quality.

Meeting Curriculum and Assessment Requirements

As shown in Table 8, Teacher-respondents also reflected a Highly Developed level in aligning instruction with curriculum and assessment standards, with a grand mean of 4.28 and SD of 0.62. They rated highest in ensuring curriculum alignment (mean = 4.50) and in maintaining integrity in assessment (mean = 4.42). These results indicate strong competence in curriculum mapping, differentiated instruction, and ethical assessment practices. This supports the findings of Darling-Hammond et al. (2017), who emphasized that effective teaching requires sound knowledge of curriculum standards and a commitment to equity in learning outcomes.

Table 8
Level of Development of Teacher-Respondents in terms of Meeting Curriculum and Assessment Requirements

Attitudinal Statement	Mean	SD	Interpretation
1. I ensure that my teaching programs align with the national and local curriculum standards.	4.50	0.67	HD
2. I translate curriculum content into relevant and engaging learning activities that support student learning objectives.	4.22	0.73	HD
3. I design well-structured and sequenced lessons that are responsive to the needs of my students.	4.24	0.73	HD
4. I incorporate a variety of teaching strategies, resources, and technologies to enhance learning outcomes.	4.23	0.74	HD
5. I utilize a variety of assessment tools and strategies to monitor, evaluate, and document students' progress and achievement.	4.17	0.72	HD
6. I use assessment data to analyze and understand my teaching practices and make adjustments to support student learning.	4.13	0.74	HD
7. I provide timely and constructive feedback to students about their learning outcomes.	4.25	0.71	HD
8. I communicate learning goals effectively to support student participation, understanding, and achievement	4.32	0.74	HD
9. I ensure accurate reporting of students' progress.	4.39	0.68	HD
10. I differentiate my teaching approaches to meet the diverse needs of students	4.27	0.72	HD
11. I design learning activities that accommodate different learning styles, abilities, and interests to ensure all students have the opportunity to succeed.	4.16	0.72	HD
12. I engage in continuous professional development.	4.33	0.73	HD
13. I seek opportunities to enhance my knowledge and skills related to curriculum design, assessment practices, and educational best practices.	4.28	0.76	HD
14. I collaborate with colleagues, educational professionals, and stakeholders to enhance curriculum delivery and assessment practices.	4.27	0.75	HD
15. I share best practices, exchange ideas, and improve teaching outcomes.	4.17	0.84	HD
16. I uphold professional ethics, accountability, and transparency in my teaching practices.	4.43	0.75	HD
17. I maintain integrity in assessment processes and ensure fairness and equity in evaluating student performance.	4.42	0.73	HD
Grand Mean	4.28		
Grand SD	0.62		
Interpretation	Highly Developed (HD)		

Engaging in Collaborative Learning

Table 9
Level of Development of Teacher-Respondents in terms of Engaging in Collaborative Learning

Attitudinal Statement	Mean	SD	Interpretation
1. I join and actively contribute to Professional Learning Communities (PLCs) where I collaborate with colleagues to share ideas, resources, and best practices to improve teaching and student learning.	4.03	0.84	HD
2. I willingly share my knowledge, resources, and expertise with colleagues, fostering a culture of mutual support and growth.	4.23	0.84	HD
3. I participate in peer observation activities where I provide constructive feedback to my colleagues to enhance teaching practices and promote personal growth.	4.11	0.89	HD
4. I collaborate with peers to plan lessons, units, and assessments, ensuring alignment with curriculum standards and learning objectives.	4.24	0.83	HD
5. I am involved in collaborative learning and engage in co-teaching arrangements where we work together to deliver instruction, differentiate learning experiences, and support all students' needs.	4.18	0.81	HD
6. I engage in reflective practices and discussions with colleagues to analyze teaching strategies, student outcomes, and areas for improvement.	4.17	0.86	HD
7. I attend professional development workshops and training sessions where I collaborate with peers to learn new instructional strategies, technologies, and approaches to enhance teaching effectiveness.	4.20	0.80	HD
8. I engage in problem-solving activities and innovative practices to address challenges and explore new ways to enhance student engagement and achievement.	4.13	0.79	HD
9. I work with my colleagues to analyze student data, monitor progress, and adjust instructional strategies to meet the diverse needs of learners effectively.	4.16	0.80	HD
10. I provide and receive constructive feedback from colleagues, administrators, and other stakeholders to continuously improve my teaching practices and student outcomes.	4.23	0.79	HD
Grand Mean	4.17		
Grand SD	0.73		
Interpretation	Highly Developed (HD)		

In terms of collaboration, teachers were Highly Developed, as indicated by the grand mean of 4.17 and standard deviation of 0.73. High mean scores were noted in lesson co-planning and idea-sharing, reflecting a professional culture of teamwork. These practices are essential in fostering Professional Learning Communities (PLCs), which are known to enhance teacher effectiveness and student achievement (Vescio, Ross, & Adams, 2008).



Reflective Practices

Table 10
Level of Development of Teacher-Respondents in terms of Reflective Practices

	Attitudinal Statement	Mean	SD	Interpretation
1.	I demonstrate self-awareness by critically examining my beliefs, values, teaching practices, and interactions with students to gain insights into their strengths and areas for improvement.	4.28	0.73	HD
2.	I engage in critical thinking by analyzing my teaching methods, lesson outcomes, and student responses to identify what worked well, what needs improvement, and how to enhance student learning experiences.	4.22	0.72	HD
3.	I keep reflective journals or documentation where I record my thoughts, reflections, and insights about my teaching experiences, classroom observations, and professional development activities.	3.77	0.85	HD
4.	I set specific, measurable, achievable, relevant, and time-bound (SMART) goals based on my reflections to guide my professional growth and improvement in teaching practices.	4.18	0.81	HD
5.	I actively seek feedback from peers, mentors, administrators, and students to gain different perspectives on my teaching practices and receive constructive criticism for personal and professional development.	4.17	3.91	HD
6.	I develop action plans based on my reflections, feedback, and goals to implement changes in their teaching practices, instructional strategies, and classroom management techniques.	3.91	0.86	HD
7.	I participate in ongoing professional development opportunities, workshops, seminars, and training sessions to enhance my knowledge, skills, and teaching effectiveness.	4.24	0.75	HD
8.	I collaborate with colleagues to engage in reflective discussions, share experiences, exchange ideas, and learn from each other to continuously improve my teaching practices and student outcomes.	4.17	0.77	HD
9.	I analyze student data, assessment results, and classroom observations to update my reflections, identify trends, track student progress, and adjust instructional strategies to meet the diverse needs of learners.	4.16	0.77	HD
10.	I demonstrate adaptability by making adjustments to my teaching practices, lesson plans, and assessment strategies based on their reflections, feedback, and data analysis to better meet the needs of my students.	4.18	0.79	HD
Grand Mean		4.13		
Grand SD		0.68		
Interpretation		Highly Developed (HD)		

Reflective practice among respondents was also Highly Developed, with a grand mean of 4.13 and standard deviation of 0.68. The highest-rated behavior was demonstrating self-awareness (mean = 4.28), while reflective journaling (mean = 3.77) had the lowest score, possibly due to time constraints or lack of routine. Nonetheless, the results emphasize the importance of continuous introspection in teaching, as suggested by Schön (2016), who stressed that reflective practitioners critically examine their actions for improved learning outcomes.

Continuous Professional Development

Table 11
Level of Development of Teacher-Respondents in terms of Continuous Professional Development

	Attitudinal Statement	Mean	SD	Interpretation
1.	I actively engage in professional development opportunities that are interactive, and engaging and provide reflection and collaboration with peers.	4.26	0.75	HD
2.	I prioritize professional development sessions that are relevant and practical, focusing on strategies and tools that can be directly applied in the classroom to enhance student learning outcomes.	4.24	0.76	HD
3.	I seek professional development opportunities that are informed by research-based practices or real-world experiences, ensuring that the learning is practical, effective, and grounded in evidence-based strategies.	4.23	0.77	HD
4.	I engage in professional development that is tailored to my individual needs, allowing for personalized learning experiences that address my specific areas for growth and development.	4.16	0.76	HD
5.	I actively evaluate the impact of my professional development activities, seeking feedback, reflecting on my learning, and identifying areas for improvement to enhance my teaching practice continually.	4.17	0.76	HD
6.	I collaborate with colleagues, mentors, and experts in the field to share best practices, resources, and experiences, fostering a culture of collaboration and collective learning with the educational community.	4.22	0.75	HD
7.	I demonstrate a commitment to lifelong learning by actively seeking out new professional development opportunities and attending workshops, conferences, and courses to stay updated on the latest trends and advancements in education.	4.24	0.75	HD
8.	I engage in reflective practices to assess my professional development experiences, apply new knowledge and skills in my teaching practice, and continuously refine and improve my instructional strategies based on my learning.	4.17	0.76	HD
Grand Mean		4.21		
Grand SD		0.70		
Interpretation		Highly Developed (HD)		

Lastly, the teachers rated themselves as Highly Developed in continuous professional development, with a grand mean of 4.21 and an SD of 0.70. The highest mean (4.26) pertained to participation in interactive and collaborative CPD activities. The results suggest a culture of lifelong learning, consistent with Desimone and Garet’s (2015) assertion that sustained, collaborative, and relevant professional development strongly influences teacher improvement and student performance.

Correlational Analysis

Respondents' Profile Variate and their Level of Development

Summary of Correlational Analysis Between the Respondents' Profile Variate and Their Level of Development		
Professional Development	Significant Profile Variate	Interpretation
Independence in Teaching	Highest Educational Attainment (r = 0.193, p = 0.011)	Teachers with higher educational attainment tend to demonstrate greater instructional autonomy.
Meeting Curriculum and Assessment Requirements	Highest Educational Attainment (r = 0.189, p = 0.013)	Teachers with higher degrees show better alignment with curriculum and assessment standards.
Engaging in Collaborative Learning	Highest Educational Attainment (r = 0.185, p = 0.015)	Advanced academic credentials correlate with higher participation in collaborative learning.
Reflective Practices	Highest Educational Attainment (r = 0.151, p = 0.048)	Higher educational attainment is associated with stronger engagement in reflective teaching.
Continuous Professional Development	None	No significant correlation found; CPD engagement appears influenced more by institutional and motivational factors than by profile variates.

The correlational analysis revealed that highest educational attainment was the only profile variate that exhibited a statistically significant relationship with the majority of the teacher development domains, namely: independence in teaching, meeting curriculum and assessment requirements, collaborative learning, and reflective practices. These moderate positive correlations suggest that teachers with higher academic qualifications are more likely to demonstrate stronger instructional autonomy, better curriculum alignment, and deeper engagement in collaborative and reflective teaching behaviors. This finding is supported by Darling-Hammond et al. (2017), who argued that advanced education fosters professional capacity by broadening teachers’ instructional knowledge and pedagogical flexibility.

Interestingly, no significant relationships were found between any of the demographic or professional background variables and continuous professional development. This implies that involvement in CPD may not necessarily be influenced by one's background but perhaps by systemic or motivational factors. Borko (2016) emphasized the importance of institutional support and culture in fostering meaningful professional growth, independent of teacher demographics.

Overall, the findings underscore the role of academic qualifications in shaping teaching effectiveness and highlight the need for equitable access to professional advancement opportunities across all teacher profiles.



Teachers in the study perceived proficiency as a dynamic and evolving process rather than a fixed state. For them, being a proficient teacher means having the competence to deliver quality instruction, maintain a deep understanding of the curriculum, and effectively manage the classroom while addressing the diverse needs of learners. They described proficiency as involving independence in teaching, the ability to adapt lessons for various learning styles, and the capacity to make informed instructional decisions without constant supervision. These perceptions align closely with Domains 2 and 3 of the Philippine Professional Standards for Teachers (DepEd, 2017), which highlight content knowledge and effective planning as key competencies of proficient educators.

A strong emphasis was also placed on continuous professional growth. The participants articulated that proficient teacher must go beyond fulfilling their current duties, they must remain open to new ideas, pursue ongoing training, and reflect critically on their teaching practices. This perspective is echoed by Opfer and Pedder (2015), who stressed that teacher learning is a continuous, reflective process shaped by context, experience, and professional networks. Similarly, Le Fevre, Timperley, and Ell (2016) underscored the concept of adaptive expertise, which enables teachers to respond to the ever-changing educational environment through informed and flexible decision-making.

Collaboration was another major theme in the responses. Teachers shared that proficiency involves being a contributing member of a professional learning community, engaging in peer mentoring, participating in Learning Action Cell (LAC) sessions, and sharing resources and practices to improve collective instruction. This aligns with the findings of Vangrieken et al. (2017), who noted that collaboration among teachers promotes pedagogical improvement and reflective practice. Moreover, ethical responsibility was repeatedly cited as a hallmark of proficiency. Teachers believe that being fair, respectful, humble, and principled is essential for establishing trust and creating a safe learning environment. This is supported by Shapira-Lishchinsky (2017), who emphasized that ethical teaching fosters student engagement and promotes long-term learning outcomes.

Finally, teachers associated proficiency with inclusive and responsive teaching. They believe that a proficient teacher actively considers learners' unique backgrounds and uses culturally and linguistically relevant strategies. This view is reinforced by Gay (2018), who advocates for culturally responsive pedagogy to ensure that all students feel represented and supported in the classroom. In sum, the study revealed that teachers view proficiency as a combination of instructional expertise, ethical practice, reflective capability, and collaborative engagement, all of which are critical in navigating the complexities of modern education and contributing to national teaching standards.

I. Title

Sustaining and Enhancing Teaching Proficiency through Reflective, Collaborative, and Context-Responsive Practices

II. Rationale

Based on the findings of this mixed-methods study, both quantitative and qualitative data indicate that teachers perceive themselves as highly proficient in core areas such as curriculum alignment, reflection, collaboration, and continuous professional development. However, qualitative data also revealed key expansion areas such as learner-centered practices, emotional support, values formation, and the application of real-life contexts, all of which point to teaching as both a technical and relational profession. This Technical Assistance Plan aims to strengthen these areas and support both teachers and school heads in building inclusive, innovative, and reflective teaching cultures.

III. Objectives

- 1.To sustain high levels of proficiency in instructional planning, reflection, and collaboration;
- 2.To enhance learner-centered and inclusive classroom strategies;
- 3.To support teachers in integrating real-life applications, values formation, and student well-being into instruction;
- 4.To capacitate school heads in leading professional learning communities and mentoring systems; and
- 5.To institutionalize a culture of reflection, mentoring, and contextualized teaching practices.

IV. Priority Areas for Technical Assistance

Priority Area	Basis from Findings	Intended Beneficiaries
1. Reflective Practice Enhancement	High ratings in reflection + qualitative emphasis on journaling, lesson review	Teachers
2. Learner-Centered and Inclusive Strategies	Expansion from qualitative findings	Teachers
3. Mentoring and Peer Feedback Systems	Convergence: Collaboration + Mentorship	Teachers & School Heads
4. Real-World and Contextualized Teaching	Expansion from qualitative data (e.g., use of local examples)	Teachers
5. Values Formation and Student Well-being	Emerg ed as a key qualitative insight not captured in the quantitative tool	Teachers
6. Instructional Leadership for School Heads	Needed to sustain a collaborative, reflective, and data-informed culture	School Heads

V. Proposed Interventions and Activities

Intervention	Activity Description	Responsible person(s)	Timeline	Expected Output
Reflective Practice Workshop	Conduct hands-on training on lesson journaling, critical reflection models, and lesson study	Division HRD / Master Teachers	Q1	100 percent of teachers trained with reflection portfolios
Inclusive Pedagogy Session	Train teachers on differentiated instruction and UDL	SpEd Coordinator / LAC Facilitators	Q2	Teacher-designed inclusive lesson plans
Intervention	Activity Description	Responsible person(s)	Timeline	Expected Output
Peer Coaching and Mentoring System	Establish school-based peer observation and feedback cycles	School Heads / Senior Teachers	Q1-Q4	Coaching logs, improvement plans
Contextualized Teaching Toolkit	Develop a bank of real-life lesson exemplars using local/community contexts	LAC Groups / Master Teachers	Q3	Contextualized lesson plan resource bank
Values Integration in the Curriculum	Facilitate design thinking workshops for values-based instruction	Guidance Counselors / Values Ed Coordinators	Q3-Q4	Instructional resources integrating values and SEL
Instructional Leadership Training	Capacity-building for school heads on PLCs, TAPs, and data-driven supervision	Division Supervisors / CID	Q1	School-based TAPs and IPCRF-aligned school plans
Reflective Practice Workshop	Conduct hands-on training on lesson journaling, critical reflection models, and lesson study	Division HRD / Master Teachers	Q1	100% of teachers trained with reflection portfolios

VI. Monitoring and Evaluation Framework

M&E Component	Strategy/Tool	Frequency	Responsible Unit
Pre- and Post-Training Assessment	Evaluation tools for each TA intervention	Before and after each session	HRD/Training Team
Classroom Observation and Coaching Logs	Use of RPMS-aligned observation forms	Quarterly	School Heads
Reflective Portfolios and Lesson Plans	Portfolio checklists and rubrics	Mid- and End-of-Year	Master Teachers
Focus Group Discussions	Small group reflection among teachers	End of each semester	LAC leaders
TAP Review and Feedback Session	School heads report TA results and suggest adjustments	Annually	Division TA Core Team

VII. Sustainability Strategy

1. Embed all TA activities within the regular School Learning Action Cell (LAC) schedules;
2. Integrate peer feedback into RPMS-PPST coaching cycles;
3. Develop a Technical Assistance Toolkit at the division level based on this model; and
4. Recognize schools that successfully implement TAPs through awards or incentives.

Conclusion and Recommendation

Based on the findings of the study titled “Correlation Between the Teachers’ Level of Development and Their Socio-Demographic Profiles: Basis for Technical Assistance Plan,” it was concluded that junior high school teachers in the Schools Division of Catbalogan City generally exhibited a highly developed level of proficiency across all measured domains. This included independence in teaching, curriculum, and assessment, collaborative learning, reflective practice, and continuous professional development. The consistent “Highly Developed” ratings suggest that the teacher-respondents are well-aligned with the expectations set by the Philippine Professional Standards for Teachers (PPST), reflecting their commitment to instructional excellence and professional growth.

Moreover, the study found statistically significant correlations between the teachers’ level of development and specific socio-demographic variables such as sex, age, highest educational attainment, number of teaching loads, academic awards received, and years of teaching experience. These results imply that professional maturity, academic credentials, and experience meaningfully influence teaching competence. This finding echoes the assertions of Kim and Cho (2015), who emphasized that professional development and contextual variables play a pivotal role in shaping effective teaching, as well as Saloviita and Pakarinen (2021), who underscored the influence of teacher background on classroom efficacy.

The qualitative findings further enriched the quantitative data by revealing that teachers view being a proficient teacher not merely as a job classification but as a professional identity. This identity is marked by lifelong learning, reflective teaching, autonomy, and responsiveness to learners’ needs. These perceptions validate the theoretical grounding of the study, particularly Organizational Learning Theory and Professional Development Models, which posit that growth in teaching is a dynamic and career-long process (Argote, 2013; Avalos, 2016).

In light of these conclusions, it is recommended that the Schools Division institutionalize a contextualized Technical Assistance Plan (TAP) that considers individual teacher profiles and provides differentiated support. For instance, beginning teachers and those with fewer professional accomplishments may benefit from structured mentoring, peer coaching, and targeted instructional support, while more experienced teachers can be engaged as mentors and learning leaders. Additionally, the Department of Education should reinforce opportunities for higher education, certifications, and professional development by expanding access to scholarships, study grants, and in-service training to encourage continuous advancement among teaching staff.

Furthermore, SLAC (School Learning Action Cell) sessions should be strengthened by integrating reflective and collaborative practices such as lesson study, peer review, and collaborative planning. This recommendation aligns with the model of teacher growth proposed by Clarke and Hollingsworth (2016), which emphasizes the importance of feedback and reflection in enhancing professional practice. School leaders are also encouraged to use the study's findings to enrich their implementation of the Results-Based Performance Management System (RPMS), especially in tailoring support based on the varying developmental needs of teachers.

Lastly, it is highly recommended that exemplary practices and strategies from highly developed, proficient teachers be documented, published, and disseminated. Doing so not only highlights professional excellence but also motivates others to emulate effective practices. Organizing research forums, learning exchanges, and professional learning communities can serve as platforms for such knowledge-sharing initiatives, thereby sustaining a culture of excellence in teaching and learning.

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IMPLICATIONS OF SCHOOL SELF-ASSESSMENT (SSA) UNDER THE REVISED SBM GUIDELINES O EDUCATIONAL ACCOUNTABILITY AND SCHOOL IMPROVEMENT: THE CASE OF SCHOOLS DIVISION OF BAYBAY CITY

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“Governance, Human Resource Development & Child Protection: Second Best Paper

Introduction

Educational accountability and school improvement have become central pillars of global education reform, underscoring the growing demand for quality education responsive to the needs of learners and society (Gershberg et al., 2012). International frameworks such as the United Nations' Education 2030 Agenda under Sustainable Development Goal 4 emphasize inclusive, equitable, and quality education and lifelong learning opportunities for all (Camilleri & Camilleri, 2020). In the Philippine context, these global aspirations are reflected in national education policies such as the Enhanced Basic Education Act of 2013 (Republic Act No. 10533), which promotes transparency, accountability, and decentralization through School-Based Management (SBM). This framework, reinforced by DepEd Order No. 83, s. 2012, seeks to empower schools in taking greater responsibility for governance and performance outcomes.

SBM has emerged as a core strategy for educational reform globally, emphasizing school-level autonomy in decision-making related to teaching, learning, and resource allocation (Caldwell, 2005). This decentralization empowers school heads, teachers, and community stakeholders to collaboratively manage school operations (DepEd Order No. 007, s. 2024). Countries such as Thailand, the United States, Australia, Indonesia, New Zealand, and the United Kingdom have adopted SBM to enhance educational quality, accountability, and stakeholder participation (Saro et al., 2022). In the Philippines, SBM was introduced in the early 2000s as part of a broader decentralization initiative, aimed at improving education outcomes by enabling schools to identify and address their unique challenges (Torrevillas, 2019; Aquino et al., 2024). Operating within national goals, policies, and standards, SBM allows for localized governance aligned with system-wide objectives (Aquino et al., 2024; Silabay, 2022).

Empirical evidence supports the positive outcomes of SBM, including improved student performance, enhanced parental and community involvement, and greater school responsiveness (Saro et al., 2022). However, implementation challenges persist. Aquino et al. (2024) and MacBeath (2006)

highlight concerns from school personnel regarding the burdensome and repetitive documentary requirements for school inspections, which can divert attention from instructional responsibilities and hinder teaching effectiveness. These documents, formerly required as means of verification for assessing SBM level of practice, relied on a rigid scoring system that was inconsistently applied across schools (DepEd Order No. 007, s. 2024). In response, the Department of Education issued DepEd Order No. 7, s. 2024, which revised the SBM framework to streamline requirements and promote a more practical, context-responsive system.

The Revised SBM Guidelines emphasize participatory governance, transparency, and school accountability, while reducing excessive documentation. A key feature of the new policy is the institutionalization of a self-assessment process, replacing the previous external evaluations and means of verification with an internally managed assessment checklist. Schools, in collaboration with internal and external stakeholders, are now tasked with evaluating their own SBM practices and documenting progress using the Self-Assessment Checklist. This tool not only guides reflection and evaluation but also serves as a basis for targeted technical assistance from Schools Division Offices.

Globally, school self-assessment (SSA) is widely recognized as a mechanism to promote reflective practice, stakeholder engagement, and continuous improvement (Arar et al., 2016). Meuret and Morlaix (2003) emphasize the collaborative nature of self-assessment, involving teachers, students, parents and other stakeholders in evaluating school performance, unlike external assessments conducted by third parties. Ross and Gray (2006) further argue that self-assessment fosters ownership and commitment among stakeholders, thereby driving more meaningful change.

While the benefits of self-assessment are well-documented in international literature, there is limited research on its implementation under the revised SBM guidelines in the Philippine setting. Most existing studies focus on the theoretical foundations of SBM or its general impact on school performance,

without addressing practical challenges encountered by schools during self-assessment. There is also a research gap concerning the readiness of schools to undertake self-assessment, the mechanisms they employ to ensure objectivity and accountability, and the concrete ways in which the process contributes to school improvement. These gaps necessitate a localized investigation into how schools engage with self-assessment under the new SBM policy framework.

This study aims to explore the implications of implementing SSA under the Revised SBM Guidelines, focusing on its impact on educational accountability and school improvement in the Division of Baybay City. Specifically, it seeks to examine: (1) schools' level of readiness to implement self-assessment, (2) the strengths and challenges of the process, (3) the mechanisms used to ensure objectivity and accountability, and (4) the contribution of self-assessment to school improvement.

The findings of this study will provide valuable insights for various stakeholders. For policymakers and DepEd administrators, the results will inform future refinements to SBM policies and technical support systems. School leaders and educators, particularly those in Baybay City and similar contexts, will benefit from practical knowledge on how to navigate the self-assessment process. Finally, researchers and education management practitioners will gain a deeper understanding of self-assessment as a tool for governance and continuous improvement in decentralized education systems.

Research Questions

This study examined the implementation of SSA under the Revised School-Based Management (SBM) Guidelines within the Schools Division Office of Baybay City. Specifically, it addressed the following research questions:

- What was the level of readiness of schools to implement the self-assessment process?
- What strengths and challenges were encountered in the implementation of SSA?
- How did schools ensure objectivity and accountability in their self-assessment process under the Revised SBM Guidelines?
- In what ways did SSA contribute to school improvement?

Methodology

Scope and Delimitation

This study examined the implications of SSA under the Revised School-Based Management (SBM) Guidelines (DepEd Order No. 007, s. 2024) on educational accountability and school improvement within the Schools Division Office of Baybay City. It specifically focused on assessing the readiness of schools to implement the self-assessment process, identifying the strengths and challenges encountered, determining the mechanisms employed to ensure objectivity and accountability, and analyzing the contribution of self-assessment to school

improvement. The scope was limited to public elementary and secondary schools under the jurisdiction of the Schools Division Office of Baybay City, as these institutions are mandated to implement the Revised SBM Guidelines in accordance with DepEd Order No. 007, s. 2024. The perspectives of school heads were the primary source of data, given their central role in leading and facilitating the self-assessment process at the school level.

This study excluded private schools and public schools from other divisions, as their SBM implementation may be shaped by different contextual factors and governance arrangements. Additionally, the investigation was confined to the self-assessment component of SBM and did not cover other areas such as school planning, financial management, or resource mobilization unless they were directly linked to the conduct or outcomes of the self-assessment.

Sampling

This study employed purposive sampling to select participants from five elementary and five secondary public schools within the Schools Division Office of Baybay City. Purposive sampling is a non-probability sampling technique wherein participants are deliberately chosen based on specific criteria relevant to the study's objectives, thereby ensuring the richness and applicability of the data collected (Nyimbili et al., 2024). A total of ten school heads—comprising seven from elementary schools and three from secondary schools—participated in the study. The sample included a mix of male and female school heads (four males and six females), representing a range of school contexts in terms of geographic location, size, and performance level. This diversity provided a more comprehensive understanding of the implementation of school self-assessment (SSA) across different settings within the division. All selected participants were directly involved in the conduct of the self-assessment process under the Revised School-Based Management (SBM) Guidelines. Their experiences and insights were deemed essential in exploring the implications of self-assessment on educational accountability and school improvement.

Data Collection

Data were collected using a mixed-method approach, combining a structured questionnaire and semi-structured interviews to obtain both quantitative and qualitative insights. This design allowed for a more comprehensive understanding of school self-assessment practices under the Revised School-Based Management (SBM) Guidelines. A structured survey questionnaire was administered to school heads to assess their school's level of readiness to implement self-assessment. The instrument consisted of six Likert-scale items rated on a five-point scale (1 = Strongly Disagree to 5 = Strongly Agree). The items focused on preparedness, training, availability of tools, administrative support, stakeholder awareness, and clarity of the self-assessment process. This quantitative data helped establish baseline indicators of readiness across the

participating schools. In addition, semi-structured interviews were conducted to gather qualitative data related to the study’s remaining research questions. The interview guide was divided into three thematic sections: (1) strengths and challenges of implementing self-assessment, (2) mechanisms for ensuring objectivity and accountability, and (3) the contribution of self-assessment to school improvement. Open-ended questions encouraged participants to share specific practices, experiences, and reflections on how self-assessment has influenced governance, planning, and instructional improvement in their respective schools. All interviews were audio-recorded with consent, transcribed verbatim, and subjected to thematic analysis to identify patterns and insights that complemented the survey findings. This dual-source approach ensured data triangulation and enhanced the validity of the study’s conclusions.

Plan for Data Analysis

This study utilized both quantitative and qualitative data analysis techniques to address its research questions. A convergent parallel mixed method design was adopted, wherein quantitative and qualitative data were collected simultaneously and analyzed separately before being integrated to provide a comprehensive understanding of the implementation of school self-assessment under the Revised SBM Guidelines (Creswell & Plano Clark, 2018).

Quantitative Data Analysis

Quantitative data obtained from the Likert-scale questionnaire on school readiness were analyzed using descriptive statistics, including mean scores and standard deviations. These measures provided insights into the general level of readiness among the participating schools in terms of training, resources, stakeholder awareness, and administrative support. Data were encoded and analyzed using Microsoft Excel. Descriptive statistics are useful for summarizing and interpreting the central tendency and variability of responses in small-scale educational research (Gay, Mills, & Airasian, 2012). These findings were later compared and integrated with qualitative themes to enrich the interpretation of results.

Qualitative Data Analysis

Qualitative data from the semi-structured interviews were analyzed using thematic analysis, following the six-phase framework outlined by Braun and Clarke (2006). The process involved: (1) familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the final report. Each transcript was read multiple times to identify patterns and recurring concepts related to the four areas of inquiry: readiness, strengths and challenges, accountability and objectivity, and contributions to school improvement. Coding was both deductive (guided by the research questions) and inductive (allowing new insights to emerge from the data), ensuring a rigorous and systematic

interpretation (Nowell et al., 2017). To ensure trustworthiness and credibility, the researcher employed triangulation by comparing data across multiple schools and aligning qualitative findings with quantitative trends. Member checking was also used, wherein selected participants reviewed summaries of their responses to validate accuracy and interpretation (Lincoln & Guba, 1985).

Ethical Considerations

Ethical standards were strictly observed throughout the research process. Prior to data collection, informed consent was obtained from all participants. Each participant was clearly informed about the purpose of the study, the scope of their involvement, and their right to confidentiality and voluntary participation. They were assured that their responses would be treated with strict confidentiality and used solely for research purposes. Participants were also informed of their right to withdraw from the study at any point without any penalty or consequence. This provision was emphasized to ensure that participation remained entirely voluntary and that no undue pressure was exerted. To ensure compliance with institutional and administrative protocols, formal endorsement and approval were secured from the Schools Division Superintendent of Baybay City prior to the commencement of the study. The research adhered to ethical principles of respect, autonomy, and responsibility in all stages of the investigation.

Results and Discussion

Table 1 presents the descriptive statistics for school heads’ responses on six indicators of readiness to implement school self-assessment under the Revised SBM Guidelines. The results reflect the extent to which schools in the Division of Baybay City are institutionally and operationally prepared to carry out self-assessment practices.

Statement	Mean	Standard Deviation
1. Our school is prepared to conduct self-assessment under the Revised SBM Guidelines.	4.1	0.57
2. Teachers and staff have received adequate training to implement self-assessment effectively.	3.3	1.05
3. The necessary tools and resources for self-assessment are available in our school.	4.8	0.42
4. The school administration supports the implementation of self-assessment.	4.8	0.42
5. Stakeholders are informed about the self-assessment process.	4.1	0.83
6. There is a clear understanding of the purpose and process among school staff.	4.1	0.83



The findings indicate an overall high level of readiness among the participating schools, with mean scores ranging from 3.3 to 4.8, corresponding to “Agree” to “Strongly Agree” on the Likert scale. Two items stood out with the highest mean ratings: the availability of tools and resources ($M = 4.8$, $SD = 0.42$) and administrative support ($M = 4.8$, $SD = 0.42$). These results suggest that the technical and managerial infrastructure necessary for conducting school self-assessment is well-established across most schools.

These results support previous studies emphasizing the foundational importance of institutional support and access to materials in implementing school-level reforms. Gamage, Adams, and McCormack (2009) argue that logistical readiness and leadership endorsement are critical enablers of effective decentralization. Similarly, the World Bank (2018) underscores that without administrative buy-in and operational tools, school-based reforms often stall during implementation. Conversely, the indicator with the lowest mean score was teacher and staff training ($M = 3.3$, $SD = 1.05$), coupled with the highest variability in responses. This suggests uneven access to or delivery of capacity-building efforts across schools. While some respondents agreed that training had been sufficient, others expressed strong disagreement. This disparity reflects what Fullan (2007) describes as the “implementation gap,” wherein policies are introduced without adequate professional development support for practitioners. The wide standard deviation ($SD = 1.05$) further confirms inconsistency in training quality or availability among schools. Stakeholder awareness ($M = 4.1$, $SD = 0.83$) and staff understanding of the process ($M = 4.1$, $SD = 0.83$) received moderately high ratings, yet also showed variability. These findings imply that while internal awareness and conceptual clarity regarding self-assessment exist in many schools, inconsistent communication strategies and varied levels of buy-in may affect the depth of implementation. Since stakeholder participation is central to the SBM framework (DepEd Order No. 007, s. 2024), this finding signals the need to reinforce stakeholder engagement efforts. Moreover, the relatively strong rating on staff understanding suggests that schools have achieved a basic level of internal alignment around the purpose of self-assessment. This is in line with Arar et al. (2016), who observed that staff clarity around assessment goals increases participation and reflective practice. However, the variation in responses indicates that not all staff may be equally informed or engaged in the process. The results indicate that schools in the Division of Baybay City are organizationally prepared to implement self-assessment, particularly in terms of logistical resources and administrative commitment. However, human capacity readiness—especially in the form of training and stakeholder engagement—remains a crucial area for development. The variability in these areas highlights the need for targeted interventions. These findings are particularly relevant in the context of the Revised SBM Guidelines, which shift evaluation responsibility from external evaluators to internal stakeholders using a self-assessment checklist.

The success of this transition depends not only on tools and policies but also on the empowerment and preparedness of personnel (Ross & Gray, 2006; Meuret & Morlaix, 2003). To ensure effective and sustained implementation, the Department of Education and local governance units should institutionalize structured professional development programs and stakeholder orientation initiatives. This will help bridge the capacity gap and strengthen the fidelity of the self-assessment process across varied school contexts.

Theme 1: Strengths and Challenges in the Implementation of School Self-Assessment

Overall, the findings show that the implementation of the Revised SBM self-assessment was marked by both appreciable strengths and persistent constraints. The tool’s clarity and reduced documentary requirements made it more user-friendly than its predecessor, enabling schools to focus more on reflection and less on paperwork. This mirrors the global shift in self-evaluation frameworks toward simplified, formative, and collaborative tools that empower practitioners rather than burden them (MacBeath, 2006; OECD, 2013). However, the process also surfaced operational issues—especially time limitations, uneven stakeholder participation, and documentation challenges—consistent with prior studies noting that decentralization often increases workload unless accompanied by systemic support (Fullan, 2007; Arar et al., 2016).

Subtheme 1.1: Clarity and Practicality of the Assessment Tool

A strong consensus emerged that the self-assessment tool’s indicators were specific, direct, and easy to interpret. As P4 explained, “The indicators are straightforward and no longer require piles of paperwork; we can focus on the actual work of improvement.” This reflects what Arar et al. (2016) describe as a “transparent framework,” which increases buy-in among school leaders by removing ambiguity. P2 further noted that the clarity allowed teachers to “quickly see where we are doing well and where we need to improve”. Such user-friendly designs are critical in promoting formative assessment use at the school level (Earl & Katz, 2006).

Subtheme 1.2: Supportive Internal and External Stakeholders

The majority of participants valued the cooperation of teachers, parents, and community partners. P8 shared,

“When stakeholders and teachers work hand in hand, the process becomes lighter and more meaningful.” This aligns with Gamage, Adams, and McCormack’s (2009) findings that community-school collaboration strengthens reform implementation, as stakeholders bring both resources and legitimacy to the process.

Subtheme 1.3: Persistent Operational Constraints

Despite these strengths, time and documentation remained persistent obstacles. Many reported difficulty balancing self-assessment tasks with regular PPAs. P6 remarked, “We often run out of time, and only a few have access to the data we need.” Aquino et al. (2024) note that without clear data management systems, schools often struggle to generate valid and timely evidence for accountability purposes. Moreover, P3 pointed out infrastructure-related gaps—“We still need to address physical issues like pathways and office space, which are beyond the checklist but affect school quality.” Such issues underline the importance of contextualizing SBM reforms to the realities of resource-constrained schools (Bruns, Filmer, & Patrinos, 2011).

Theme 2: Ensuring Objectivity and Accountability in Self-Assessment

The data reveal that schools generally approach SSA with a commitment to objectivity, fairness, and shared accountability. Objectivity was primarily ensured through evidence-based evaluation anchored in official records, while accountability was fostered through formal mechanisms and task delegation. However, stakeholders’ involvement—a key safeguard for transparency remained inconsistent. These findings echo OECD (2013) and Meuret and Morlaix (2003), who emphasize that internal evaluation systems are most credible when grounded in verifiable evidence and accompanied by meaningful community oversight.

Subtheme 2.1: Evidence-Based Evaluation

Most schools relied on records, reports, and actual school conditions to guide ratings. P5 shared, “We base our assessment on hard evidence—the actual situation of the school, not just perceptions.” This practice is consistent with data-driven school improvement models, where empirical evidence informs planning and mitigates subjective bias (Ikemoto & Marsh, 2007).

Subtheme 2.2: Formal and Informal Accountability Mechanisms

Accountability was maintained through a mix of formal agreements and shared responsibilities. For example, P1 required teachers to sign a commitment to uphold accuracy, while P10 assigned each teacher a specific indicator. This reflects Ross and Gray’s (2006) argument that distributed accountability not only spreads the workload but also deepens collective ownership of outcomes.

Subtheme 2.3: Varied Stakeholders’ Involvement

While some schools actively engaged stakeholders during SMEA sessions or PTA meetings (P1, P10), others reported minimal to no involvement (P4, P5). P9 suggested formalizing this through resolutions for stakeholders’ involvement, ensuring participation from planning to implementation. Bruns, Filmer, and Patrinos (2011) argue that sustained stakeholders’

participation strengthens governance by introducing external checks and promoting transparency.

Theme 3: Contributions of Self-Assessment to School Improvement

Self-assessment emerged as both a diagnostic and strategic tool for school heads, influencing planning, guiding interventions, and reinforcing accountability. The process provided a clear picture of performance gaps, catalyzed targeted programs—particularly in literacy and numeracy—and strengthened organizational systems. This confirms the World Bank’s (2018) observation that effective self-assessment transforms school governance from reactive to proactive, enabling strategic decision-making.

Subtheme 3.1: Identification of Priorities and Evidence-Based Planning

Across participants, SSA was valued for its diagnostic power. P1 stated, “We know the issues, we know what to prioritize, and we can address them systematically.” Similarly, P5 added, “The tool reminds you which indicators need your attention before anything else.” This prioritization aligns with findings by Earl and Katz (2006), who highlight that self-assessment sharpens focus on actionable areas.

Subtheme 3.2: Initiation of Literacy, Numeracy, and Remedial Programs

Multiple literacy and numeracy initiatives were directly linked to SSA results. P1’s Project Relate targeted struggling readers, supported by parents in reading sessions. P5 engaged volunteer para-teachers for twice-weekly reading tutorials. These examples affirm OECD’s (2013) stance that internal evaluation fosters locally tailored solutions, especially in basic skills development.

Subtheme 3.3: Strengthening Systems and Accountability

Some schools used SSA to enhance data systems and program monitoring. P4’s creation of a Google Drive repository for assessment-related documents improved record accessibility, while P3 implemented alternative delivery modes for at-risk learners. Meuret and Morlaix (2003) emphasize that when self-assessment informs both pedagogy and administration, it embeds a culture of continuous improvement.

The findings demonstrate that the implementation of the Revised SBM self-assessment in the Schools Division Office of Baybay City is characterized by notable strengths in tool clarity, stakeholders’ collaboration, and the use of evidence-based evaluation, alongside persistent challenges related to time constraints, documentation, and inconsistent stakeholders’ participation. The clarity and specificity of indicators reduced administrative burden and improved user engagement, consistent with Arar, Abu-Romi, and Massry-Herzalla’s (2016) assertion that

transparent assessment frameworks enhance ownership among school leaders. Supportive relationships with teachers and community stakeholders further facilitated implementation, echoing Gamage, Adams, and McCormack's (2009) findings that collaborative governance fosters both legitimacy and resource mobilization. However, the operational constraints identified—particularly in data management and workload—align with Fullan's (2007) observation that decentralization reforms often outpace the systems and capacity needed to implement them effectively.

In terms of impact, the self-assessment process served as both a diagnostic and strategic planning tool, enabling schools to identify priority areas, initiate targeted interventions—particularly in literacy and numeracy—and improve organizational systems. This mirrors the OECD's (2013) conclusion that school self-evaluation, when grounded in verifiable evidence, drives locally tailored solutions that address specific learning and governance needs. Practices such as assigning teachers to specific indicators, maintaining digital repositories, and involving parents as volunteer para-teachers reflect Meuret and Morlaix's (2003) view that self-assessment can institutionalize a culture of continuous improvement. Nonetheless, inconsistent stakeholder engagement highlights a gap between policy intent and actual practice, underscoring Bruns, Filmer, and Patrinos' (2011) argument that transparency in school governance requires institutionalized, not sporadic, participation. Overall, the results affirm that self-assessment, when implemented with integrity, adequate support, and sustained stakeholders' involvement, can be a catalyst for meaningful school improvement (World Bank, 2018).

Conclusion and Recommendations

This study aimed to examine the implications of school self-assessment (SSA) under the Revised School-Based Management (SBM) Guidelines in the Schools Division Office of Baybay City, focusing on educational accountability and school improvement. Specifically, it explored the schools' readiness to implement SSA, the strengths and challenges encountered, the measures ensuring objectivity and accountability, and the ways SSA contributes to school improvement. Findings revealed that schools generally demonstrated high readiness to implement SSA, supported by clear indicators, adequate resources, and strong administrative backing. The process fostered stakeholders' collaboration, improved planning, and served as a basis for targeted interventions in literacy, numeracy, and school operations. However, gaps emerged in the form of limited trainings, time constraints, inconsistent stakeholders' participation, and challenges in documentation. These results affirm prior studies that highlight the potential of self-assessment as a tool for transparency, evidence-based decision-making, and continuous improvement, provided it is supported by sustained capacity-building and stakeholders' engagement.

To maximize the benefits of school self-assessment (SSA) under the Revised SBM Guidelines, it is recommended that the Schools Division Office of Baybay City institutionalize regular capacity-building programs for school heads, teachers, and staff to strengthen their understanding of SSA indicators, data management, and analysis. Stakeholders' involvement should be reinforced through structured consultation processes, feedback mechanisms, and capacity-building for parents, local officials, and community partners. Adequate time allocation within the school calendar and the designation of a non-teaching focal person for documentation and coordination are also essential to address time and resource constraints. Furthermore, SSA results must be systematically integrated into the School Improvement Plan (SIP) and Annual Implementation Plan (AIP) to ensure data-driven decision-making, complemented by an external validation mechanism such as peer or division-level review teams to enhance credibility, transparency, and accountability in the process.

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WEATHERING THE STORM: A NARRATIVE INQUIRY INTO THE LIVED EXPERIENCES AND COPING STRATEGIES OF ELEMENTARY SCHOOL TEACHERS FACING OCCUPATIONAL STRESS

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Introduction

Teaching, particularly at the elementary level, is widely recognized as a demanding profession that often requires teachers to balance the emotional, physical, and cognitive demands of their job. Elementary teachers play a crucial role in shaping young minds, making the profession rewarding yet stressful (Smith & Robertson, 2021). Managing this stress requires resilience, adaptability, and a range of coping strategies, particularly in the face of modern-day educational challenges.

The nature of teaching has evolved over the years, with growing expectations placed on teachers to not only deliver academic content but also manage behavioral issues, cater to students' emotional needs, and meet administrative demands. For elementary teachers, this combination of tasks can lead to heightened stress levels (Jones et al., 2022). Stress manifests in both personal and professional realms, affecting well-being and performance. Occupational stress is a significant factor affecting elementary teachers, stemming from large class sizes, standardized testing, curriculum changes, and additional administrative responsibilities (Green & Miller, 2020). Teachers also face the emotional toll of working closely with young children who may have diverse needs and learning difficulties (Lee et al., 2021). This stress, if unmanaged, can lead to burnout, absenteeism, and job dissatisfaction.

In the Philippines, the teaching profession is governed by DepEd, which oversees the largest workforce in the government sector (DepEd, 2023). The expectations placed on teachers in this system are immense, ranging from curriculum implementation to the holistic development of students. The COVID-19 pandemic exacerbated these challenges, as teachers had to adapt to remote teaching, often with limited resources and training (Alipio, 2020). Occupational stress among teachers is a global concern. It encompasses emotional exhaustion, depersonalization, and reduced personal accomplishment, as highlighted in Maslach's burnout model (Maslach, Jackson, & Leiter, 1996). In the context of DepEd teachers, occupational stress manifests in various forms, including workload, role conflict, and the pressures of meeting academic and behavioral expectations of students (Ocampo et al., 2022).

DepEd teachers face unique stressors due to the specific conditions of the Philippine education system. These include large class sizes, inadequate teaching materials, and the demand to fulfill non-teaching responsibilities such as clerical work and involvement in community programs (Flores & Butalid, 2023). The expectations of the K-12 curriculum further add to the pressures, requiring teachers to continuously upgrade their skills (Guzman & Go, 2022). The effects of occupational stress on teachers are profound, influencing not only their well-being but also their performance and job satisfaction. High levels of stress can lead to burnout, absenteeism, and even attrition from the profession (Fernandez & Ginsburg, 2020). Moreover, stressed teachers may have impaired relationships with students, which can negatively affect the learning environment (Dewey, 2021).

Resilience is often defined as the ability to bounce back from adversity and maintain psychological well-being despite stressful circumstances (Masten, 2021). For elementary teachers, resilience is essential for coping with the daily pressures of the job, allowing them to adapt to challenges and continue providing quality education. The capacity for resilience is influenced by various factors, including personal attributes, social support, and institutional resources (Brown & Wilson, 2022). Adaptation strategies are the specific actions and thought processes that teachers employ to manage stress and maintain their professional roles. These strategies may include seeking social support, practicing mindfulness, prioritizing self-care, or modifying teaching methods to reduce workload (Santos & Delgado, 2020). Narratives of resilience often highlight the importance of adaptability in sustaining teachers' careers and well-being.

Maintaining a work-life balance is another significant challenge for DepEd teachers. The demands of teaching, coupled with additional responsibilities such as grading, lesson planning, and attending mandatory trainings, often encroach upon personal time, leading to increased stress (Cabrera & Morales, 2021). The blurred boundaries between work and personal life have become more pronounced during the pandemic, with the shift to online teaching. The mental health consequences of occupational stress cannot be overstated. Prolonged exposure to stress can lead to

anxiety, depression, and other mental health issues among teachers (Laguardia & Gamboa, 2022). Despite the growing awareness of mental health in the Philippines, many teachers still do not have access to adequate support systems within their schools.

Despite numerous studies exploring occupational stress among teachers, there remains a noticeable gap in research focusing on the specific experiences of public elementary school teachers in Borongan City Division. Most existing literature tends to adopt quantitative methods, leaving the rich, personal narratives of teachers underexplored. Moreover, the socio-economic conditions, limited resources, and distinct cultural setting of Borongan City present unique stressors and coping strategies that have not been sufficiently documented. This study seeks to address these gaps by using a narrative inquiry approach to capture and understand the lived experiences and strategies of teachers in managing occupational stress within this specific local context.

Research Questions

This qualitative inquiry aimed to explore the narratives of Public-School Teachers in selected elementary schools in the Schools Division of Borongan during the School Year 2023-2024.

Specifically, it sought to answer the following questions:

1. What are the different experiences on occupational stress to the teachers?
2. What are the factors that contribute to the occupational stress among teachers?
3. How did the teacher-participants cope with the different stressors?
4. How did the participants reflect on one's story in dealing with the occupational stress?

Methodology

Research Design

The study utilized the qualitative approach, specifically the narrative inquiry research design, which is described by Haydon and Der iet (2017) as the collection of stories from individuals and how they view themselves in personal of larger context. Creswell (2007) emphasized that qualitative research is undertaken when the purpose of the researcher is to present and further understand the experiences of participants about certain event phenomena. Furthermore, Xu and Connelly (2009) mentioned that narrative inquiry is a conception of the phenomenal world in which structured quality of experiences are mediated through stories.

Hence, narrative inquiry of qualitative research design was deemed necessary in this study in order that the research were able to thoroughly narrate stories regarding how teachers explore and manages their stress in the Borongan City Division.

Locale of the Study

This study was conducted in five elementary schools in the Schools Division of Borongan City. These schools are identified based on the proximity of the researcher to the identified schools.

Participants of the Study

The participants of this study were selected through an inclusion and exclusion criteria to ensure the relevance and depth of the data collected. For the inclusion criteria the following considerations will be undertaken: (1) prioritize full-time teachers currently teaching in an elementary school in the Schools Division of Borongan City (2) these teachers must have at least three years of teaching experience, as this duration ensures that they have encountered a range of stressors related to their profession and have developed coping mechanisms and adaptation strategies over time. Additionally, (3) teachers who are willing to share personal stories and reflections on managing occupational stress, resilience, and adaptation will be included, as their openness is essential for capturing rich narrative data.

Conversely, teachers who are in their first or second year of teaching were excluded from the study, as their limited experience may not provide sufficient insights into long-term stress management and resilience. Teachers who are currently on leave or not actively teaching during the study period will also be excluded, as their experiences may not align with the day-to-day stressors faced by active teachers. Furthermore, teachers who are unwilling or uncomfortable sharing personal stories related to stress management will be excluded to ensure that the participants' narratives are authentic and voluntarily shared.

This selection process is designed to focus on experienced teachers who have faced ongoing stress and developed strategies for resilience and adaptation, providing rich qualitative data that can contribute to understanding how teachers, manage stress in their professional lives.

Research Instrument

The researcher utilized the following interview protocol. The interview is divided into two parts: Interview Consent and Interview Proper. In the interview consent, the title of the study is indicated as well as the researcher's name. it clearly stated the purpose, procedures, benefits, risks, voluntary participation and withdrawal, confidentiality, contact person, copy of consent form of the participants.

Meanwhile, the interview proper is divided into three main parts: the initial interview, where questions related to the profile of the participants is to be asked; interview proper, where the questions is designed to elicit in-depth personal stories from the participants about their experiences with occupational stress and the strategies they have developed to cope, adapt, and build resilience. The interview allows for flexibility, enabling the researcher to probe deeper into specific

areas of interest based on the participant's responses while ensuring that key topics related to stress management, adaptation, and resilience are consistently covered across all interviews. Open-ended questions encourage teachers to freely express their emotions, reflections, and coping mechanisms, ensuring that their narratives are rich and comprehensive.

In addition to the interview guide, field notes are also used as a complementary research tool to capture non-verbal cues, emotions, and contextual factors that may influence the teachers' stories. The interview process is conducted in a conversational manner, allowing participants to share their personal experiences in a comfortable and supportive environment. These narrative interviews are then transcribed and analyzed using thematic analysis, where recurring themes, patterns, and insights on how teachers manage stress and build resilience are identified. This qualitative approach ensures that the instrument captures the depth and complexity of the teachers' lived experiences.

Sampling Procedure

In selecting participants, the researcher used the purposive sampling method. Purposive sampling involves the researcher selecting a valid sample based on their expertise. It is used in qualitative research to gain detailed knowledge about a specific phenomenon or when the population is small. A purposeful sample requires defined criteria and reasoning for inclusion (McCombes, 2021).

According to Bogden and Biklen (2003), purposeful sampling requires the researcher to choose his/her research participants in order to facilitate the expansion of the developing theory. Thus, promoting a purposeful sampling led to the selection of teacher-participants for the study who are selected not only due to their willingness to volunteer but also for their desires to better comprehend their stress management.

Initially, twenty participants (20) were selected based on the established inclusion and exclusion criteria to ensure a diverse representation of experiences among teachers. However, as the data collection and analysis progressed, it became evident that saturation had been reached with only ten participants. At this point, no new themes or significant insights were emerging, leading to the decision to conclude the narrative inquiry with ten participants who richly captured the essence of the study's objectives.

Data Gathering Procedure

The study conducted several key stages to ensure comprehensive and accurate data collection. Initially, the researcher sought approval from the school division office and school administrators to conduct the study. Once approval was granted, the researcher proceeded in recruiting participants/informants by distributing an information sheet explaining the study's objectives, methods, and ethical considerations. Interested teachers who met the

inclusion criteria was invited to participate, and they was asked to sign an informed consent form, emphasizing their voluntary participation and the confidentiality of their narratives.

Following the recruitment process, semi-structured interviews was scheduled at times and locations convenient for the participants, ensuring minimal disruption to their teaching duties. The interviews were conducted in a private and comfortable setting within the school or an agreed-upon location to create an atmosphere where teachers feel safe sharing their personal stories. Each interview lasted approximately 45 minutes to an hour, allowing sufficient time for the teachers to discuss their experiences with stress, resilience, and adaptation in detail. With participants' consent, all interviews were audio-recorded to capture the full richness of their narratives.

During the interviews, the researcher followed the semi-structured interview guide, asking open-ended questions to prompt participants to share their experiences. Probing questions was used to explore specific situations, emotions, and coping strategies in more depth. The researcher took field notes to document non-verbal cues, contextual factors, and other observations that may not be captured in the audio recordings but are essential for a holistic understanding of the participants' experiences. These notes were used to complement the interview transcripts and provide additional insights during the data analysis phase.

After completing the interviews, the recorded audio files were transcribed verbatim to ensure accuracy in capturing the participants' narratives. The researcher provided the participants with the opportunity to review their transcripts to confirm that their stories has been accurately represented. This member-checking process ensures the validity of the data and gives participants control over how their experiences were portrayed in the study. If any discrepancies or misrepresentations are identified, adjustments will be made to the transcripts accordingly.

The final step in the data gathering process involves organizing and securely storing all the collected data, including audio recordings, transcripts, and field notes, in a manner that protects participant confidentiality. All identifying information were anonymized before data analysis to safeguard the privacy of the participants. The qualitative data, consisting of rich narratives from the secondary school teachers, were then ready for thematic analysis, where recurring patterns, coping strategies, and themes of resilience and adaptation was identified and explored in-depth.

Data Analysis

Data were analysed using thematic analysis, following Colaizzi's method to ensure a rigorous and structured approach. First, all interviews were transcribed and thoroughly reviewed to achieve a deep understanding of participants' responses. Significant statements related to the research questions were highlighted and coded to generate initial themes. These codes were then organized into

broader, more abstract themes that reflected the core patterns of participants' experiences, such as heritage awareness or barriers to site engagement. Using Colaizzi's method, the researcher returned to participants to validate the interpretations, ensuring the themes accurately represented their views. Finally, these themes were woven into a detailed narrative, supported by direct quotes, to provide insights into how stakeholders perceived and interacted with local heritage. Colaizzi's emphasis on returning to participants added an extra layer of validation, making the findings more robust and grounded in the participants' lived experiences.

Each narrative was coded using inductive coding methods (Syed & Nelson, 2015). The main author and co-authors, specifically the research participants together with the main author, reviewed the reflections and provided suggestions through highlights about the narratives presented. This included co-authors coding their own stories as a point of trustworthiness through member checking. Codes were created using direct quotes from individual narratives and grouped into larger themes. Finally, themes and quotes from narratives were discussed and were supported by literature.

In order to ensure the internal validity of the study, the researcher agreed with Yidrim and Simsek (2005), who stated that reporting the data in detail and explaining how the researcher obtained the results were important criteria for establishing validity. Furthermore, Ratcliff (2003) posited that using descriptive analysis was another important factor of validity involving directly quoting the participants and explaining the results. Thus, to establish the validity in this study, the researcher directly presented the participants' answers in quotations and provided explanations when necessary and supported them with related studies.

Ethical Considerations

Prior to the formal interview process, the researcher obtained permission from the participants to be part of the study through an assent form. The researcher explained the sustained commitment submitted by the participants to gather meaningful data and reminded them that they could withdraw their participation in the study at any time. The researcher also considered the convenience of the gathered data. Finally, all data gathered from the investigation were kept confidential.

Results and Discussion

Experiences of Occupational Stress of Public-School Teachers

This section presents the key themes derived from the data, highlighting the diverse experiences of stress that teachers face in their profession. Through these themes, we explore how teachers perceive and cope with the various stressors in their daily work lives. The following discussion provides insights into the sources and impacts of occupational stress, shedding light on the multifaceted nature of stress experienced by educators.

Theme 1: Physical and Emotional Fatigue from Work Demands

Findings from the study revealed that a dominant source of occupational stress among Elementary School teachers in Borongan City division stemmed from emotional and physical fatigue caused by excessive administrative workload. Participants consistently reported that, aside from their instructional duties, they were burdened with a multitude of clerical responsibilities—ranging from lesson planning, student grading, and attendance tracking to the preparation of various compliance reports and documentation required by school leadership and government agencies. DepEd teachers are often tasked with clerical work such as encoding data, preparing reports, managing school records, and handling documentation for various programs (e.g., SBFP, Brigada Eskwela, ICT, LIS, Gulayan sa Paaralan). These duties are not directly related to instruction, yet are expected alongside regular teaching responsibilities. These tasks, although essential for institutional functioning, were widely perceived as detracting from their core role as educators. This multitude of work assignments can be described by the scenario as stated by the participant:

“Han ka-assign ko ha Lower San Andres, damuan an ak trabaho. Akon an mga coordinatorship nga kinakaptan nga mga trabahuon ha eskwelahan. Naging TIC pa ako usa nga beses han panganak han akon school head. Basta tanan nga trabahuon ako an nagtatrabaho parti han kanan eskwelahan. Sugad han submission han mga reports ako an nagtatrabaho. Tapos may ada ko pa advisory class nga asya at nga multi-grade ako inaabot hin 25 nga kabataan.” [When I was assigned in Lower San Andres, I had a lot of work. I was in charge of the coordinatorship tasks that I handled in the school. I even became a TIC (Teacher-in-Charge) once when my school head gave birth. I was responsible for all the tasks in the school. For example, I was the one who worked on submitting the reports. I also had an advisory class, and I was in charge of a multi-grade class with up to 25 students.] (Participant 1, Line 64-71)

“An pinakadako nga epekto haak talaga an kadamo nga trabaho kon diin dire nam sakop han akon mga trabahuon kumo usa nga classroom adviser. Ini nga kadungan nga trabaho in nagpupuga hiton pagka-teacher, gin uubos iton imo kusog or hibaro kay nagkakahalo-halo man nga obligasyon. Dugang pa kay mayda pa gintatrabaho ka kanan eskwelahan damo gin hahatag nga coordinatorship, ngani dako nga kadugangan nga trabahuon hin maestra nga sugad haak teacher 1 manla ngani tapos haak iaasa.” [The biggest impact on me really is the overwhelming amount of work, which is beyond the scope of my duties as a classroom adviser. This simultaneous workload drains the essence of being a teacher; it depletes your energy and knowledge because you are juggling various responsibilities. On top of that, there are many tasks assigned by the school, such as coordinatorship roles, which significantly add to the

workload of a teacher like me, who is just a Teacher 1, and everything is expected to be handled by me.] (Participant 4, Line #169- 175)

The teachers' narratives clearly highlight the burden of dual responsibilities—teaching and managing administrative tasks—which not only stretch their time but also affect their professional focus. Several participants emphasized that they were expected to perform beyond their teaching roles, often completing clerical and paperwork-related tasks that fall outside their instructional duties. This aligns with the findings of Hargreaves (2000), who argued that when administrative demands increase, they erode the core mission of teaching and weaken teacher morale. The perception of being "passed the bulk of the work," as voiced by some participants, reflects a growing dissatisfaction with institutional task delegation. This sense of unfair workload distribution contributes to emotional fatigue, job dissatisfaction, and ultimately, burnout. The fact that many teachers feel these duties are not equally shared or properly supported points to a deeper issue of organizational inefficiency and lack of adequate clerical assistance in schools.

Teachers noted that these multiple administrative duties aside from their teaching function were taking a toll on their physical body and mental health to the point of losing interest to work. As one participant described:

"Nakaka-stress talaga kon diin nagtitrinabaho ka hin mga trabahuon nga diri man imo pag-aapuruhon ka. Ngan diri kon natatagan hin prayoridad an akon lugod mga dapat trabahuon diri naak nakakatutdo han kabataan diri kon uunanhon nga aadi nga reports akon hihimuon kay gin aaru man haam. Mag-apurado man nga masubmit largo imo Dayak pagpipirawan, physically raptay (drained) ak kay wara ko man kinaturog, brain drain ak paghinu-huna kon ano mga input han mga datos nga imo igbubutang." [It's really stressful when you're working on tasks that aren't even part of your responsibilities. And when my own tasks are not given priority, I can't teach the children properly because I have to focus on the reports that need to be done, which are also being pressured. You rush to submit everything, your work becomes overwhelming, and physically I'm drained because I haven't slept, and mentally exhausted thinking about what data to input. Actually, there came a time when I felt that my work wasn't fulfilling anymore, I lost my enthusiasm for teaching, and I felt burnt out.] (Participant # 4 Line 153-1159)

This sentiment underscores the cumulative effect of administrative overload, which not only reduces teachers' available time for instructional planning but also diminishes their personal and family life, leading to emotional depletion. The persistence of such conditions contributes to what Kyriacou (2001) refers to as "teacher burnout," a state where prolonged stress undermines job satisfaction and overall well-being. This was reiterated by the participant:

"Asya it udog danay kay diri naman ak nakakatutdo ha akon mga kabataan akon nala pinantatagan activity sheets or paperworks. And being so unhappy in a day, unable to perform my best in my classes that all I wanted is to sleep. Actually naabot an panahon nga napi-feel ko diri na makalilipay an akon trabaho, diri naak ginaganahan pagtutdo dara mabutlaw na ura-ura" [That's the hard part because I can no longer teach my students; I just give them activity sheets or paperwork. Being so unhappy every day, unable to perform my best in class, all I want is to sleep. Actually, there came a time when I felt that my work wasn't fulfilling anymore, I lost my enthusiasm for teaching, and I felt burnt out, exhausted all the time.]] (Participant 4, Line# 159-164)

This study supports the findings of Van Droogenbroeck et al. (2014), who noted that many teachers feel stuck between meeting school requirements and handling too many administrative tasks. In this study, teachers shared that these extra duties take away from their time and energy for actual teaching. As a result, many of them feel discouraged and powerless, unable to fully focus on what they believe matters most—helping students learn.

Theme 2: Emotional Exhaustion from Classroom Management

The findings of this study reveal that emotional exhaustion is a significant consequence of the constant challenges teachers face in managing student behavior and other classroom-related issues. Teachers frequently reported feeling mentally and emotionally drained by the disruptive behaviors and lack of motivation exhibited by students, which often undermine the learning environment and add to their workload. The impact of student behavior, particularly in underserved areas such as those working in the island barangay, was found to be one of the most emotionally taxing aspects of teaching, as it requires ongoing emotional investment and conflict resolution skills.

Participants talked about dealing with aggressive behavior, frequent absences, disrespect, and lack of interest from students. These challenges made it hard to keep order and still create a positive and effective learning environment. As some teachers shared:

"An akon experyenshanan nga problema dako gud nga problema an kawaray na gud mga Batasan yana hiton kabataan, ha yana nga panahon labi na hiton mga maestra. Yana nga panahon iton kabataan na diri madisiplina kay damo iton balaod nga pagpoprotektar han mga bata ha sulod han eskwelahan." [My experience and problem is that a big issue today is the lack of discipline among the youth; in this time, especially among teachers. Nowadays, children are undisciplined because there are many laws protecting the children inside the school.] (Participant 5, Line #106-110)

“Dako an ak problema han absenteeism nga sugad man liwat han kali-late or tardiness nira. Tapos adi pa nagkakasulod ngani hira kay mga pobre man la ngan nagbibinaraktas hay huru- hurayo man tikang han ira balay hasta pagaabot ngan ha eskwelahan waray pagud nira balon. Hain man hira nanngangaon? Sige nala udog an urogyas” [My problem is the absenteeism, as well as the lateness or tardiness of the students. On top of that, they come late because they are poor and sometimes they take shortcuts; they live far from the school, and even though they walk a long way, they don’t get tired. Where do they eat along the way? They just keep walking like nothing matters.] (participant 3, Line #65-70)

“An akon experyensyahan sulod han akon klase an pagmanage talaga han magkadurudilain nga pamatasan hiton kabataan. It kabataan padaman yana diri na nadadali dali pasaway. Danay ngani naluwa na taak boses para la hira sumunod haak. Iton daman nga Batasan in napapansin ko nagdudugang la hin kalala habang natihaiha ako pagtutdo. Nakitaan ko na factor an kahilig han kabataan hin gadgets dara kay asya na iton irilibang hit kabataan yana nga panahon. Mas nagging maliya pa hira sobra hin kamang ka hyper diri nahiuukoy ira mga puruk anan kon nagkaklase.” [My experience in managing my class is really dealing with the different behaviors of the students. Today’s students can’t easily be controlled, they get easily distracted. Sometimes I lose my voice just to get them to follow me. I also notice that the behavior is worsening as I continue teaching. I’ve observed that one factor is the children’s obsession with gadgets, because that’s their form of entertainment these days. They’ve become even more restless, excessively hyper, and they can’t stay in their seats when we’re having class.] (Participant 2, Line # 72-79)

“An pressure hit maestra diri la po reports iton amon gin-iintindi, nagtututdo pa kami pagdisiplina pala hit 50 nga mga kabataan nga magdurudilain it ginikangan ngan mga natikabudlot manlay it nga generation yana ambot kay naintroduce ha kabataan an gadgets.” [The pressure on teachers is not just the reports we have to focus on, we also have to teach and discipline around 50 students who come from different backgrounds, and the behavior of this generation is really challenging. I don’t know, maybe it’s because gadgets have been introduced to the youth.](Participant 8, Line # 190-194)

This constant emotional engagement and the perceived lack of student responsibility often lead to feelings of frustration, helplessness, and burnout. Teachers revealed that these emotionally draining experiences were particularly prevalent in contexts where they felt unsupported by school leadership and the imposition of child friendly policy and the prohibition of corporal punishment which become the common excuse of not disciplining the children. This was mentioned by the participant:

“Yana nga panahon an kabataan ura ura na in kamagliya. Han una nga panahon okay paman adto an corporal punishment han mga kamaestran ngadto han kabataan. Akon pa adto hira ginpapabakdaw an maliya nga bata, binatak hin chalk an diri namamati, kinukubot kon mairas ha klase [sic] Pero mandaw yana diri naak nag-iinura ura kay baa diri ko karuyag mapriso. Sanglit pinababay an ko na gadla ita mga ura ura ka budlot kay dara hit nga child protection policy nga pinaura hin kabataan nga ura ura hin kaman kabatinguran.” [Today, the students are really difficult to manage. In the past, it was okay to use corporal punishment by teachers on the students. Back then, I would make the naughty students stand up, I would throw chalk at those who weren’t listening, and shake them if they were misbehaving in class. But now, I don’t scold them too much because I don’t want to end up in jail. That’s why I just let them be, these troublesome students, because of the child protection policy which prohibits physical discipline on children.] (Participant 3, Line #109-115/119-123)

“Kon diri laak bawo matatanggal may ada ko gad naiitsahan hin chalk pero kay naigol paman ako hiton trabaho asya hinihilaba ko na talaga taak pisi, diri na ngani bawo it maaran kon pakain na it kahilaba pero maaram ak kakayanon ko.” [If I’m not careful, I might get hit someone by a chalk, but because I’m still relying on my work, I really hold on tight. I’m already at my limit, but I know I can handle it.”] (Participant 8, Line 256-258)

As can be interpreted with those statements, many teachers feel stressed because they are no longer allowed to discipline students the way they used to. Due to DepEd policies like the ban on corporal punishment and the push for child-friendly schools, teachers worry they might get in trouble if they correct misbehavior too strictly. While these rules aim to protect children and promote positive discipline, some teachers shared that they feel powerless in handling disrespectful or disruptive students. This supports the observation by Alvarez (2021) that many teachers struggle with maintaining classroom order when disciplinary tools are restricted without adequate alternatives provided. Participants also voiced concern that parents, who are expected to be partners in discipline, often disengage or rely solely on teachers, further compounding the burden. Consequently, educators find themselves emotionally exhausted from attempting to manage behavioral issues within an institutional environment that offers limited disciplinary support and guidance.

Beyond the challenges of managing student behavior, many teachers in this study also shared the emotional burden of supporting students who come from economically disadvantaged backgrounds. Several participants expressed that they often use their own limited resources to provide school supplies, uniforms, or even food for their learners, just to ensure consistent class attendance and participation.

“Pero an akon naging problema hiton trabaho part naman han ako mga eskwela in sugad daman han economic status hit kabataan – waray gamit sugad hit lapis, papel. Dire ak nakakailob kaya ako nala it ma-provide ha ira mga gamit ha school, bisan pa ngani kon nakakasuhol ak pinapalit kon natabok ak ha bungto mga pagkaon han akon mga kabataan.” [But my problem at work, especially in my school, is also related to the economic status of the students— they don’t have basic school supplies like pencils and paper. I can’t bear to see this, so I try to provide their school materials, even if sometimes I have to buy food for my students when I go to the town.](Participant 4, Line # 88-93)

This added responsibility—though driven by compassion—places extra financial and emotional strain on teachers who already feel stretched by their professional duties. As one participant emphasized, the emotional weight of seeing their students struggle with poverty compels them to step into roles beyond teaching, further deepening their stress and sense of responsibility. This finding echoes previous studies showing that when teachers feel morally obligated to fill systemic gaps, it can lead to compassion fatigue and long-term burnout (Harfitt, 2015; Chang, 2009).

Theme 3: Blurred Work-Life Boundaries

The findings of this study reveal that many teachers struggle with a significant work-life imbalance, which has become a pervasive source of stress and dissatisfaction. Teachers reported that the demands of their job often go beyond their personal time, leaving them with little opportunity for rest, recreation, or time with family. The intensive workload, compounded by additional administrative tasks and responsibilities, frequently results in extended working hours, including evenings, weekends, and even holidays.

Participants emphasized that, while the primary role of a teacher is to educate, the profession often requires them to undertake numerous non-teaching tasks, such as lesson planning, grading, attendance tracking, and reporting. These administrative duties are typically time-consuming and sometimes require teachers to work outside of regular school hours, reducing their ability to maintain a healthy work-life balance. One teacher explained:

“Permi nala trabaho an akon gin hihinuna hunaan, kahuma ha klase ngada paguuli ha balay sige la trabaho han nga grado han kabataan, ngada han pagana dam han masunod dadaman nga leksyon buwas, ngan matratrabaho han mga trabahuon ka eskwelahan. Ngada han akaon tatangpos gab i na ngan wary ko na panahon pakag relax or makamay da time para taak pamilya.” [I feel like I’m always working. After class, I’m still working at home, grading papers, preparing for the next lesson, and trying to keep up with all the administrative tasks. By the time I’m done, it’s late, and I barely have time to relax or spend time with my family.](Participant 7, Line # 137-152)

“Diri bawo harumamay nga may ada personal nga problema ha balay tapos asya pa in magtatrabaho ka kanan eskwelahan nga an panaway pa han imo mga kabataan ngan mga activities nga kadugangan nga problema daman.” [It’s not easy to have personal problems at home, and on top of that, you have to work at school where you’re criticized by your students, and the additional activities become even more problems.](Participant 4, Line # 178-181)

The findings indicate that this imbalance between work and personal life often leads to physical exhaustion and emotional burnout. Teachers reported feeling overwhelmed by the constant pressure to meet deadlines and maintain high standards of performance, both in the classroom and in administrative duties. This leaves little room for self-care or time to recharge. As one participant mentioned:

“An akon talaga bisan paak nakadto ha iraya in overwork, diba sugad ko kanina dara han kadamo han ak ginpapabuhatg nga reports danay ko na ngani nahingangalimtan ko an diin ko hubua an ak panty. Sugad mam, very alarming na bawo at that time. Tara waray ko na hadto ikinakaturug para ko la matapos an akon buruhaton ngada nga naabat ako han lawas nga sobra hin kabutlawan. Diri bawo harumamay.” [Even when I went to my designated work, I was overworked. Like I mentioned earlier, because of the many reports I need to accomplish, there were times I even forgot where I put my underwear. It’s very alarming, especially at that time. I didn’t even get to sleep just so I could finish my tasks, and my body felt completely exhausted. It’s not easy.](Participant 1, Line #125-130)

Additionally, this work-life imbalance negatively affects teachers' relationships and well-being, as the overwhelming nature of their professional responsibilities prevents them from fully engaging in personal activities. Many teachers expressed feelings of guilt for not being able to spend enough time with family or for neglecting their personal health. The struggle to balance work and life often leads to feelings of resentment towards the profession or, in some cases, the decision to leave teaching altogether. Below were the sentiments of the participants:

“Haak gidadakui talaga haak nga stress nga inabot, an pagkasakit ni Tatay. Ha akon trabaho akon naman gin-iintindi an mga buruhato. Waray ko ngani oras pagkaturog para la matapos an gin-bubuhat haak. Nakadto maak ha school han oras tapos wara ko ma hit ginkakaaway. Tapos hadto wara ni Sir pag- intindiha hin mayda man liwat ak kinahanglanon daman ak taak pamilya [sic] Ngada han kawaray ni tatay harus paak absinan ni Sir waray haak sinuporta nga akon trabaho nga iton dapat nga oras mas kinahanglan ko hin masasandigan. Makadurumot bawo.” [With the huge stress I was went through at that time, especially with my father’s illness, I was focused on my work and the tasks I had to do. I didn’t

even have time to sleep, just to finish what I needed to accomplish. I would go to school on time, but I didn't get support from anyone. There was also no consideration from my boss, even though I had my own family responsibilities. When my father passed away, I had to miss work, but Sir didn't show any support for my work, and during the time when I really needed help, no one was there for me. It's really heartbreaking.](Participant 4, Line #249-253/256-258)

These findings align with Kyriacou (2001), who noted that teachers often face overwhelming workloads that extend beyond normal school hours, leading to fatigue and emotional exhaustion. The study also highlights the need for greater institutional support in terms of workload management and the provision of adequate time for rest and personal life.

Contributory Factors of Occupational Stress as Experienced by Public School Teachers

This section explores the contributing factors that intensify occupational stress among public school teachers. While teaching is inherently complex and demanding, the participants' narratives revealed that their stress extends beyond classroom instruction. Many teachers experience emotional and physical strain due to a combination of institutional pressures, socio-economic challenges, and evolving educational policies. These stressors include excessive administrative workloads, lack of technical and clerical support, limited institutional backing, parental disengagement, and unclear or conflicting professional expectations. The following themes illustrate these underlying causes, drawing from teachers' firsthand experiences and supported by relevant literature to provide a deeper understanding of the multifaceted nature of teacher stress in the public education system.

Theme 1: Excessive bureaucratic tasks

The study identified excessive bureaucratic tasks as a central cause of occupational stress among teachers, significantly contributing to their sense of professional overload and fatigue. Participants consistently emphasized that they are burdened not only by their instructional duties but also by a vast of administrative responsibilities mandated by their respective school heads or by the central DepEd institution. These include the preparation of lesson plans in rigid formats, student performance tracking, submission of numerous reports, compliance documentation, and participation in non-academic programs and projects.

What is particularly concerning is the perceived exploitation of rank-and-file teachers by some school heads, who reportedly delegate responsibilities that fall outside the teachers' formal duties and, in some cases, are supposed to be handled by higher-level administrators. This sense of inequity and role misalignment contributes significantly to teachers' occupational stress, as it not only increases their workload but also creates feelings of resentment and demoralization. As shared by participants, such

practices blur professional boundaries and reinforce a top-down culture where accountability is unevenly distributed. This issue was clearly articulated by two participants who shared specific instances of being tasked with administrative duties that should have been managed by their superiors.

"Dara kay nahihiraan na man nga kunta ako man an natrabaho han mga buruhaton nga dapat trabaho han imo mayor asya nga ako nala an magtatrabaho han report, nga dapat hira an mag-iintindi. Ako naghihuna-huna pagmilaka submit han report tapos nagkakaaluhan-aluhan ak danay kon napresent han ak trabaho nga dapat unta kahan ak mayor na. Gintatagan ak hin responsabilid ad nga diri sakop han akon konta job description." [Because I feel like I'm always the one doing the work that should be handled by our Principal, I end up doing the reports that they should be taking care of. I keep thinking about when I'll submit the report, and sometimes I feel frustrated because I'm presenting work that should be done by the Principal or School Head. I've been given responsibilities that aren't even part of my job description.](Participant 4, Line # 133-139)

"Am mga mayor nga inaasa la an mga buruhaton labi na kon bag-o ka ha trabaho ikakada talaga ha imo iton mga buruhaton nga unta hira man iton nagbubuhay para han amon eskwelahan [sic] Ha akon pagtutdo kon nagiging effective pa ba ak kon damo akon mga absent kay adi ako bungto kay mayda man igsusubmit nga report. Baa daw bawo guol lalo na han una nga makuri an internet nagkakamang pa. [Some of our school heads just rely on passing the work to us, especially when you're new to the job. They really push the tasks onto you that should be handled by them for our school. In my teaching, I wonder if I'm still effective when I have many absences because I have to go downtown for submitting reports. It's really frustrating, especially before when the internet was difficult to access and slow.](Participant 1, Line # 200-205)

Participants shared that these practices blur their professional responsibilities and contribute to a top-down environment where accountability is unfairly distributed. This is consistent with Ingersoll (2003), who found that poor leadership and role overload increase teacher stress and contribute to high turnover rates. Grubb and Flessa (2006) also noted that when administrative tasks are passed on to teachers, it disrupts their focus on teaching and lowers their motivation. These findings highlight how school leadership directly affects the working conditions and well-being of teachers.

"Dida ini nagkakaproblema kon ura-ura ka apurado nga submission nga asta talaga haam hit DepEd nga yana la ighahatag pag-ar o hin data tapos na igpapasa kon online pa takay diri pa man adto available an internet haam, baa malinop bawo ngan diri la laksi kay mahingangaranan it amon school kon diri kami nakakapasa on time." [This becomes a problem when

you're in a rush to submit, especially when the Department of Education (DepEd) only requests data at the last minute, and then we have to submit it online. The internet wasn't available to us back then, so it's really frustrating. It's hard because our school's reputation is at stake if we don't meet the deadline.](Participant 4, Line # 143-147)

"Usa ko po nga dako nga problema an kadako han akon mga trabaho in terms of paperworks lalo na an mga trabaho han akon mayor nga iya dapat trabahuon nga kon diin ako iton nagko-comply makasubmit kami han mga school improvement plan or bisan ano nga kinahanglanon ig comply nga report isurabmit ha District Office. Lalo na ang mga apurado urog han nakadto ak han isla." [One of my big problems is the volume of my work, especially in terms of paperwork, particularly the tasks that should be handled by the school head, but I'm the one who ends up complying. I have to submit things like the school improvement plan or any other required reports that need to be submitted to the District Office. It's especially frustrating when everything is rushed, like when I'm in the island.](Participant 4, Line #112-116)

"Ini pa nga mga apurado nga mga report; diri ga unta dapat nga permi permi nala bawo kon mayda inaaro nga report udog iyo gad ighahatag nga medyo may ada na manla kami sapat nga oras para namon mas klaro intindihon it datos nga inaaro. Danay pa diri klaro iton instruction kay wara man haak iglagidlid nga pagisplikan kon uunan-on talaga an tama nga proseso. Baa danay bawo malinop maghihimo pero diri ka sure kon asya na it nga report." [These rushed reports are another issue; they shouldn't always be like this. If there's a report to be submitted, they should give us enough time so we can better understand the data. Sometimes the instructions aren't clear because there's no one to explain to me the correct process. It's frustrating because you end up making the report, but you're not sure if it's the correct one.](Participant 4, Line # 212-218)

This constant administrative pressure was also cited as a major contributor to emotional and physical exhaustion, with many teachers having to complete paperwork after official school hours or during personal time. The resulting time pressure not only affects teaching quality but also erodes personal well-being, contributing to broader issues such as work-life imbalance and burnout. These findings align with Kyriacou (2001), who emphasized that excessive workload and administrative demands are among the most commonly cited stressors in the teaching profession. Similar conclusions were drawn by Klassen and Chiu (2010), who observed that time pressure and non-teaching responsibilities have a direct correlation with teacher burnout and job dissatisfaction.

Theme 2: Lack of Technical and Clerical Support

The study revealed that a critical cause of occupational stress among teachers is the lack of technical and clerical support within educational institutions. Many participants expressed frustration over being expected to manage complex administrative tasks, such as data encoding, report preparation, filing school forms, and maintaining digital records, without the assistance of trained support staff. This lack of assistance places an undue burden on teachers, who must juggle these tasks alongside their core responsibilities of lesson delivery and classroom management.

Several teachers shared that in the absence of dedicated clerical or IT personnel, they are often required to navigate outdated or unfamiliar software systems, troubleshoot technical problems, and perform time-consuming tasks such as formatting documents or generating statistical reports for school compliance. As one respondent noted:

"Damo iton hinungdan pagkakamay-ada problema. Unang-una iton suporta nga nakakarawat hit nagpapatupad hit aton education talaga. Hin o it? It aada ha field. Kita iton mas naaabat nga nakakaeksperinsya hiton kamatuuran nga panhitabo hit mga teachers nga mga kamutangan hiton aton kabataan ha sulod han klase. Kawaray igsakto nga hibaro hit mga magtuturdo kon inunan-o ba talaga iton pag-implementar hiton nga mga reports nga gin-aaru. Kailangan first hand kita nga mga teachers nagti-training kon ano ba inin nga mga trabahuon. Diri kay igpapasa haat igko-comply niyo tapos an mga pamaagi iginpatraining la an mayda na kina-adman. Diri kay igpapasa haat igcomply niyo tapos an mga pamaagi ginpatraining la an mayda kina-adman kon uunanhon it nga trabaho para accurate it data. Nahihimo ba? Kay target na gadla kay diri man klaro iton instruction ha mga teachers. An support han iksakto nga link – danay nawawaog in mga link kay kulang aram an maestra han tama buhaton han mga report nga permi ura urada nga inaaro." [There are many reasons for the problems we face. First and foremost, the support we receive in implementing our education system. Who is responsible for it? It's the ones in the field. We, the teachers, are the ones who truly experience the reality of what's happening in the classroom. There's a lack of proper knowledge among teachers about how to implement the reports that are being required. Teachers need first-hand training on how to do these tasks. It's not just about handing over the task to comply, and then the methods are only taught to those who are already knowledgeable. The work should be done accurately for the data to be correct. Is this achievable? Because the target is set but the instructions for the teachers are unclear. The support for the correct links is also missing – sometimes the links fail because the teachers don't know exactly what to do with the reports that are always rushed.](Participant 8, Line # 177-190)

The statement above emphasizes a prevailing concern among teachers regarding the perceived inadequacy and misalignment of professional development trainings with their actual roles and responsibilities. Participants expressed frustration over the lack of targeted and practical training that directly addresses the demands of their daily tasks. More troubling is the observation that, in many instances, those selected to attend such trainings are not the individuals ultimately responsible for implementing the learned skills. As a result, the effectiveness of these capacity-building initiatives is significantly undermined. The task of data reporting, for example, suffers in quality because those assigned to execute it are either insufficiently trained or not trained at all. This practice suggests a tokenistic approach to compliance, where training participation is reduced to a bureaucratic requirement rather than a meaningful professional development opportunity. Such findings align with existing literature that critiques the superficial implementation of teacher development programs in bureaucratic settings (Darling-Hammond et al., 2017; Avalos, 2011).

Furthermore, this absence of technical and clerical support exacerbates feelings of professional fatigue, delays teaching preparation, and often leads to stress-induced burnout. Teachers also reported that the lack of support contributes to inefficiency and affects their capacity to focus on students' academic and emotional needs.

These findings are consistent with prior research indicating that institutional inadequacies in operational support systems intensify stress levels among educators, particularly in underfunded or understaffed schools (Travers & Cooper, 1996; Jepson & Forrest, 2006).

Theme 3: Lack of Institutional Support

The findings of this study reveal that many teachers experience substantial stress due to a lack of institutional support, characterized by several factors. One of which is the inadequate resources provided by DepEd leaders to its faculty and students. Teachers reported that their ability to deliver quality education is frequently hampered by a lack of basic instructional materials and insufficient access to teaching aids. This was pointed out by several teacher-participants:

“An wara suporta ha amon han eskwelahan diri kami natatagan han panghinanglan nga materyalis para mas maupay pa an amon panutduan ha klase.” [There is no support for us in the school. We are not provided with the necessary materials to improve our teaching in the classroom.](Participant 3, Line # 187-189)

“An akon naman usa pa nga problema ha sulod ha classroom in siguro mga references iton pag-iniba iba han curriculum. Diri pa gud adto available an internet connectivity sugad ngani mag-eenrol ka ha LIS didto ka mga computer shop para kala mahuman iton imo trabahuon. Makadto ka pa ha bungto para kala makakuha or download para han imo burohaton or activity ha kabataan.” [Another problem I have inside the classroom is probably the teaching references due

to the frequent changes in the curriculum. The internet connectivity wasn't available before, so when you need to enroll in LIS, you have to go to computer shops just to finish your tasks. You even have to go to the town to get or download what you need for your work or the activities for the students.](Participant 1, Line # 122-116)

“An dako talaga nga hinungdan nga nagkakaproblema hin usa nga teacher nga sugad haak nga lack talaga han support tikang dinhe ha eskwelahan. Kon mag-iistorya ka ha imo mayor nga kinahanglan ko hin sugad bond paper, baa kay magsusumat la daman it iton iya kautangan pero align hiton mga refund para travel. Takay udog kulang naman kita hiton financial obligation puros kaman daman hin utang diri ko man daman permi pag-inibanan para hit imo pamilya. Unahon nim iparalit hin sura para hit im pamilya.” [A big reason why a teacher like me is having problems is the lack of support from the school. When you talk to your school heads and say you need bond paper or something, they just tell you that they have to attend to their debts too when in fact our travel costs are refundable. Because we lack the financial support, we are always burdened with debts. I can't always share what's for my own family expenses because their needs should come first.](Participant 1, Line #176-182)”

Despite the provision of the Maintenance and Other Operating Expenses (MOOE) funds to school heads, participants reported that these resources were not always utilized in a manner consistent with their intended purpose. Instead of supporting instructional needs, such as the procurement of teaching materials and classroom supplies, the allocation was often perceived to be diverted or inconsistently accessed. One participant pointed out that, in some cases, the funds appeared to be used for personal or administrative purposes unrelated to classroom instruction. This was mentioned by one of the participants:

“Yana naman ta amon bag-o nga mayor ha eskwelahan in ura-ura ka strikto ha amon diri kami basta basta pwede gumawas bisan pa importante nga tuyuon diri gud matuyang. Diri pa gud hiya masuporta han mga gamit han kabataan han eskwelahan more on personal travel an ginagamitan han amon pondo sanglit diri gud hiya fit para ha akon nga mayor kay diri maaram umintindi hiton mga personal nga panginahanglan or katuyuanan hiton maestra specially ha gawas” [Our new Principal at the school is very strict with us. We can't just go out even if it's for something important; it's not allowed. He doesn't even support the students' school supplies. The funds are more often used for his personal travel, so I don't think he is a good leader for me because he doesn't understand the personal needs or the goals of teachers, especially outside of work.](Participant 5, Line 38-44)

As emphasized in the literature, decentralized funding mechanisms like MOOE are meant to empower school leaders to respond to local needs (Lao,

2016; World Bank, 2019). However, when transparency and accountability are lacking, these funds may not translate into meaningful improvements in teaching and learning conditions. As a consequence of the perceived misallocation or inaccessibility of school funds, some teachers are compelled to use their personal finances to sustain basic operational and instructional needs within their classrooms. Participants revealed that they often contribute to various school-related expenses out of their own pockets, a burden that extends beyond instructional materials to include classroom maintenance and environmental comfort. In more severe cases, teachers reported resorting to loan credits or salary deductions to purchase fans or ventilation equipment, simply to ensure that learning spaces remain conducive to student learning.

“Baa kay mas nagtikadamo na akon nagiging problema, una ha eskwelahan an kadamo han aragmutan kay huna-hunaa danay han kada semana nag-aaragmot kita danay hin 500 plus an menu pa nga imo pledge. Takay udog nag-asawa naman kita konta an akon priority na ha akon kinabuhì. Limited na an akon resources especially an finances.” [Maybe because my problems have increased, first in the school, there are a lot of things to consider. Just think about it, every week we have to contribute about 500 pesos plus the menu for your pledge. Now that I’m married, my priorities in life have changed. My resources are limited, especially my finances.]
(Participant 1, Line # 106-110)

“Ha akon an economic crisis ha akon kasi pagtinutdoon han nakadto ako Divinubo dara kay mahilig ak mag-inupay han akon room sge an burubalhin haak han akon room takay diri maak nakakailob diri paggasto lalo na ikakaupay han akon room dito. Sanglit naglo-loan ak maliban la nga akon pan-allowance kon natabok ak ngadto.” [For me, the economic crisis affects me in my teaching because when I was in Divinubo, I really liked improving my room. I often make changes to my room because I can’t afford to spend much, especially when it comes to making my room better. That’s why I take out loans, aside from my allowance when I go there.] (Participant 4, Line # 79-83)

“An pinakaura-ura daman an kadiri kamaupay iton kamutangan hiton aton mga classrooms. Iton teachers pala nga diri maupay pag-abat ngan mapaso hin ura ura diri ka makahinga dara diri ventilated it room diri kana gud gagaganahan pagtutdo.[sic] Baa malipong bawo ha ulo.” [The most frustrating thing is the poor condition of our classrooms. It’s the teachers who suffer because they can’t even breathe properly when the room is not well-ventilated. You just can’t feel motivated to teach. It even makes you dizzy.] (Participant 8, Line # 250-256)

It can be assumed from above statements that school leaders often seemed disengaged from the realities of the classroom, offering little practical or

emotional support. This left many teachers to manage challenges independently, leading to demoralization and emotional fatigue. This theme echoes earlier studies highlighting the connection between perceived institutional neglect and teacher burnout. According to Ingersoll (2001), the degree of organizational support plays a pivotal role in shaping teacher morale, retention, and effectiveness. When schools fail to provide clear communication, equitable resource allocation, and responsive leadership, it contributes to a working environment marked by low trust and high stress (Skaalvik & Skaalvik, 2010).

Theme 4: Relational Tensions with School Leadership

The study also revealed that strained relationships between teachers and school heads are a considerable source of occupational stress. Participants shared experiences of feeling dismissed, micromanaged, or undervalued by their supervisors. These interactions often involve lack of open communication, top-down decision-making, and inadequate recognition of teachers' professional judgment.

Several participants recounted troubling experiences involving strained relationships with their school heads, characterizing the leadership climate as unsupportive and, at times, overtly adversarial. Teachers described instances where school administrators not only failed to provide the necessary guidance and encouragement but also demonstrated behaviors perceived as authoritarian and emotionally detached. As the participants reflected:

“An pinakamatindi ko nga nahinunumduman ko nga problema ha akon pagtinutdo an amon pagkamayda problema han ako Mayor. Ura ura hin ka authoritarian nga tawo ginsusugad kami hin mga suruguon la niya. Waray haak respeto kamaestra ko la gin susugo ak paglinis han CR. Pero okay la haak kay naglilinis maak ha balay hin CR. An iya style nga pinakakaaluhan kami niya kon nag oobserve hya haam dida pa han atubangan han akon igkasi teacher; han una okay la kay bangin manla talaga may ada ko ig-iimprove bilang usa nga teacher.” [The most difficult experience I can remember in my teaching career was when we had a conflict with our Principal. He was extremely authoritarian—he treated us like mere servants. He showed me no respect as a teacher. He even ordered me to clean the comfort room. But I just accepted it, thinking that I also clean bathrooms at home anyway. His way of supervising was to humiliate us in front of our fellow teachers during his classroom observations. At first, I tried to understand it, thinking maybe there really were areas I needed to improve as a teacher.] (Participant 2, Line #226-232)

“Usa daman nga nakakawsa hin dako gud nga problem ha akon yana iton akon School Head. Hiya an nakakapagpabug-at hiton kada adlaw nga nasulod ako ha school. Kadadamo hiton akon problem ha balay o personal nga inaabat or specially daman ha skul nga pagdisiplina hiton kabataan, nadugang pa hiya.[sic] Wara niya kasing-kasing hin pagmaniho hin tuhay ha

amon skwelahan, waray niya huna-huna hin pagpaid hito kuri hit amon trabaho.” [Another thing that causes me a big problem now is my School Head. He’s the one who makes every day I go to school feel heavier. The many problems I have at home or personally, especially those related to disciplining the students in school, are made worse by him. He has no heart for leading us properly in our school. He doesn’t think about making our work easier.] (Participant 5, Line #238-242/244-245)

“Unta bisan namanla emotional support natatagan ka. Diri kay paglilinihapon ka pa nga diri ka pa nagkaklase dara kay laptop nala it akon gin-iinatubang; diri la bawo harumamay pagpinanhuna huna kon uunan-on pagtangpos hit trabahuon.” [I just wish that I could at least receive emotional support. Instead, you get criticized even when you’re not yet in class, just because you’re only facing the laptop; there’s no consideration for how to finish the tasks.] (Participant 4, Line # 189-192)

This perception of leadership is critical, as it undermines teacher morale and contributes to a work environment marked by fear, disengagement, and diminished collaboration. Leadership styles that disregard emotional intelligence and relational trust can alienate educators, who are otherwise instrumental in delivering quality instruction. The participants’ reflections resonate with existing research that emphasizes the importance of transformational and servant leadership in fostering positive school cultures (Greenfield, 2007; Leithwood & Jantzi, 2005). When school leaders fail to create an environment of mutual respect and shared purpose, the professional climate suffers—ultimately affecting both teacher performance and student outcomes. Research by Ingersoll (2001) supports this, noting that poor administrative support and weak leadership relationships contribute significantly to teacher dissatisfaction and attrition.

Theme 5: Parental Disengagement and Unrealistic Expectations

Another important theme that emerged from the data is the lack of parental involvement, along with unrealistic expectations placed on teachers. Many participants shared their concern about the increasing number of parents who are either not engaged in their children’s education or who expect teachers to take full responsibility not just for academics, but also for managing student behavior and values. This situation, according to the teachers, contributes to emotional stress and challenges in maintaining discipline in the classroom.

Many teachers reported that some parents rarely attend school meetings, fail to monitor homework, and offer little reinforcement of classroom discipline at home. This lack of partnership forces educators to assume roles beyond their professional scope, including acting as counselors, behavior managers, and surrogate guardians.

Several teachers remarked:

“An kawara disiplina han mga kag-anak ha ira kabataan especially kon diri na nagkakaarasya han mga buruhaton, itinatapod na manla hiton mga bata nga may ada magbubuhay para ha ira. Diri nala ako nagsisinaway hin ura ura kay ako lugod an nakaka-arangasa kay sige manla it liya ug arangasa hiton bata bisan paak magsinaway.” [The lack of discipline from parents toward their children, especially when they no longer engage in tasks,

is passed on to the children who then rely on others to do things for them. It’s not just me who complains out of frustration; I’m the one who gets irritated because the children keep ignoring what I say, even when I try to correct them.] (Participant 5, Line # 160-164)

“An usa pa daman nga problem nga akon inaabat an kawaray support han kag-anak han ira mga anak lalo na an ira pag-eskwela kay dako gud nga bulig iton mga kag-anak kon nasuporta hira han kabataan kay diri iton maaakos hiton maestra pagtausa-usaha and pagfollow up han ira nahibaruan ha klase kon aadto na hira ha ira panimalay.” [Another problem I feel is the lack of support from parents for their children, especially regarding their education. It would be a great help if parents supported their children because it becomes very difficult for teachers to handle everything alone, especially when it comes to following up on what the students have learned in class once they are at home.] (Participant 5, Line # 92-96)

“Han hingadto ko daman han iba nga grade level dako nga problem an diri pakakabasa. Akon inaaruan in panahon nga bumulig nga ma-follow up ha ira balay an pagpabasa. Haguy, maigo, only to found out nga an mismo an mga kag-anak diri daman nagpapakabasa.” [When I was in other grade levels, one of the biggest problems was the inability to read. I made time to help follow up with them at home for reading practice. But sadly, I found out that even the parents themselves were having difficulty reading.] (Participant 4, Line 94-97)

The results of this study highlight how important parental support is to a child’s learning and development. Teachers shared that when parents are involved, students tend to do better in school, and the partnership between home and school becomes stronger. However, this kind of support is not always possible—especially in cases where parents are illiterate. Some participants explained that these parents often struggle to help their children with schoolwork or stay involved in their education. As a result, teachers are left with more responsibilities, taking on roles that should ideally be shared with parents. It might be understandable in situations where parents are genuinely unable to assist their children due to limitations such as work demands or lack of education. However, what participants found more concerning was when parents not only failed to provide discipline but also tolerated, or even defended, their children’s inappropriate behavior. This lack of accountability, as described by several teachers, makes classroom management more difficult and undermines efforts to instill proper values in students. As one participant explicitly shared:

“Ini nga problema nga pagsaway hiton maraot nga buhat hiton bata ha klase in ura-ura dapat gud panginanoon kay didto hiton kindergarten dapat masolbar na kay madako it bata nga waray kinahahadlok an balaod ha sulod ngan gawas han klase. This especially kay an mga kan-anak daman in utro nga dapat sumatan nga kon naiisgan iton bata diri kay naugop la hiton diri maupay nga pamatasan hiton ira mga anak.” [This problem of correcting the bad behavior of children in class is really important because it should be addressed as early as kindergarten. It should be resolved there because a child who grows up without fear of rules inside and outside

the classroom will face difficulties later on. This is especially true because parents should also be reminded that when they tolerate their child's bad behavior, they are just supporting poor conduct in their children.] (Participant 5, Line 117-123)

This parental detachment to their obligation to their children creates a persistent emotional burden on teachers, who must manage classroom dynamics without consistent support from home. The result is a sense of helplessness and fatigue, especially when behavioral issues escalate or academic progress stalls due to a lack of parental reinforcement. These findings align with the work of Epstein (2001), who emphasized the importance of school-family partnerships in achieving student success and reducing teacher burnout. When such collaboration is absent, it leads to emotional overload and a sense of isolation among educators.

Coping Mechanisms in Dealing with Occupational Stress

This section presents the different strategies employed by the participants when they encountered work-related stressors. These coping mechanisms reflect both the individual and collective efforts of teachers to sustain their well-being and maintain their commitment to teaching. The following themes illustrate how teachers actively manage occupational stress in their day-to-day lives.

Theme 1: Seeking Support from Colleagues and Family

The data revealed that one of the most common coping mechanisms adopted by teachers in response to occupational stress is seeking support from colleagues and family members. Participants frequently emphasized the critical role those social relationships play in helping them manage the emotional and professional pressures associated with teaching. Whether through informal conversations in the faculty lounge or structured collaboration in team planning sessions, many teachers described their fellow educators as essential sources of emotional comfort, shared understanding, and practical advice.

“Pagkamayda support system ha eskwelahan nagsusumat ha akon mga igkasi magtuturdo han akon inaabat kay parihas man kami hin gin-aagihan han amon mayor. Didto nag-aaro ako daman hin advice para ako makahuna huna hin diri pagdinumot hiton amon head.” [Having a support system in school, I share with my fellow teachers what I’m going through because we are all facing the same challenges with our mayor. That’s why I also ask for advice so I can think of ways not to harbor resentment toward our head.] (Participant 5, Line 271-274)

“Ha akon paghuna huna permi mayda naabot nga problema bisan pa ano imo trabaho. Lalo na kamaestran permi la huna hunaa nga mayda ka kaugop nga makakabulig ha imo; permi it masosolusyonan ngatanan nga problema lalo na ha

eskwelahan. Basta magsumat ka ha imo labaw or katrabaho mawawaray iton nga problema – trabahua la dapat nimo trabahuon asus matatalwas ka gihap.” [In my thoughts, problems will always come no matter what your job is. Especially in teaching, always keep in mind that you have someone who can help you; every problem can be solved, especially in school. Just make sure to inform your superior or your co-worker—those problems will eventually go away. You just need to do your work, and surely, you will get through it.]] (Participant 3, Line # 317-322)

Support from colleagues often came in the form of empathy, humor, and validation of shared struggles. Teachers noted that simply venting frustrations or discussing mutual challenges with someone who “understands the context” significantly reduced feelings of isolation. One participant explained:

“An pag-aaro hin bulig han mga tawo nga mas nakakaintindi ha imo kon ano man it ginpapahuman ha iya. Kon magbuburublig mahuhuman niyo largo it buruhaton. Kon nagsusumat ka hit imo inaabat mas nakakagaan iton han kalugaringon. Ngan kinahanglan daman mahibaro pagcontrol imo kalugaringon, kon may ada pressure hibaro pagpahirayo anay hit nakakaproblema. Kon ura ura na magpahangin anay kon asya dadaman baliki dadaman iton imo trabahuon.” [Asking help from people who understand you and what is being asked of them is important. When everyone works together, the task is finished quickly. When you talk about what you’re feeling, it makes things lighter for you. And you also need to learn to control yourself—when there is pressure, you must know when to step away from what is causing the stress. If it gets too overwhelming, take a breather, and then return to your work afterward.] (Participant 4, Line 228-234)

Similarly, family support played a crucial role in maintaining emotional balance. Teachers frequently turned to spouses, siblings, or parents to find encouragement and perspective. Family members were seen as “safe zones” where they could express vulnerabilities without professional judgment. In some cases, families also offered tangible support—such as helping with household chores or providing financial assistance—thereby allowing teachers to focus more on their professional duties.

“Talking to friends or family are all good ways for coping up with stress. Kay iton pamilya ngan kasangkayan hira iton mas nakakakilala haat ngan maintindihan kita” [Talking to friends or family are all good ways to cope with stress, because our family and friends are the ones who know us best and can truly understand us.] (Participant 4, Line # 351-353)

The findings support Lazarus and Folkman's (1984) Transactional Model of Stress and Coping, which highlights the importance of managing emotions through social interaction, especially when direct

solutions to problems aren't available. In this model, social support helps reduce stress and strengthens a person's ability to cope. This idea is also supported by Kyriacou (2001), who found that support from fellow teachers is one of the most helpful and accessible ways for educators to handle stress. Sharing experiences and coping strategies builds a sense of community and improves teachers' confidence in dealing with challenges at work.

Theme 2: Engaging in Faith and Spiritual Practices

A prominent coping strategy identified by many participants was turning to faith and spiritual practices as a source of comfort and strength. Teachers shared that their belief in a higher power helped them manage the emotional burdens of their profession, especially when they felt unsupported or overwhelmed. Praying, attending religious services, and reading spiritual texts were among the common practices mentioned. These activities provided them with a sense of peace, purpose, and emotional release.

For some, faith served as a reminder of their calling to teach, reinforcing their patience and perseverance despite difficult circumstances. Others viewed spiritual engagement as a way to remain hopeful in the face of challenges, believing that their struggles had meaning or were part of a greater plan. As one participant expressed,

“Nag-aampo nala hin ura-ura para magkamayda ako peace of mind ngay magka-mayda planu nga tuhay, ngan in mas maupay pa nga buruhaton para diri magtikadako iton problema. Pinaagi han akon mga pangadi mas nabubuhay ko permi ngan han oras an dapat ko tapuson. Hiya nala it bahala haak.” [I constantly pray so that I may find peace of mind and have a more stable and better path ahead, one that will keep my problems from getting worse. Through my prayers, I'm able to accomplish more and better manage my time and responsibilities. I just leave everything in God's hands.] (Participant 5, Line # 277-281)

“Dire nahinganaglimot pagsimba, igin aampo ko nala it ngatanan taak naeexperyensyahan kay hiya la it labaw nga makakabulig hiton ngatanan ko nga gin aagihan haak trabaho or ngani damn iton akon personal nga kinabuhay.” [I will not forget to go to church, I just pray that all my worries and things that I'm dealing with work and in personal life will be overcome.] (Participant 7, Line # 314-317)

This finding is consistent with previous research that emphasizes the role of spirituality in strengthening teachers' emotional resilience (Koenig, 2012; Pargament, 1997). In demanding work environments, spiritual practices can help individuals cope personally and manage their emotions. These findings also support the idea that spiritual involvement can protect people working in high-stress jobs by helping them stay mentally healthy and connected to a deeper sense of purpose (Ano & Vasconcelles, 2005).

Theme 3: Practicing Time Management and Prioritization

Another coping mechanism that emerged from the data is the deliberate use of time management and task prioritization strategies. Several participants shared that they cope with occupational stress by organizing their tasks, setting clear boundaries between work and personal time, and creating structured routines. These practices helped them gain a sense of control over their responsibilities and reduced the feeling of being overwhelmed by multiple demands.

“An pagkamayda talaga time-management, uunahon nim an mga problema nga mas nangangailangan hin priority, an mga apurado hin deadline asya la anay puruta, pagsunod-sunura. Paghinay- hinayi na trabahuon kon ano kinahanglan nim trabaho at least kon aaruon in guti nala nim nga check maipapasa na nim largo.” [Having proper time management really helps. You need to prioritize the tasks or problems that require immediate attention—start with those that are urgent or have close deadlines. Do them step by step. Work slowly but surely on what needs to be done, so that when it's time to review or submit, you'll only need to check a few things and you'll be ready to pass it right away.] (Participant 4, Line # 224-228)

“It akon buruhaton kay grade 6 padaman damo it report hiton akon klase kaya diri ak nag-hinay hinay; akon largo gin huhuman taak trabahuon kay hi ako daman it kadadamuan hin trabaho. Waray padaman hit magtatrabaho kondi ako la gihap.” [Because I'm teaching Grade 6, there are a lot of reports required from my class. That's why I don't slow down—I finish my tasks immediately and take full responsibility, since I'm the only one who handles the bulk of the workload. There's no one else to do the job but me.] (Participant 3, Line #278-280)

Teachers explained that planning ahead, breaking down tasks into manageable parts and doing it right away without waiting for the deadline allowed them to stay focused and productive without burning out. Some also highlighted the importance of saying “no” to additional tasks that were not urgent or essential, as a way to protect their time and energy. By managing their schedules more effectively, these teachers were able to maintain balance in their professional and personal lives, which in turn supported their overall well-being and job satisfaction. This was mentioned by one of the participants:

“Minsan pag-adman ta pagsiring nga “no” kay iton pagsiring nim nga diri – maupay liwat pamatiaan magmamagaan karawaton hiton imo kaistorya nga mayda nim personal nga buruhaton sanglit pwede hiya makayakan nga okay didto nala ak hit iba maaro hin bulig” [Sometimes, we need to learn how to say 'no'. Saying no can also feel good—it lightens the load and helps the other person understand that you have

personal responsibilities. They might even respond by saying, 'Alright, I'll just ask someone else for help.] (Participant 8, Line # 365-368)

This finding supports previous research showing that time management plays a key role in reducing stress among teachers. Studies have found that when educators manage their time well, they are more satisfied with their jobs and less likely to experience burnout. For instance, Chan (2002) found that teachers who use time management strategies report lower stress and better well-being. Likewise, Kyriacou (2001) emphasized the value of setting priorities and realistic goals in handling the complex demands of teaching. More recently, Baldelovar (2023) highlighted how strong time management and organizational skills improve teachers' resilience. The study also suggests that training programs that focus on these skills can better equip teachers to deal with work-related stress.

Theme 4: Participating in Recreational or Relaxation Activities

A significant coping mechanism identified by participants was engaging in recreational or relaxation activities to alleviate occupational stress. Teachers reported that activities such as exercising, travelling, gardening, watching movies and spending time with family and friends provided them with a sense of relief and rejuvenation amidst their demanding work schedules. These leisure pursuits not only offered a temporary escape from work-related pressures but also contributed to their overall well-being and job satisfaction. These are some of the statements of the participants regarding how they cope up with the various stressors at work:

"Nagawas daman kami (co-teachers) nannganagon ngan nagrerelax hin guti para mapahirayo kami hiton amon problema. Amon nala gin tatawaan ko ano an amon eksperensya ha iya nga mga problema." [We (co-teachers) also go out to eat and relax a little to distance ourselves from our problems. We just laugh off our experiences with those issues.] (Participant 5, Line # 275-276)

"Pagturoy hin hobby nga comfortable ka buhaton, nakaka-relax ha imo ngan at the end of the day malipayon ka kon ano man imo ginbubuhat. Kinahanglan ngay an maghatag ka hin time para hiton imo kalugaringon. Kamingawan, self-satisfaction nga kon diin makukuntinto ka hit pagkaon, shopping or pagrelax ha beach or basta makakalimtan anay nim ta imo mga problema ha skul or panimalay." [Engaging in a hobby that you're comfortable doing can help you relax, and at the end of the day, you'll feel happy about whatever it is you've done. It's truly important to give time for yourself. Solitude and self-satisfaction—whether it's through eating good food, shopping, or relaxing at the beach—can help you temporarily forget the problems you face at school or at home.](Participant 4, Line # 237-242)

"Haak kalugaringon make sure magkamayda ako physical activity and exercise kay para makarelease ako hin bad energy haak lawas. Hinihimo ko bawo nga makakaturug ak han oras nga at least pinakaguti 6 hours. Kay kon rested kita may ada ta kusog pag atubang hit bag o nga challenge kinabuwasan." [For myself, I make sure to have physical activity and exercise so I can release the bad energy from my body. I do this so that I can sleep at least a minimum of 6 hours. Because when we are well-rested, we have the strength to face new challenges the next day.] (Participant 4, Line # 347-351)

"Hi ako talaga mas nagiging relax ako kon nagbabasa lalo na kon nakaka-discover ak hin interesting story. Sugad mga libro nga actually pinapalit ko pa online. Actually, usa daman ako nga writer hin short sotry, pero dati gin-develop an akon kalugaringon hin panurat hin magdurudilain la nga poems. An akon topic is more on life experiences." [I really become more relaxed when I read, especially when I discover an interesting story. These are the books that I actually buy online. Actually, I'm also a writer of short stories, but in the past, I developed my skills in writing by composing different kinds of poems. My topics are more on life experiences.](Participant 8, Line # 203-207)

"Nag-detach han akon problema pinaagi hin pagkulaw han netflex asya daman an ak tinikangan kahilig han movies. Nakakarela ha ak huna-huna kon akon na natitikangan an palabas kay forward maak han next episode nagmiminala ka uuli ak para ko daman matapos largo an palabas" [I detach from my problems by watching Netflix, which is also the start of my love for movies. It relaxes my mind when I start a show because I can forward to the next episode. I sometimes minimize it and go back to it, so I can finish the show quickly.](Participant 2, Line # 243-248)

As can be noted in those statements, teachers really emphasized intentional efforts to protect their well-being—emotionally, mentally, and physically—through simple acts of self-care. This finding aligns with existing literature emphasizing the role of leisure activities in stress management. According to Iwasaki (2001), "leisure activities serve as a vital coping resource that can buffer the negative effects of stress and enhance psychological resilience" (p. 129). By engaging in such activities, teachers are able to manage the physical and emotional demands of their work, creating a balance between their professional and personal lives.

Moreover, research by Hutchinson, Bland, and Kleiber (2008) confirms that "engagement in leisure activities provides opportunities for recovery and reduces emotional exhaustion, contributing to overall well-being" (p. 16). This suggests that teachers who take time for personal interests or relaxation are better equipped to cope with the stresses inherent in the teaching profession, improving their capacity for sustained work performance.

Participants' Reflections in Dealing and Coping with Occupational Stress as Public-School Teachers

In this section, the teachers reflect on their overall experiences and strategies in managing the occupational stress they encounter as public-school educators. Building upon the previous sections, which explored their challenges and coping mechanisms, the participants offer a deeper understanding of how these experiences and approaches have shaped their professional lives. Their reflections highlight the emotional, psychological, and professional growth that arises from facing stress, as well as the lessons learned and the resilience developed through their ongoing efforts to balance personal and professional demands. The following themes provide a comprehensive view of how teachers make sense of their experiences, offering valuable insights into the long-term impact of occupational stress and the importance of personal growth, community support, and adaptive strategies.

Theme 1: "It's Good to face the Problem"

A significant theme that emerged from the participants' reflections was the value they place on confronting stress directly, rather than avoiding or ignoring it. Many teachers expressed that facing the challenges of their profession head-on has allowed them to build emotional resilience, which has become a crucial tool in their daily work. This theme emphasizes the importance of acknowledging and addressing stressors as they arise, rather than letting them accumulate or fester.

The teachers' reflections reveal a deep understanding of the benefits that come from tackling problems as they emerge, viewing these experiences as opportunities for growth and development. Several teachers reflected:

"Kon ha Mayor may problema sus kakaestoryahon ko hiya kay kon ano iton akon nabuhat nga diri niya naruyagan nanmamati ako nga nagsusumat ako han akon daman gin-aabat hiunong hiton panhinabo ha eskwelaan basi hiton akon nahibaruan nga maaram ako kumarawat hit akon mga sayop kon asya man nagpapasaylo ako kay diri man daman matatalwas it problema kon diri ko atubangon [sic] Bisan diri hya manmati basta nayakan ko okay na it." [If there's a problem with the Mayor, I talk to him because I want to explain what I did that he didn't like. I feel like I'm being heard when I share what I'm going through, especially about what happens at school. I share this because I believe that I should accept my mistakes if there's any, and I ask for forgiveness because problems won't be solved if I don't face them. Even if he doesn't listen, at least I said my piece, and that's enough for me.](Participant 3, Line 212-219)

"Kailangan talaga nim atubangon it mga problema kay diri it hiya maiiwasan lalo na hit at trabaho. Kon problema nim ha eskwelahan paghimo hin im paaagi nga maturoy or matudyan nim solusyon kay magtitika dako it kon mag-iniha pa it nga problema. It problema in makakahibang in ha aton, kay kon utak na it

magdara mabug-at it nga makakaapekto ha imo bug-os nga lawas." [You really need to face problems because you can't avoid them, especially at work. If the problem is at school, you should find a way to address it or come up with a solution because it will only get worse if you ignore it. Problems can be overwhelming, especially when they take over your mind, because they can affect your entire body.](Participant 8, Line # 249- 253)

"Permi ka dapat andam ha imo trabaho hiton damo la nga buruhaton parti hiton pantrabaho. Pagkarawat nga it problema naabot haat. Pagtatrabaho hin atop nga oras para diri ka maghabol han mga deadlines." [You should always be prepared in your work, especially with the many tasks related to it. Accept that problems will arise. Work efficiently and on time to avoid rushing to meet deadlines.](Participant 2, Line # 295-297)

"Diri ka napakalisang han mga sumat sumat la mamaupay atubanga it problema kay diri nim masusulbar it problema ha usa la kapuruko. [sic] Pagaro hin advise ha imo katrabaho or pamilya or han mas listo han mga trabahuon; diri ka pwede magsolo kay kon mag-inusahan kala para makasolbar ka hin problema maiiha-an ka." [Don't be overwhelmed by rumors or just face problems alone because you can't solve everything by yourself. Ask for advice from your coworkers, family, or someone more experienced in the tasks. You can't do it all by yourself; if you try to handle everything alone, you might take too long to solve the problem.](Participant 2, Line # 297-304)

The participants' reflections also highlighted the role of emotional resilience in managing the emotional and psychological demands of the profession. They acknowledged that challenges are an inevitable part of their work environment; however, they emphasized that what truly matters is not the mere presence of these problems but how one responds to and manages them. As several participants noted, the ability to face difficulties with a proactive and composed mindset is what ultimately determines their capacity to endure and thrive amid occupational stress.

"An pinaka epektibo ngaak nabuhat in pagkarawat nga it problema hiton tawo in permi naabot, kinahanglanon la nga permi nim mahuna-huna na an mga problema nga naabot in may-ada permi kasulbaran." [The most effective thing I've done is accepting that problems always come to people. You just need to always remind yourself that every problem has a solution.](Participant 5, Line # 304-306)

"Kinahanglan kita hibu pagpaubos ha iba nga tawo kay wara kita mahihimo kon permi la problema iton aton pag-iintindihon. Trabaho hin maupay ayaw pagpinasaway ha imo mayor. Bali permi hiton kasuguanan ha imo kay tuyo manla ha imo nga magtrinabaho ka." [We need to learn to humble ourselves before others because we can't do anything

if we always focus on the problems in our understanding. Do your work well, don't go against your mayor. Instead, always follow the instructions given to you because it's for your benefit to work.](Participant 5, Line # 351-354)

“Kon mayda ka problema ha igkasi tawo bugway atubanga kay para magkaintindihay kam kon ano ba talaga iyo pinangangangat lalo na kon imo katrabaho kay duang it hin problema lalo na kon ginpipinaia.” [If you have a problem with someone, it's best to face it head-on to understand each other, especially if it's with a co-worker, as the problem can become bigger if left unresolved.](Participant 4, Line # 297-299)

This mindset aligns with research that emphasizes the importance of resilience in stress management. According to Luthar, Cicchetti, and Becker (2000), resilience is a process of adapting well in the face of adversity, trauma, or significant stress, and is particularly essential in high-stress professions like teaching. By adopting a proactive approach to stress, teachers are able to better handle difficult situations without becoming overwhelmed.

Additionally, facing problems directly allows teachers to develop a sense of control over their circumstances, which is often a source of empowerment. Research has shown that individuals who feel a sense of control over their stressors are better able to manage their emotional responses and cope with challenges in a healthier manner (Lazarus & Folkman, 1984). The teachers in this study recognized that while stress is inevitable, their ability to approach it with a problem-solving mindset allows them to regain control and maintain their well-being.

Theme 2: Choosing Not to Dwell the Problem Too Seriously

Another emergent theme from the participants' reflections is the intentional choice not to overly internalize or dwell on stressful situations. This theme shows how some teachers manage stress by not letting problems overwhelm their thoughts and emotions. Instead of overthinking, they choose to step back and keep a balanced mindset. For them, this is a way to protect their mental health and stay focused on their work.

Teachers explained that constantly thinking about problems makes them feel more stressed and less effective. To cope, they try to let go of small issues and face challenges with a more positive or relaxed attitude. This doesn't mean they ignore their responsibilities—it's a conscious choice to stay emotionally strong in a tough and demanding job.

As several participants reflected:

“An remedyos ko kon ginbuhat hini nga akon naging problema in pagfocus han akon kalugaringon ngadto han mga bata nga may-ada interes nga dako han ira pag-eskwela. [sic]Sige la iton akon pagtutdo lalo na an gusto mahibaro diri man ako pwede magsinaway nala ngada ka hasta hiton bata nga nadiri napadisiplina

haak.” [My remedy when facing a problem is to focus my attention on the students who have a strong interest in their studies. I continue teaching, especially those who want to learn. I can't just keep scolding the students who are undisciplined.](Participant 5, Line # 197-206)

“Aro hin bulig hin mga tawo nga may ada dako nga kinaadman hiton nga imo problema. Diri ka mag-iinura ura hit problema. Wawaraon ko an akon dumot han akon katrabaho para mas mabuhay ko pa taak pinakaupay ha trabaho.” [Seek help from people who have great wisdom about your problem. Don't just let the problem linger. I will let go of my resentment toward my coworker so I can do my best at work.](Participant 4, Line 311-314)

“Kasi iton life as a teacher hiton mga adlaw nga usa ka semana mas madamo it adlaw or oras nga hira at ginkakaupod kesa hiton aton mga asawa o mga anak, hira iton aton iginkikinirita. Sanglit, stay positive!” [Because in the life of a teacher, there are more days or hours spent with students in a week than with our spouses or children; they are the ones we interact with the most. So, stay positive!](Participant 4, Line # 317-320)

“Nahibaro daman ako nga magkamayda kita boundary ha aton trabaho kon trabaho la, kon personal yon personal la daman it nga mga problema. Ayaw pagrumbula kay magdadaman kita hin hunahuhanon. Magkamayda kita positive view hiton aton mga trabaho.” [I have also learned that we should have boundaries in our work— work is for work, and personal matters are for personal life. Don't overcomplicate things because we will just end up with a lot to think about. We should maintain a positive view of our work.](Participant 8, Line # 297-301)

Participants found comfort and inspiration in hearing others' coping stories, realizing they were not alone in their struggles. This was attested by one of the participants:

“Kon mayda nim problema ha trabaho care to share kay bangin it imo katrabaho expertise ngay an niya it imo problema. Baka yon mabubuligan ka hit nga imo problema para masolusyonan largo, ngan hibaro pagshare daman hiton imo katrabaho kon bisan hin o nga napakiana ha imo pag-share hin imo nahibabaruan kay kon makabulig ka mas nakakalipay daman or nakakagaan ha pag-abat kon nakakalipay ka hiton imo igkasi tawo.” [If you have a problem at work, care to share because your coworker might have the expertise to help with your problem. They might be able to assist in finding a solution. Also, learn to share with your coworkers, even if it's just something small that someone asks you. Sharing what you know can be fulfilling and can lighten your mood, especially when you feel happy helping others.](Participant 8, Line # 308-314)

“Ha akon mga estudyante baa kon nagbuhat na ak han akon akos nga buhaton diri la gihap naaasya, iton akon ginhuhuna-hunaan especially hiton panarabahuan, baa takay diri naak mag-inura ura daman kay igkakadto ko nala it sumurunod nga maestra pagprinoblema han akon problema nga gin-aagian. Nasugad man hi Ma’am Ecle, an amon dati nga Supervisor “Share your agony!” [With my students, when I have done my tasks and it still feels like there’s more to do, what I think about the most is the work itself. I won’t just stay idle because I know I’ll just go to the next teacher and share the problems I’m facing. It’s similar to what Ma’am Ecle, our former Supervisor, used to say: ‘Share your agony!] (Participant 3, Line # 224-229)

This mindset aligns with literature on positive reframing and cognitive coping strategies. According to Folkman and Moskowitz (2004), positive affect and coping flexibility—such as humor, acceptance, and positive reinterpretation—can reduce stress and promote psychological well-being, especially in emotionally demanding professions like teaching. Similarly, Lazarus and Folkman’s (1984) transactional model of stress and coping recognizes that how individuals appraise and respond to stress significantly affects their emotional outcomes.

Theme 3: Detaching Work from Personal Matters

A salient theme that emerged from the participants’ reflections is their intentional effort to separate work responsibilities from their personal lives. Many public-school teachers shared that one of their coping strategies is to “leave work at work” and avoid carrying the emotional burdens of teaching into their personal space. This form of emotional boundary-setting is crucial in reducing stress and maintaining mental well-being, especially in a profession that often demands emotional labor.

Teachers acknowledged that their roles require constant patience, compassion, and problem-solving, often involving situations that can be emotionally draining. However, they emphasized the importance of not allowing work-related stress to dominate their home life. For them, creating a clear mental division between their professional and personal identities is a way to recharge, sustain their passion for teaching, and preserve their emotional energy.

As several participants expressed:

“Ngan paggigikan ko daman ha eskwelahan nga nasulod naak ha balay waray ko na hiton labot ha eskwelahan. Igin-bibilin ko ha eskwelahan iton mga buruhaton ha room nga nanay naak nahin asawa kon aadto naak ha balay; didto naaataman naak taak pamilya – naglalaba ak, nanhuhugas, or kon ano la nga responsibilidad hiton pagiging nanay ha balay. Akon gud gin-dedetch taak kalugaringon hiton eskwelahan ngan hiton pagiging nanay” [When I come home from school, I make sure to leave my work behind at the school. I focus on my family once I’m at home – taking care of household tasks like laundry,

washing dishes, or any other responsibilities as a mother at home. I really detach myself from the school and shift to my role as a mother.] (Participant 3, Line # 151-157)

“Kon ha bata man nga problema kon waray ma niya kakuha han kahibaro nga dapat niya hibaruan asus diri na daman ako hiton napakamatay kay baa damo it applicant nga masaliwan haak magreretire paak kalooyan sa Diyos.” [If the problem is with a student who wasn’t able to learn what they were supposed to, I don’t stress myself too much about it anymore, because after all, there are many applicants who can replace me – I’ll be retiring soon, God willing.] (Participant 3, 281-283)

“Pinakamaupay ko buhaton igin-aataman ko ak sarili, ginhuna huna ko nga aawton laak ngan babalyuan laak hit DepEd, ones mairaira ako mamatay kay baa babalyuan laak hit DepEd. Asya talaga it chain niya, hiring la it deped damo yana naka-rank nga aplikante nga diri ka hin o para kuanon nga tawo hit gobyermo pagtaga lawas para malampasan nim imo problema.” [The best thing I can do is take care of myself and remind myself that I’m just a person who can be replaced by DepEd. One day when I grow old or pass away, someone else will take my place. That’s really how the system works – DepEd hires continuously, and there are now so many ranked applicants waiting. You don’t need to break yourself just to overcome your problems.] (Participant 1, Line # 247-252)

This strategy resonates with findings in occupational stress literature, which suggest that psychological detachment from work during non-working hours is essential for recovery and well-being (Sonnentag & Fritz, 2015). When individuals fail to detach, they risk chronic stress and burnout. By consciously drawing boundaries, teachers are not avoiding responsibility but are protecting their capacity to function effectively both at work and at home.

Moreover, this approach aligns with the concept of emotional regulation, where individuals manage their emotional responses to maintain stability. Detaching from work-related stressors can help teachers regain a sense of control, which is especially important in the unpredictable and emotionally complex environment of public education.

Theme 4: Renewed Sense of Purpose and Empathy

This theme reflects how teachers, through reflection and shared experiences, developed a stronger emotional connection not only with their fellow educators but also with the personal and social struggles of their students. As participants listened to and reflected on the stories of colleagues, they also gained a clearer picture of the difficult circumstances many learners face—poverty, family issues, lack of resources—which often explain behavioral or academic challenges in the classroom.

These are best described by the participants:

“Na ayon ako nga it usa nga teacher in kinahanglan maging usa nga ihimplo hin maupay nga pamatasa nga dako it bulig in terms ito pag-aradman hiton kabataan. Kumo usa nga teacher sakob hin 13 ka tuig, nagtatrabaho ako hin maupay bisan makuri an pagtinabok-tabok ngadto ha Divinubo Kay isla man hya didi ha Borongan. Nakadato ak pagtabok para la magtutdo han akon mga kabataan.” [I firmly believe that a teacher must serve as a good role model, especially in terms of attitude, because this significantly contributes to the learning and development of our youth. As a teacher for the past 13 years, I have continued to do my work diligently, despite the challenges—particularly the difficulty of traveling to Divinubo, an island barangay in Borongan. I often have to cross the sea just to be able to teach my students. Despite these hardships, I remain committed to my duty.](Participant 4, Line # 47- 52)

“Ha akon naman nga kabataan ha klase, usa beses, nagkamayda kabataan nga tutulo nga mayda special needs. Dida ko nasiring nga bisan hira nagdududrungan pagpasaway or naatakar an ira tantrums ako mas iniintindi talaga. Nag-expand ak han ako kahibaro pinaagi pagresearch hin barasahon kon mag-aano paak para ko magampanan ko an akon pagiging teacher kon nahandle ak ha ira.” [In my experience with my students, there was a time when I handled three children with special needs. Even though they would sometimes act out together or experience tantrums, I chose to be more understanding toward them. I also expanded my knowledge by researching reading materials and learning strategies on how to better fulfill my role as a teacher when dealing with learners who have special needs.](Participant 4, Line 322-327)

This deeper understanding nurtured a sense of empathy and reignited their passion for teaching. Rather than becoming discouraged, many teachers found a renewed reason to serve with patience, kindness, and greater purpose. As one participant aptly said:

“An naging epekto haak han kadamo la nga problema nga naabot hit aton panarabahuan, in mas nahing haluag or malawak an akon panhuna huna o pag-intindi han akon mga kabataan. Naging open-minded ako mas naiintindihan ko an mga sitwasyon han kada bata kay kinahanglan ko daman maindindihan gud kon nagtitikang diin or ko nano an ira gin-agihan kumo usa nga estudyante.” [The effect of the many challenges I’ve encountered in the workplace is that I have developed a broader perspective and deeper understanding of my students. I became more open-minded and empathetic, recognizing that each learner has a unique background and experiences that shape who they are. As a teacher, I realized that I must also understand where they are coming from and what they’ve been through in order to support their growth and learning effectively.](Participant 3, Line 133-138)

In recognizing these realities, teachers began to see their role not just as instructors of content, but as mentors and support systems. They found strength in the mission of teaching and were reminded that their work can be life-changing, especially for children who need not only knowledge, but compassion. This insight aligns with the findings of Day and Gu (2009), who emphasized that teachers who maintain a strong sense of moral purpose are more likely to stay resilient in the face of adversity. By understanding their students’ challenges more deeply, teachers felt more motivated to stay in the profession and to make a positive impact.

Theme 5: Embracing the Reality of the Nature of Work

This theme reflects how teachers have come to accept the inherent challenges and demands of their profession. For many educators, the job is not just about delivering lessons but involves juggling numerous responsibilities—managing student behavior, dealing with paperwork, preparing reports, and attending mandatory training sessions. Over time, teachers have learned that these aspects are not separate from teaching; they are part of the job that must be faced head-on.

For instance, many teachers shared that rather than focusing on how difficult their work can be, they’ve learned to embrace it as an integral part of their profession. Two participants deliberately explained this:

“Akon nala kinakarawat iton mga problema ngan challenges; mas kinukulawan ko nga ini nga sitwasyon nga naeexperience ko is para talaga it ha akon. Dapat karawton ngan permi may rason ko kay ano iton naeeksperensiyahan. Dara hit ak gin aagihan mas nahibabaro ak pag-atubang hin nga mga problema kay kaya ko talwason. “[I simply accept the challenges and problems that come my way. I look at every situation I experience as something that is truly meant for me. I believe that everything happens for a reason, and I need to accept that. Through these experiences, I am learning how to better face difficulties because I believe I have the strength to overcome them.](Participant 8, 211-215)

“Nakakaya ko an magdirudilain nga mga problem kay kinakarawat an kamtuoran, ungod talag nga may ada problema, ngan waray ko mahihimo kay nagkakaabot talag hira hiton aton trabaho ngan waray tana mahihimo hiton. Gagamiton kon ano aada nan ga mga gamit pagtutdo kuntra magproblema paak giton hiton nga tapat pa ig translate ha mother tongue.” [I cope with different stressors through accepting what is reality and letting reality be reality because I cannot do otherwise with them. I mean, I have to teach and use what is present or available in the classroom aside from contextualizing those that can be contextualized.](Participant 8, Line # 215- 220)

For many teachers, embracing the reality of their work is not only a matter of personal growth but also a practical decision. Several participants reflected that, while the job can be demanding and sometimes

discouraging, they had little choice but to accept these challenges because teaching remains one of the few stable job opportunities available. One teacher shared:

“Kon diri la bawo ak matatanggal may ada ko naiitsahan hin chalk pero kay naigol paman ako hiton akon trabaho asya hinahalaba ko nala talaga ak pisi, diri na ngani bawo it maaram kon pakain na it kahalaba pero maaram ak kakayanin ko in. Kay tinutuyuan ko man asya an ak sinulod nga trabaho. Asya la daman kasi in nga trabahao available ha aton komunidad nga medyo may chance nga makasulod nga ma-regular. Siring pa man, waray man naton choice – karawata nala.” [If not for the fear of losing my job, I would have thrown the chalk already. But because I am deeply committed to my work, I simply lengthen my patience—even if no one really knows how long that thread has become. Still, I know I can endure. This is the job I signed up for. After all, this is the only available work in our community that offers a fair chance of regularization. As they say, we don't always have a choice—so we just have to accept it.](Participant 8, Line # 256-262)

This perspective reveals that, for some, the acceptance of the demands of teaching is not just about passion or resilience but also about necessity. Teaching, despite its challenges, offers job security that many other fields might not, especially in rural areas or regions with limited job markets. As a result, teachers may feel that the only viable option is to adapt to the nature of the job, even if it means dealing with the frustrations of inadequate resources, heavy workloads, or difficult student behavior. This acceptance is not born out of indifference but out of necessity, making it even more significant that teachers find ways to manage the stresses of their profession while maintaining their dedication to their students.

Conclusions and Recommendations

In conclusion, the participants experienced occupational stress manifesting as physical exhaustion, emotional fatigue, and blurred boundaries between their personal and professional lives. These stressors led to decreased motivation, burnout, and an imbalanced work-life dynamic, significantly affecting their well-being and job performance. Teachers identified key sources of stress, including excessive bureaucratic demands, lack of institutional and technical support, and strained relationships with school leadership. They also noted that unrealistic expectations and minimal parental engagement intensified their emotional burden. To cope, participants turned to various strategies such as seeking social support, managing their time effectively, and engaging in spiritual or recreational activities—demonstrating both personal resilience and the strength of shared community values. Ultimately, their reflections highlighted emotional growth, increased empathy, and a deeper acceptance of the realities of teaching. They emphasized the importance of emotional resilience, maintaining

boundaries between work and personal life, and embracing their roles despite the challenges, reflecting a mature and reflective understanding of their profession.

Based on the findings, several recommendations are proposed to help alleviate occupational stress among teachers. First, administrative tasks should be streamlined and digitalized to reduce excessive paperwork, allowing educators to concentrate on their primary teaching responsibilities. Addressing the lack of resources and infrastructure is also essential; schools should be equipped with adequate materials, access to professional development programs, and support funds to meet classroom needs. Parental involvement must be strengthened through regular communication and workshops to ease the burden on teachers in managing both academic and behavioral issues. School leaders are encouraged to adopt a more empathetic and supportive leadership style to improve relationships with teachers and enhance workplace morale. Additionally, policies should be implemented that discourage bringing work home and promote healthy boundaries by encouraging teachers to disconnect during their personal time, thereby preventing burnout. Finally, schools should offer regular access to mental health services, such as counseling and stress management workshops, to support teachers in handling the emotional challenges of their profession.

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EXPLORING THE INTEGRATION OF 21ST CENTURY SKILLS IN THE PEDAGOGICAL APPROACHES AND ASSESSMENT STRATEGIES OF HIGHLY PROFICIENT TEACHERS

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Introduction

One of the major education reforms in the country has been the establishment of the Kto12 Basic Education Program. It introduces plans and projects aimed at improving and expanding the country's basic education delivery. It aims to equip Filipino students with the required knowledge, skills, and abilities to meet the challenges of the 21st century.

The enhanced basic education curriculum aims to produce holistically developed Filipinos with 21st Century skills (DepEd Order no. 21, 2019) through quality teachers who play a crucial role in building the nation (DepEd Order no. 42, 2017). To attain this, successful integration of 21st-century skills requires alignment in the pedagogy and assessment of teachers in the education system (Scoular, 2020).

The Department of Education (DepEd) introduced the 21st-century skills framework, and these skills are embedded in the several training and seminars conducted for the professional development of teachers. However, there are challenges faced by the teachers in integrating 21st-century skills into the education system, and one of them is for teachers to think of innovative ways of teaching (DepEd, 2019).

The use of problem-based learning and project-based learning as pedagogical learner-centered approaches are proven effective. These allow students to interact, work on real-world problems, and engage with the community. These methods are well-known and can be found in any textbook on pedagogical approaches. Teachers are aware of them and believe they are beneficial. On the other hand, teachers do not use them (Rotherham, 2019). Problem-based strategies which are 21st-century pedagogical approaches are rarely used by the teachers (Fernandez, 2018) it is because there is a lack of in-depth understanding of the skills, how to develop, and integrate into the teaching strategies that can support growth (Scoular, 2020).

During the Summit on Kto12 Basic Education in the New Normal of DepEd Regional Office VIII that showcased the best practices and strategies adopted and implemented in the delivery of the Kto12 basic education (Regional Memo no. 663, s. 2021), most of the innovations focused on the wider scope of education and none from the Schools Division Offices highlighted the pedagogical approaches that can

holistically develop learners with 21st-century skills (DepEd Order no. 21, 2019). This information supported one of the identified major challenges in Basic Education Sector Analysis (BESA), which is, the inadequate coverage of 21st-century skills in the curriculum that affects test performance results, presented during the Workshop on the Development of 2022 Annual Research Agenda (Office Memorandum no. 162, s. 2022).

An analysis of 21st-century skills integration as applied in the Philippines Kto12 program was commissioned by the United Nations Children's Fund (UNICEF) and DepEd to Australian Council for Educational Research (ACER). The study reveals that there is little evidence that 21st-century skills are currently prioritized in classroom practice in the Philippines. Because it is essential that teachers are familiarized not only with the nature of these skills but how they can be nurtured through different pedagogical strategies (Scoular, 2020).

With all of these, the proponent of this study would like to explore how 21st-century skills are integrated with the pedagogical approaches and the assessment strategies of highly proficient teachers in Technology and Livelihood Education (TLE). The teaching of TLE plays a very important role in the realization of the overarching goal of the curriculum which is to holistically develop learners with 21st-century skills who is adequately prepared for work, entrepreneurship, middle-level skills development, or higher education. Hence, whether the Kto12 graduate is skilled and ready for work, entrepreneurship, or middle skills development, still depends on the extent of effectiveness of the TLE teacher.

And for one reason why highly proficient teachers are the participants of the study. It is because based on the Philippine Professional Standards for Teachers (PPST) they display a high level of performance in teaching practice which is manifested in an in-depth and advanced understanding of the teaching and learning process (DepEd Order no. 42, 2017). To come up with a deeper understanding and analysis of data, these teachers will be observed on how they developed and applied effective teaching and assessment strategies that apparently promote critical and creative thinking, as well as other higher-order

thinking skills.

In exploring the pedagogical approaches and assessment strategies of the participants, the dimension of the 21st Century Learning Design (21CLD) will be utilized. Thus, collaboration, knowledge construction, self-regulation, real-world problem solving and innovation, skilled communication, and ICT for learning will be reviewed in the existing and potential classroom activities of the teachers.

This research may shed light on how 21st-century skills should be included in the educational system. It can also help the department achieve its aim by providing teachers with a precise approach to teaching, acquiring, and assessing 21st-century skills. This can help policymakers develop a 21st-century skills program or project that will guide teachers in the teaching of content and skills, as well as other researchers who want to learn more about pedagogy and learning assessment in the 21st century and contribute to the existing literature in the Philippine educational context.

Research Questions

The purpose of this study is to explore the integration of 21st-century skills in the pedagogical approaches and assessment strategies of highly proficient teachers in Technology and Livelihood Education (TLE) in the Department of Education Regional Office no. 8, this academic year of 2022.

Specifically, this study will examine these issues through the following research questions:

- What pedagogical approaches and assessment strategies are applied by highly proficient teachers in the teaching of Technology and Livelihood Education
- How are the 21st-century skills integrated with the pedagogical approaches and assessment strategies utilized by highly proficient teachers in Technology and Livelihood Education?

Methodology

This study utilized a sequential exploratory mixed methods design to investigate the integration of 21st-century skills in the pedagogical approaches and assessment strategies of highly proficient Technology and Livelihood Education (TLE) teachers. The research began with a qualitative phase aimed at exploring teaching practices and identifying emergent themes, followed by a quantitative phase designed to validate and support these findings through statistical analysis.

The participants in the qualitative phase included thirteen (13) highly proficient TLE teachers, each representing one of the thirteen Schools Division Offices (SDOs) in Region VIII. These teachers were purposively selected based on specific criteria: they must be Master's degree holders in their field of specialization (Home Economics, Agri-Fishery Arts, Industrial Arts, or Information and Communication Technology), have at least five years of experience as Master Teachers, and possess a National Certificate Level II in their area of expertise. From this group, four (4) teachers were further selected for classroom

observation to gain deeper insights into their instructional and assessment practices. For the quantitative phase, one hundred four (104) highly proficient TLE teachers were randomly selected across the 13 SDOs to participate in a survey developed from the qualitative findings.

Data gathering methods included semi-structured interviews, classroom observations, and document analysis. The interviews were designed to elicit detailed responses regarding pedagogical and assessment strategies, with follow-up questions used to deepen understanding. Classroom observations focused on the actual delivery of instruction and assessment, using tools adapted from the Australian Council for Educational Research (ACER) report. Additionally, lesson plans, instructional materials, learning activities, and test questionnaires were analyzed using the 21st Century Learning Design (21CLD) rubric to assess the integration of 21st-century skills. The quantitative survey instrument, derived from qualitative insights, underwent expert review, pilot testing, and reliability analysis using Cronbach's alpha to ensure its validity and internal consistency.

Ethical Considerations

Ethical standards were carefully observed throughout the conduct of this study to ensure the protection of participants and the integrity of the research process. Participation in the study was entirely voluntary, and informed consent was obtained from all respondents prior to data collection. Each participant was provided underdeveloped in Philippine classrooms due to a lack of pedagogical strategies that support inquiry-based learning. The integration level was rated as moderate, indicating potential for deeper integration if supported by appropriate instwith a written consent form outlining the purpose of the study, the procedures involved, and their rights, including the right to withdraw at any time without penalty. To safeguard the privacy and confidentiality of the participants, a pseudonymization method was employed, replacing identifying information with codes to ensure anonymity in data presentation and analysis. All data collected were used solely for research purposes and stored securely to prevent unauthorized access. Furthermore, proper citation and acknowledgment of all sources were strictly observed to uphold academic honesty and avoid plagiarism. The study adhered to the ethical guidelines set by the Department of Education and followed best practices in educational research ethics.

Results and Discussion

Pedagogical Approaches and Assessment Strategies Applied by Highly Proficient Teachers in the teaching of Technology and Livelihood Education (TLE) Highly proficient TLE teachers commonly apply learner-centered pedagogical approaches such as group work, project-based learning, and real-world tasks. These strategies are evident in lesson plans and

classroom observations, where students engage in activities like meal planning, composting, carpentry, and website design. However, while these approaches are aligned with 21st-century pedagogy, their implementation often lacks structured scaffolding to develop deeper skills such as collaboration, critical thinking, and problem-solving.

In terms of assessment strategies, teachers primarily use performance-based tasks, practical outputs, and oral presentations. Yet, the integration of rubrics and explicit assessment of 21st-century skills (e.g., collaboration, innovation, ICT use) remains inconsistent. This reflects the findings of Price et al. (2011), who emphasized the need for authentic assessment strategies that go beyond content recall and measure skill development.

The study supports Kalaian (2017) and Parwati et al. (2019) in recognizing the value of project-based learning in TLE. However, it also confirms the gap identified by Scoular (2020): while teachers use modern pedagogical formats, they often do so without the pedagogical depth required to intentionally teach and assess 21st-century skills.

21st-Century Skills Integration with the Pedagogical Approaches and Assessment Strategies utilized by Highly Proficient Teachers in Technology and Livelihood Education

The integration of 21st-century skills in TLE instruction is present but partial. Teachers demonstrate high awareness of the importance of skills such as collaboration, ICT literacy, and problem-solving, as validated by the survey results (Items 1–2, Mean $\approx$ 4.10, interpreted as High). However, the actual integration into teaching practices and assessments is moderate, with mean scores for pedagogical knowledge and assessment practices ranging from 3.20 to 3.35, interpreted as Moderate.

For example, collaboration is often implemented through group work, but lacks intentional teaching of subskills like negotiation, peer feedback, and shared accountability—echoing Scoular’s (2020) observation that collaboration is frequently assumed rather than taught. Similarly, critical thinking and problem-solving are embedded in tasks but are not explicitly scaffolded or assessed, reflecting the gap between activity design and skill development.

ICT integration is mostly limited to presentation and research, rather than innovation or analysis, which aligns with Microsoft (2022) and Scoular’s findings that ICT is used more for access than transformation. Teachers also expressed a strong need for professional development, sample lesson plans, and assessment tools to improve integration—highlighting the systemic gap in teacher support and capacity-building.

In summary, while TLE teachers apply pedagogical approaches that are conducive to 21st-century learning, the integration of these skills remains inconsistent and underdeveloped, requiring targeted interventions in training, curriculum design, and assessment reform.

Table 1
Integration of 21st Century Skills in TLE Lesson Plans

21st Century Skill	Where Found in Lesson Plan	How It Is Integrated	Integration Level
Collaboration	Learning Activities	Group work with assigned roles; limited peer feedback or negotiation	Moderate
Critical Thinking	Objectives, Assessment	Tasks require analysis; justification and evaluation not scaffolded	Low to Moderate
Problem Solving	Activities, Performance Tasks	Real-world tasks given; solution development often superficial	Moderate
ICT for Learning	Materials, Activities	Use of digital tools for presentation and research; limited for creation or analysis	Low to Moderate
Knowledge Construction	Objectives, Reflection	Some conceptual connections; limited synthesis or creation of new understanding	Low

Table 1 presents a content analysis of how key 21st century skills are embedded in the lesson plans of highly proficient TLE teachers. The table evaluates five core skills: collaboration, critical thinking, problem solving, ICT for learning, and knowledge construction, based on their presence in lesson components, the nature of their integration, and the depth of implementation.

General Content Analysis of TLE Lesson Plans

Collaboration was commonly found in the learning activities section of the lesson plans, where students were grouped to perform tasks such as meal planning, carpentry design, or ICT-based projects. While roles were assigned (e.g., leader, recorder), the integration of collaboration was largely superficial. Teachers often equated collaboration with group work, without intentionally developing subskills such as negotiation, peer feedback, or shared accountability. This reflects Scoular’s (2020) finding that collaboration is frequently present in classroom activities but is not explicitly taught or assessed. The integration level was rated as moderate, indicating that while collaboration is acknowledged, it lacks pedagogical depth and structured development.

Critical thinking appeared in the objectives and assessment sections of the lesson plans, typically through tasks requiring analysis—such as comparing nutritional values or evaluating design options. However, deeper cognitive processes like justification of answers, evaluation of alternatives, and identification of bias were rarely scaffolded. This supports Scoular’s observation that critical thinking is the most cited 21st-century skill in curriculum documents but is the least observed in actual classroom practice. The integration level was assessed as low to moderate, suggesting that while teachers recognize the importance of critical thinking, they need more support in designing activities that foster higher-order thinking.

Problem solving and innovation were integrated through performance tasks and real-world activities, such as soil improvement projects or business website design. These tasks were authentic and relevant, but the process of developing and evaluating solutions was often superficial or teacher-directed. Students were not consistently guided through structured

inquiry or iterative problem-solving cycles. This aligns with Scoular’s conclusion that problem-solving is underdeveloped in Philippine classrooms due to a lack of pedagogical strategies that support inquiry-based learning. The integration level was rated as moderate, indicating potential for deeper integration if supported by appropriate instructional design.

ICT for Learning through ICT tools were used primarily for presentation and research, such as PowerPoint, web browsers, and basic design software. However, ICT was often used as a substitute for traditional tools rather than as a means to transform learning. For example, digital presentations replaced manila paper outputs, but the content and instructional approach remained unchanged. This reflects Scoular’s finding that ICT is commonly used for access rather than for deeper learning or innovation. The integration level was assessed as low to moderate, highlighting the need for professional development in using ICT to support creativity, analysis, and collaboration.

Knowledge construction was minimally integrated and appeared mostly in the objectives and reflection sections of lesson plans. Some lessons encouraged students to connect concepts—such as linking entrepreneurship with ICT—but few required synthesis or the creation of new understanding. This is consistent with Scoular’s findings that knowledge construction is rarely emphasized in lesson design and is often overshadowed by content delivery. The integration level was rated as low, indicating a significant gap in fostering deeper learning and conceptual development among students.

Emergent Themes from Interview Responses

These themes reflect the gap between awareness and application, consistent with Scoular’s (2020) findings that teachers often recognize the value of 21st-century skills but lack the pedagogical strategies and assessment tools to integrate them effectively.

Table 2 presents the emergent themes which are the key insights derived from qualitative interviews with highly proficient TLE teachers in Region VIII. These themes reflect the underlying challenges, perceptions, and instructional realities faced by educators in integrating 21st-century skills into their pedagogical and assessment practices. The analysis highlights gaps between conceptual awareness and classroom application, revealing areas where support and capacity-building are most needed to strengthen skill-based teaching in the K to 12 curriculum.

Conceptual Awareness of 21st Century Skills

The respondents demonstrated a general awareness of 21st-century skills, often listing them as collaboration, communication, ICT, and problem-solving. However, their understanding remained surface-level, lacking depth in how these skills are developed and assessed. This aligns with Ryymin (2017), who emphasized that 21st-century pedagogy requires not just awareness but a shift in teaching practices that foster lifelong learning and adaptability. The study by Scoular (2020) revealed that while teachers in the Philippines are familiar with the terminology, there is little evidence of these skills being prioritized or explicitly taught in classroom practice. This theme highlights the gap between awareness and pedagogical application, suggesting a need for deeper conceptual training.

Limited Pedagogical Knowledge for Integration

Teachers admitted difficulty in intentionally embedding 21st-century skills into their lessons. While they could identify opportunities for collaboration or critical thinking, they lacked structured strategies to scaffold these skills. This reflects Kim et al. (2019), who argued that improving teaching skills is key to developing effective 21st-century learners. The lack of pedagogical depth was also noted by Scoular (2020), who found that teachers often do not know how to nurture these skills through targeted instruction. This theme underscores the gap in professional capacity, where teachers need support not just in knowing what the skills are, but in how to teach them effectively.

Surface-Level Implementation of Skills

Many respondents described activities that involved group work or real-world tasks, but these were often unstructured and lacked intentional teaching of subskills like negotiation, reflection, or peer feedback. This supports Kalaian (2017), who emphasized that 21st-century pedagogies must go beyond traditional instruction and involve student-driven, collaborative learning. Scoular’s analysis similarly found that while collaboration was frequently observed, it was rarely structured to develop deeper collaborative competencies. This theme reveals a gap in instructional design, where activities may appear modern but fail to cultivate the intended skills due to lack of depth and intentionality. Need for Professional Development and Resources

Respondents consistently expressed the need for training, sample lesson plans, and assessment tools to better integrate and evaluate 21st-century skills. This aligns with Microsoft (2022), which advocates for the use of the 21CLD framework to guide teachers in constructing enriched learning activities. The study’s findings echo Scoular’s recommendation that capacity-building initiatives must focus on practical, classroom-level strategies. This theme highlights the gap in support systems, where teachers are willing but under-equipped to implement 21st-century learning effectively.

Table 2
Emergent Themes

Theme	Formulated Meaning
Conceptual Awareness of 21st Century Skills	Teachers are aware of the importance of 21st-century skills such as collaboration, ICT, and critical thinking, but often define them in general terms.
Limited Pedagogical Knowledge for Integration	Teachers struggle with how to intentionally teach and scaffold 21st-century skills within lessons.
Surface-Level Implementation of Skills	Integration of 21st-century skills is often incidental or embedded in activities without structured development or assessment.
Need for Professional Development and Resources	Teachers express a strong need for training, sample lesson plans, and assessment tools to effectively integrate and evaluate 21st-century skills.
Recognition of Real-World Relevance	Teachers value real-world applications and project-based learning as effective contexts for skill development.
Inconsistent Assessment of 21st Century Skills	Teachers acknowledge the difficulty of assessing skills like collaboration and critical thinking due to lack of clear tools.



Recognition of Real-World Relevance

Teachers valued real-world applications and project-based learning as effective contexts for skill development. This is consistent with Parwati et al. (2019), who found that project-based learning enhances critical thinking and authentic assessment. However, as Scoular (2020) noted, while real-world tasks are present, they often lack the structured problem-solving and reflection needed to fully develop 21st-century competencies. This theme reflects a gap in curriculum alignment, where real-world relevance is acknowledged but not fully leveraged to build transferable skills.

Inconsistent Assessment of 21st Century Skills

Respondents acknowledged the challenge of assessing skills like collaboration and critical thinking due to the absence of clear rubrics or tools. This supports Price et al. (2011), who proposed performance-based assessments, portfolios, and peer evaluations as effective strategies for 21st-century learning environments. Scoular’s study emphasized that without explicit learning outcomes and assessment criteria, these skills remain invisible in classroom practice. This theme reveals a gap in assessment literacy, where teachers need guidance on how to measure and report skill development meaningfully.

21st Century Skills Integration in the TLE Instruction: A Validation of Qualitative Findings

Table 3 presents the Summary of 21st Century Skills Integration in the TLE Instruction and reveal a nuanced understanding of how highly proficient TLE teachers in Region VIII engage with 21st-century skills. The data shows high levels of conceptual awareness (Mean = 4.07), professional development needs (Mean = 4.08), and real-world relevance (Mean = 3.88), indicating that teachers recognize the importance of these skills and value their application in authentic learning contexts. However, pedagogical knowledge (Mean = 3.25), implementation practices (Mean = 3.02), and assessment practices (Mean = 3.28) were rated only moderate, suggesting that while teachers understand the significance of 21st century skills, they face challenges in effectively integrating them into instruction and evaluation.



Table 3
Summary of 21st Century Skills Integration in the TLE Instruction

Item	Mean Score	Standard Deviation	Interpretatio
Conceptual Awareness			
Awareness of 21st-century skills	4.10	0.94	High
Importance of integration	4.05	1.18	High
Total	4.07	0.04	High
Pedagogical Knowledge			
Teaching collaboration intentionally	3.25	1.09	Moderate
Designing critical thinking activities	3.30	1.00	Moderate
Confidence in integration	3.20	0.94	Moderate
Total	3.25	0.05	Moderate
Implementation Practices			
Use of collaborative group activities	3.10	1.14	Moderate
Use of real-world problem solving	2.95	1.09	Moderate
Meaningful ICT integration	3.00	1.06	Moderate
Total	3.02	0.08	Moderate
Professional Development Needs			
Need for training	4.15	1.17	High
Need for sample lesson plans	4.00	1.14	High
Total	4.08	0.11	High
Real-World Relevance			
Real-world relevance in lessons	3.90	0.95	High
Value of project-based learning	3.85	0.99	High
Total	3.88	0.08	High
Assessment Practices			
Assessment of collaboration/problem-solving	3.35	0.97	Moderate
Use of rubrics for 21st-century skills	3.20	1.12	Moderate
Inclusion in objectives and assessments	3.25	0.91	Moderate
Total	3.28	0.08	Moderate
Overall	3.60	0.07	High

1.00–1.80 = Very Low

1.81–2.60 = Low

2.61–3.40 = Moderate

3.41–4.20 = High

4.21–5.00 = Very High

Conclusions and Recommendations

Conclusions

1. Pedagogical Approaches Used by Highly Proficient TLE Teachers
- Highly proficient teachers are aware of 21st-century pedagogical approaches such as project-based learning, problem-based learning, and collaborative learning.
 - However, actual classroom implementation is limited. Teachers often revert to traditional methods, and digital tools are used superficially without enhancing instructional design.
2. Integration of 21st Century Skills
- The integration of 21st-century skills—critical thinking, collaboration, ICT for learning, and real-world problem solving—is not explicitly embedded in lesson plans or assessment tools.
 - Teachers often misinterpret collaboration as mere group work and do not intentionally teach critical thinking or problem-solving skills.
 - There is a lack of structured frameworks guiding teachers on how to embed these skills effectively in both pedagogy and assessment.

Recommendations

1. For Policy

- Adopt the 21st Century Learning Design (21CLD) rubric as a standard tool for lesson planning, instructional material development, and assessment validation across all TLE specializations.
- Update DepEd policies to require the use of performance-based, portfolio, and project-based assessments that align with 21st-century learning outcomes.
- Fund and promote action research among teachers to continuously evaluate and improve their integration of 21st-century skills.

2. For Practice

- Conduct intensive training workshops and short courses for teachers focused on: designing lessons with embedded 21st-century skills, using ICT meaningfully in instruction, and applying authentic assessment strategies.
- Encourage peer mentoring and Learning Action Cell (LAC) sessions to share best practices and co-develop enriched learning activities.
- Implement structured classroom observation tools adapted from ACER to monitor and support teachers in integrating 21st-century skills.

3. For Further Research

- Investigate how 21st-century skills are integrated across different TLE components (HE, AFA, IA, ICT) to identify specialization-specific challenges and solutions.
- Assess the long-term impact of 21st-century skill integration on student outcomes such as employability, entrepreneurial success, and higher education readiness.
- Develop and validate contextualized instruments for measuring 21st-century skill integration in Philippine classrooms.

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MULTI-MENTOR READING ACCELERATION PROGRAM (MRAP)

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Schools Division of Tacloban City

“Innovation: First Best Paper”

Rationale

Reading is an indispensable foundational skill that impacts a learner’s academic success and lifelong learning capabilities. However, a number of slow readers are struggling for the reason that their individual learning needs are not addressed considering that teaching is delivered in general regardless of the students’ differences in terms of personal background, learning style, capabilities and several other factors that hamper reading proficiency.

Individualized or personalized teaching is one of the most effective techniques for speeding up improvement in reading since it facilitates instruction considering the learner’s own pace, interests, knowledge and skills.

The Multi-Mentor Reading Acceleration Program is an innovation crafted for full implementation to specifically address the aforementioned gap in reading through multiple tutors which involves the Teacher-Adviser or Literacy Coordinator, peers, classmates or school mates who are achievers and independent readers, parents, and technological tools for a holistic and personalized learning.

Ultimately, this program not only accelerates reading progress but also equips learners with the skills and confidence they need for success in all areas of life.

Objectives

- 1.To teach the reader individually according to his/her own pace.
- 2.To accelerate the progress or improvement of the slow reader in reading and reach the target reading level.
- 3.To achieve the reader’s level with less hassle among the mentors considering their schedule and tasks assigned

Significance

The project benefits the students, teachers, parents, and the wider school community. The students can benefit from this innovation in a way that their reading level will be specifically identified for them to receive reading materials appropriate for their level. The teachers can benefit from this by easily identifying and understanding the students’ actual reading level. They can easily prepare the reading materials appropriate for the learners for effective

teaching-learning to happen. Also, through this innovation, awareness in terms of individual differences in terms of learning can be more understood and accepted for a more considerate treatment among varied students or learners.

For the parents, they would be able to assist and support their children better by helping the teachers monitor the progress of their children’s learning, specifically in reading. For the community, progress can be achieved because more students will become literate and functional in the community where they are residing. They will be more of assets of the community than liabilities.

Theoretical Support:

This innovation is anchored on the following theories:

Science of Reading: The widely accepted theory is that reading is not an innate skill and must be explicitly taught — a central principle of the Science of Reading. This is supported by cognitive scientists such as Stanislas Dehaene and Mark Seidenberg. It states that children do not learn to read naturally, the way they learn to speak. Instead, reading must be taught explicitly, especially through systematic instruction in phonemic awareness and phonics.

- Behaviorist Theory of Reading – emphasizes direct, explicit teaching.
- Bottom-Up Theory of Reading – stresses teaching the smallest units of print (letters, sounds) first.
- Individual Differences- this theory suggests that people vary in their characteristics, traits and abilities, influencing their behavior, performance and interactions.

Inclusive education is grounded in the Social Model of Disability, which states that learners are disabled not by their impairments but by barriers in the environment. Therefore, schools must remove physical, instructional, and attitudinal barriers so that all children can learn together. It is also supported by Human Rights Theory, Constructivist Theory, and Universal Design for Learning.

Procedure

The implementation of this innovation has undergone three major phases including phase 1 that considered pre-assessment, orientation and counselling; phase 2 was the delivery of the lessons and phase 3 was the post test.

Key Features:

- Phase 1: Phil-IRI analysis of results and pre-test in reading to assess reading level of the participants have been administered. Orientation and counselling the target participants and parents were administered to prepare the participants for the program.
- Phase 2: This phase focused on the delivery of the following stages of reading: Foundational Competencies: Phonemic Awareness, Alphabet Knowledge, Print awareness, Decoding, Sight word recognition; & Early Reading Competencies : Fluency, Vocabulary, Comprehension, Inferencing, Text Structure
- Phase 3: The last stage was the post test in reading, monitoring and assessment of the participants' progress.

Persons Involved:

The project involved the School Head with the School Management Team, the Literacy Coordinators both in the junior and senior high, the Class Advisers, the parents, the mentors, mentees and the different stakeholders as support system.

Locale:

All activities were conducted within Northern Tacloban City National High School.

Resources and Cost:

Less amount was incurred during the implementation for the purchase of additional materials such as printed copies of the contents and activities in the different reading stages, flashcards and meta strips which were taken from the personal account of the proponent.

Methods for Gathering Information

Numerical and observational data were both considered to ensure more reliable and valid results. Specifically, assessment and meta analysis from the pre-test and post test results of the Phil-IRI and the reading test (that have undergone validation from reading experts) provided by the proponent were utilized to measure the significant gains of the reading progress of the participants. Observation notes were also applied by the proponent to check and monitor the progress of the participants.

Impact and Results

Impact on Students:

The participants had significant progress in the student-participants' reading performance as observed by the implementers and as revealed in the

Phil-IRI results. The specific improvement was the greater number of correct words read in fewer seconds or minutes. The innovation material was effective in identifying the reading level not just in the grade level they were in but in their actual reading level regardless of their age because the materials can zero in the reading level of the participant which means the material begins with identifying sounds to comprehension which makes it applicable to all grade levels—from pre-elem to senior high school. Also, it was effective in improving the reading performance of the participants in a fewer period of time.

Impact on Teachers and Personnel:

The innovation made it possible to detect reading delays, decoding problems, comprehension gaps, and developmental challenges at such stage. Early identification allowed teachers and parents to provide timely interventions, preventing the learner from falling further behind. Its ability to identify a special case among the participants of the reading program is a great impact. It was found out during the implementation of the innovation that one of the participants had severe developmental delays or disabilities, due to being born prematurely at 7 months (about 28 weeks gestation). It is a condition that is known to increase the risk of developmental disorders in several aspects which could have been the major reason for struggling in reading. With such case, there was a slight improvement in the performance of the participant because of the consistent tutorial or mentoring. The findings are relevant enough for awareness of inclusive education in order to cater every learner. The realization of this case is the fact that if it would have been identified early on, the participant would have been helped at an early age when she could have had greater progress and development. Mainstreaming is practised in every school; however, the case of the participant seemed that she was not ready for mainstreaming and should have undergone special attention or close monitoring by consulting a specialist who could have helped her more through therapy sessions. This may just be one case in this instance, but must be taken into consideration to avoid the same situation in the future. In general, the innovation material was able to identify the level of each participant as a whole and was able to start progressing from the identified level.

Impact on the Community:

Parents received clearer information about their child's reading ability and developmental needs. This encouraged greater parental involvement and collaboration with teachers, strengthening the school-home partnership.

Because reading challenges were scientifically identified rather than assumed, children with learning difficulties—especially those linked to premature birth—were understood with empathy rather than judgment. This promoted a more inclusive, supportive community.

Reflections and Recommendations:

The innovation has revealed commendable results in terms of reading progress and its ability to assess learning developmental needs among the participants. With such notions, it is highly recommended to organize a School Learning Action Cell entitled "Empowering Every Educator: Assessing & Addressing Reading Barriers in Inclusive Classrooms" with the purpose to disseminate the findings of the implementation of the innovation materials and to share the materials for all Class Advisers to be utilized. The activity should accommodate resource speakers who have backgrounds in special education to equip the teachers in recognizing learners with special needs and how to deal with them. In addition, integrating reading across all subjects should also be part of the talk by one of the resource persons. This concept is anchored on the idea that all teachers are reading teachers and that the identified national crisis on learning loss which is highly attributed to reading cannot be addressed by one person only but by all members of the educational system.



STREAMLINING SF9 THROUGH PROJECT ABEL: AUTOMATING BASIC EDUCATION LEARNER-FORMS

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Schools Division of Tacloban City

“Innovation: Second Best Paper & Third Best Presenter”

Rationale

Preparing School Form 9 (SF9) has long been done manually in many public schools, resulting in slow processing, human errors, and additional workload for teacher-advisers, especially during grading periods. In Guadalupe Heights Integrated School – SHS Department, advisers often spent days computing grades, encoding learner information, and formatting printed report cards. These recurring issues highlighted the need for a system that minimizes manual work while ensuring accuracy and uniformity of student records. Project ABEL responds to this need by automating key processes, simplifying data handling, and improving the overall workflow for teachers.

Objectives and Significance

The innovation aims to: (1) reduce preparation time for SF9; (2) eliminate computation and encoding errors; (3) standardize data presentation and formatting; and (4) produce ready-to-print form outputs efficiently. Its significance lies in easing administrative tasks and strengthening compliance with reporting requirements. The innovation allows teachers to allocate more time for instructional planning, assessment, and learner support rather than paperwork. By ensuring accurate and standardized records, Project ABEL also contributes to systematic school record management and sets a foundation for expanding automation into other school forms, demonstrating sustainability and replicability within and beyond the institution.

Procedure

Key Features of the Innovation

Project ABEL focused on the full automation of School Form 9 (SF9) using an Excel-based system with embedded formulas, macros, dropdown lists, and error detection tools. The system allowed teacher-advisers to automatically compute grades, consolidate learner information, and generate ready-to-print SF9 outputs, significantly reducing manual encoding and minimizing errors. Iterative testing and revisions ensured accuracy, ease of use, and alignment with school reporting requirements.

Persons Involved and Locale

The project was implemented at Guadalupe Heights Integrated School – Senior High School Department. Key participants included the ICT Coordinator as the lead proponent and developer, teacher-advisers handling Grades 11 and 12 as primary users, and the school head who provided oversight, validation, and guidance during implementation.

Resources Used and Cost

Resources utilized included Microsoft Excel, institutional computers, and printing materials. The main laptop (₱42,000) and external hard drive for storage were personally owned by the lead proponent, while a printer worth ₱6,000 was also personally owned, resulting in minimal cost to the school. Additional expenses included:

- ₱3,000 for user manuals and training guides
- ₱300 for dry-run printouts to ensure proper formatting
- ₱5,000 for miscellaneous materials such as USB drives and folders

Bond paper costs were covered through the school's MOOE. While the total estimated value of resources reached ₱56,300, the actual cost to the school was minimal due to personal contributions from the lead proponent.

Methods of Gathering Information and Sources

Data collection involved direct observation of teacher-adviser performance during grading periods, monitoring error occurrences, and documenting time spent on SF9 preparation before and after automation. A structured survey was administered to measure satisfaction, perceived efficiency, usability, and reduction in errors.

Primary sources included survey responses, actual test outputs, and feedback from teacher-advisers during consultations. Secondary sources included DepEd grading guidelines, sample SF9 templates, and existing school records. These data sources guided iterative refinements to ensure the innovation was accurate, practical, and aligned with institutional reporting standards.

Impact and Results

Results of Implementation

Project ABEL significantly enhanced the preparation of School Form 9 (SF9) at Guadalupe Heights Integrated School – SHS Department. Processing time for each class section decreased from 2–3 days to just a few minutes, while errors in grade computation and record encoding were greatly minimized. Teacher-advisers reported higher confidence in the accuracy and consistency of outputs, and the system consistently generated ready-to-print SF9 forms with minimal manual adjustments.

Impact on Personnel, Learners, and School

The innovation reduced clerical workload for teacher-advisers, allowing them to dedicate more time to instructional planning and learner engagement. Students benefited indirectly from faster and more accurate report generation, ensuring timely feedback on academic performance. Administratively, the school observed improved compliance with DepEd reporting standards and better access to organized learner records, which strengthened monitoring, evaluation, and decision-making processes.

Reflections

The lead proponent noted that automation not only increased efficiency but also boosted teacher confidence in using technology for administrative tasks. The project emphasized the importance of iterative testing, user feedback, and targeted training to ensure smooth adoption and sustained use of the system.

Recommendations

To further enhance and scale the innovation:

- **Expand to Other Forms:** Adapt the system for SF1, SF2, SF10, and elementary report cards to broaden its impact.
- **Roll Out to Other Grade Levels:** Implement the system in Junior High School and other departments.
- **Create a Standardized Template:** Develop a unified version that any school can easily adopt and customize.
- **Develop an Online Portal:** Integrate the system into a web-based platform for real-time grade access for teachers, students, and parents.
- **Strengthen Training Programs:** Provide short training modules or video tutorials for faster onboarding.
- **Improve Device Compatibility:** Optimize macros for smoother performance on low-spec laptops.
- **Add Automated Backups:** Include auto-save and backup features to protect data.
- **Gather Continued Feedback:** Conduct regular evaluations to refine the system based on user experience.



CUSTOMER SATISFACTION MEASUREMENT CERTIFICATE OF APPEARANCE AND REFERRAL ENHANCED SYSTEM (PROJECT CSM-CARES)

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Floramay Q Bacus, PDO II – PAU
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Queennielyn C. Yu, Admin. Assistant II

“Innovation: Third Best Paper & Second Best Presenter”

Project Summary

The Department of Education Regional Office VIII (DepEd RO VIII) is committed to upholding the principles of transparency, accountability, and client satisfaction in its public service delivery. In compliance with Republic Act 9485, known as the Anti-Red Tape Act (ARTA) of 2007, DepEd RO VIII has launched Project CSM-CARES (Client Satisfaction Measurement - Certificate of Appearance and Referral Enhanced System).

This innovative project aims to streamline service delivery, provide both internal and external clients with efficient access to DepEd services, and promote transparency and accountability through a well-structured feedback mechanism.

This innovation paper outlines the key objectives, features, and expected outcomes of Project CSM-CARES and emphasizes its importance in improving the quality of public service offered by DepEd RO VIII.

The proponents developed a system to facilitate feedback management within the Office. The system will utilize available Google Forms to collect customer feedback, consolidate results, and generate a Certificate of Appearance immediately after clients have accessed the services. The CSM-CARES will be managed by the Public Affairs Unit (PAU) and the Information and Communications Technology Unit (ICTU) of the Office of the Regional Director.

Project CSM-CARES is an innovation because it introduces a new and more efficient way of integrating client feedback, service documentation, and transparency mechanisms into the daily operations of DepEd Regional Office VIII—something that was previously fragmented, manual, or non-existent in this streamlined form.

The innovation had improved the Office’s operations in several dimensions:

- It transforms compliance into proactive service improvement. While Republic Act 9485 (ARTA) mandates client feedback, CSM-CARES goes beyond mere compliance. It digitally integrates

the Client Satisfaction Measurement process with the issuance of Certificates of Appearance and referrals, turning a regulatory requirement into a real-time service enhancement tool.

- It merges multiple processes into one seamless system. Before CSM- CARES, these steps were likely separate: a. Filling out client satisfaction forms; b. Manually consolidating feedback results; and c. Issuing Certificates of Appearance or referrals. With CSM-CARES, all these are automated and connected in a single workflow, reducing client waiting time and staff workload while ensuring accuracy and traceability.
- It cost-effectively leveraged readily available technology. The use of Google Forms, existing ICT infrastructure, and a designated feedback station demonstrates frugal innovation—maximizing existing tools to achieve a significant improvement without requiring expensive custom software. This approach also ensures scalability and ease of replication in other DepEd offices.
- It creates a closed-loop feedback and accountability mechanism. Through CSM-CARES:

1. PAU gathers and communicates results and initiates corrective actions.
 2. ICTU ensures the system remains functional and improves over time. This ensures that client feedback is not just collected, but acted upon—turning data into decisions and service improvements.
- It enhances transparency and builds trust with stakeholders. Since 2023, the Office has been implementing an innovation known as CSM-CARES—the Customer Satisfaction Measurement – Certificate of Appearance and Referral Enhanced System.

Through CSM-CARES, feedback from clients—both internal and external—is collected digitally using a user-friendly platform. Clients can easily provide their comments and rate the services they have received. Immediately after completing the form, the system generates a Certificate of Appearance, streamlining the process for service documentation.

All feedback is reviewed and processed by the Public Affairs Unit. Positive comments inspire everyone to sustain their efforts, while negative feedback is given immediate attention by top management. This way, concerns are addressed promptly and effectively.

The CSM-CARES is not just a compliance tool—it is an essential part of the Office’s Quality Management System. The timely collection and analysis of feedback have guided the Office in implementing corrective actions, enhancing service processes, and ensuring continuous improvement.

The results speak for themselves. Since its implementation, more and more clients have expressed satisfaction with the services of DepEd RO VIII. This is reflected in the Office’s overall annual outstanding rating in customer satisfaction.

The goal is not only to sustain the CSM-CARES system but to keep enhancing it—making it faster, more efficient, and more responsive to the needs of our stakeholders.”

With CSM-CARES, DepEd Region VIII has proven that listening to clients and acting on their feedback is the key to excellent public service. As the Office moves forward, this innovation will continue to be a driving force in delivering *Serbisyong Mabilis, Maayos, at Matapat para sa Edukasyon*—making Region 8 truly GREAT.



EDU-MAP: DIVISION'S TOOL FOR STRATEGIC PLANNING AND MANAGEMENT

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SGOD – Planning and Research Section
Schools Division of Calbayog City

“Innovation: First Best Presenter”

Project Summary

“When thousands of pages, weeks of manual work, and substantial costs are reduced to seconds through a script, governance fundamentally changes.”

Anchored on the Department of Education’s mandate for strategic planning and evidence-based decision-making, the Schools Governance and Operations Division (SGOD) – Planning and Research Section (PRS) is tasked with transforming vast amounts of school-level data into decision-ready intelligence that informs policy, planning, and partnerships. Despite the availability of data, timely and meaningful utilization has long been constrained by fragmented sources, manual workflows, delayed analysis, and high exposure to human error. One of the most persistent and costly consequences of this gap in data utilization is inequitable resource allocation, particularly classroom shortage or overcrowding—a condition that forces shifting schedules, strains existing infrastructure, and repeatedly triggers requests for additional school buildings. A critical root cause identified by the Division is the enrolment of learners outside their designated catchment barangays, a pattern influenced by accessibility, perceived school quality, and transport availability. While local initiatives such as the Local Government Unit’s *Libreng Sakay* program were introduced as an initial mitigation strategy, the absence of consolidated and analyzable learner location data limited its optimization. Although School Form 1 (SF1) contains detailed learner-level information—including home address—SF1 alone does not indicate whether a learner belongs to a school’s official catchment area. Identifying out-of-catchment enrolment patterns therefore required labor-intensive, manual comparison between SF1 records and separate catchment references, rendering the data impractical for timely decision-making.

In School Year 2025–2026 alone, the Schools Division of Calbayog City served 48,760 learners across 174 public schools and 6 private schools. At an average of three SF1 pages per 40 learners, manual processing required handling at least 3,657 pages—equivalent to over seven reams of paper under ideal, error-free conditions. In practice, resubmissions, corrections, and incomplete entries extended processing from several days to multiple weeks,

costing a minimum of ₱2,450 per cycle in printing alone and consuming the limited time of only two PRS personnel, who were consequently diverted from higher-value analytical and planning work.

To address this systemic bottleneck, the proponent developed EDU-MAP (Education Data Utilization for Mapping and Planning)—a zero-cost, in-house innovation with clear, quantifiable objectives: to reduce SF1 processing time to under five minutes per school, identify 100% of out-of-catchment learners accurately, generate real-time visualized enrollment patterns, reduce paper usage by at least 95%, reallocate PRS personnel time from manual validation to analytical tasks, and provide timely enrolment reports to the LGU within one day of submission. EDU-MAP achieves these objectives by automatically cross-referencing SF1 learner data with validated school catchment barangay datasets, producing dashboards and enrollment maps that were previously impossible to generate at scale.

Built using Google Apps Script, EDU-MAP processes SF1-based datasets in seconds: 3.23 seconds for 50 learners and processing the largest school dataset of over 2,000 learners in just 196.22 seconds. What previously demanded weeks or even months of manual validation and cross-checking is now completed almost instantly—paperless, accurate, and immediately accessible to schools, district supervisors, Division decision-makers, and other stakeholders.

Beyond speed and cost savings, EDU-MAP fundamentally repositions personnel time—from clerical validation and manual comparison to analytical, strategic, and advisory functions, aligning strongly with DepEd’s thrust on digital transformation, sustainability, and responsive governance.

With strong support from the Schools Division Superintendent, the project began with a presentation of a streamlined process flow during a Management Committee meeting, followed by Division-wide validation of school catchment barangays and SF1 data submission involving all 174 public schools. Early prototyping using Microsoft Power Automate was discontinued after testing revealed that it required seven minutes to process only 50 learners—equivalent to over 110 hours for Division-wide data.

The strategic shift to Google Apps Script enabled EDU-MAP to be developed entirely in-house at zero financial cost, using existing hardware, platforms, and staff expertise. From needs assessment to full Division rollout, EDU-MAP was completed in two weeks, with illustrated user guides disseminated through official Division communication channels and a real-time submission and validation tracker ensuring transparency and accountability. Continuous user feedback informed rapid refinements, resulting in a tool that is intuitive, adaptive, and field-ready.

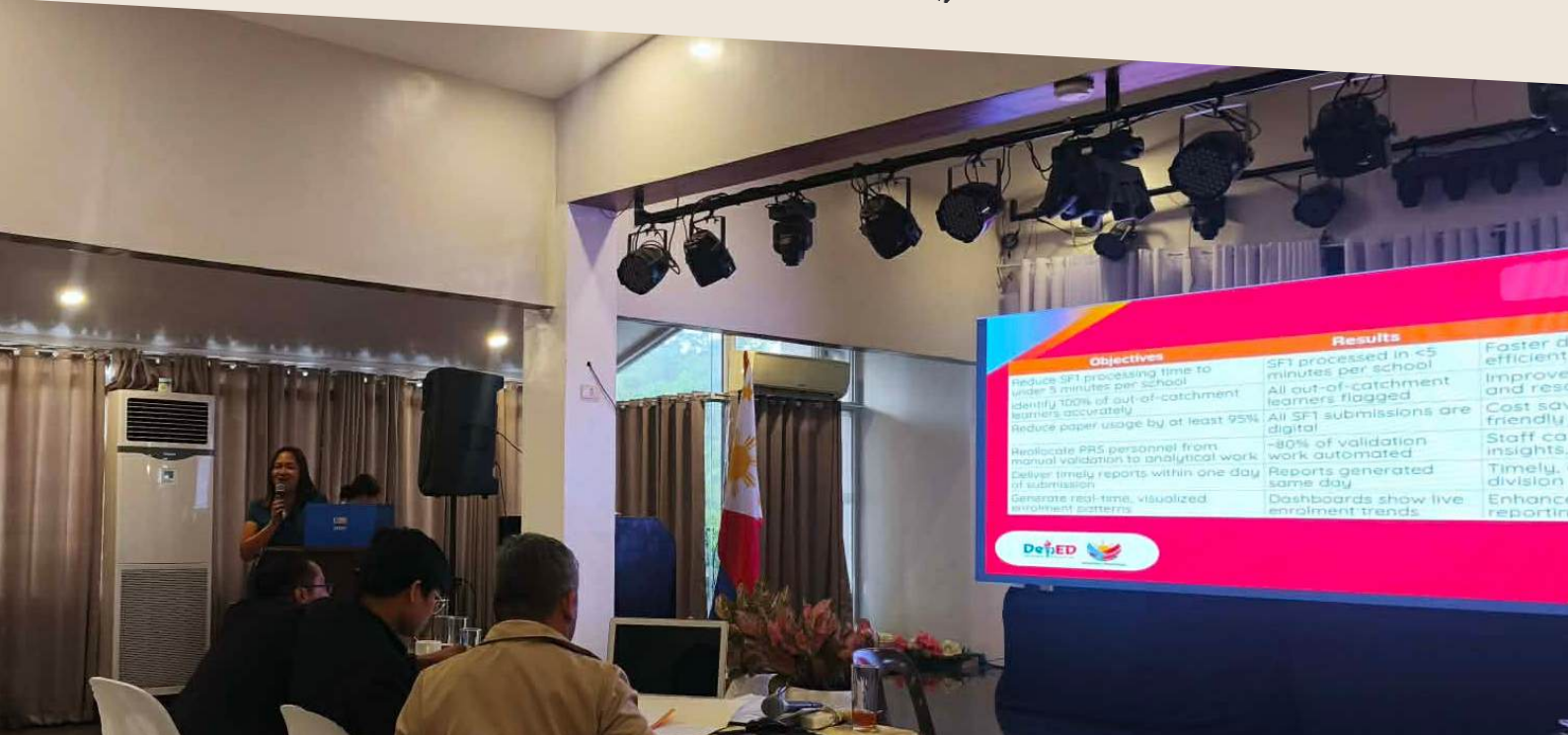
The results were transformative, demonstrating full achievement of all objectives. EDU-MAP processed 31,708 learner records from 162 schools without requiring PRS staff to perform manual validation or catchment comparisons. Paper usage dropped to zero, achieving the targeted 95% reduction, while processing time improved by over 95%, exceeding the objective of under five minutes per school—processing the largest dataset of more than 2,000 learners in just 196.22 seconds. Out-of-catchment learners were identified with 100% accuracy, and visualized dashboards and enrolment maps were delivered in real time. PRS personnel were successfully reallocated to higher-value analytical tasks, achieving approximately 80% time savings. LGU and other stakeholders received timely reports within a day, enabling data-driven decisions regarding classroom construction, teacher deployment, transport coordination, and potential partnership opportunities.

More importantly, EDU-MAP elevated the Division’s analytical capacity. It did not merely identify where learners were enrolled—but why enrolment patterns existed, providing concrete evidence to justify school site expansion, refine catchment policies, enhance Libreng Sakay routing, and correct inequities in resource distribution. For the first time, the Division possessed actionable, visualized, and validated data to support proactive planning rather than reactive problem-solving.

Looking ahead, the Division plans to develop an interactive dashboard for easy data reference and expand EDU-MAP to process additional datasets, including other School Forms (SFs), Learner Information System (LIS) reports, and relevant data from the Central

Office such as dropout statistics. The tool will also integrate Geographic Information System (GIS) functionality for advanced spatial analysis, enabling deeper insights into learner distribution and school planning. Institutionalization through a Division Memorandum and integration into the Division website will ensure the sustainability of EDU-MAP, while regular data briefings with the personnel, LGU, and stakeholders will strengthen collaborative, evidence-based planning and support proactive, data-driven solutions to educational challenges.

With EDU-MAP, the Schools Division of Calbayog City has not just innovated—it has set a new standard: transformative change can come at zero cost. More than a tool, EDU-MAP is a scalable blueprint for smart, sustainable governance. By turning SF1 learner data into actionable intelligence through automated catchment analysis, the Division has shown how innovation can reshape decision-making, amplify partnerships, and deliver lasting impact for learners and communities.



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Theme:

**“CHAMPIONING RESEARCH AND
INNOVATION WITH ETHICS,
INTEGRITY, AND EXCELLENCE IN
EASTERN VISAYAS EDUCATION.”**

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PRESENTERS

Breakout Room A

Research on Teaching & Learning (13 research qualifiers)

Breakout Room B

Research on Governance, Human Resource Development, and
Child Protection (11 research qualifiers)

Breakout Room C

Innovations (20 qualifiers)

OBJECTIVE # 1

To showcase the best educational research papers and innovations on basic education curriculum and governance conducted toward strategically improving access, quality, and governance of basic education.

OBJECTIVE # 2

To provide an avenue for researchers and innovators and DepEd Officials to interact and learn from experts and other researchers on how to strengthen evidence-based policy formulation.

OBJECTIVE # 3

To promote a culture of research and innovation in the region

Keynote Speaker & JUDGES



KEYNOTE MESSAGE

DR. EA KRISTINE CLARISSE B. TULIN-ESCUETA

*Assistant Professor IV
Visayas State University*



PROF. MA. LORINA G. PARILLA
Faculty
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DR. DINA S. SUPERABLE
Education Program Supervisor
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MR. RODEL B. ROSALES
Education Program Supervisor
DepEd Region VIII

Judges

BREAKOUT ROOM A
Research on Teaching & Learning

Keynote Speaker & JUDGES



DR. SHEENA MAE T. COMINGHUD
Education Program Specialist II
DepEd Region VII



DR. ELENA S. DE LUNA
Asst. Schools Division Superintendent
NEAP Head
DepEd Region VIII



MR. DANREVE D. REVES
Master Teacher III
Schools Division of Ormoc City

Judges

BREAKOUT ROOM B

Research on Governance, Human Resource & Development
and Child protection



MR. CLARK DAVE P. ARANTE
Education Program Specialist II
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PROF. NIÑOVAL G. PACAOL
Faculty
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Tacloban City Campus



MR. ARIEM V. CINCO
Administrative Officer V
DepEd Region VIII

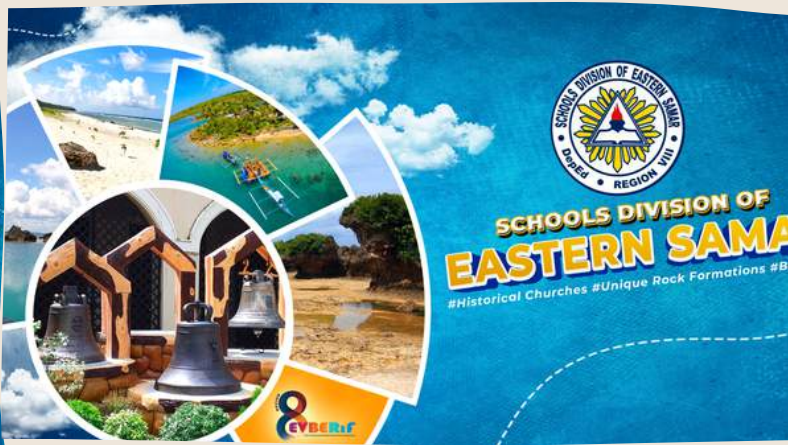
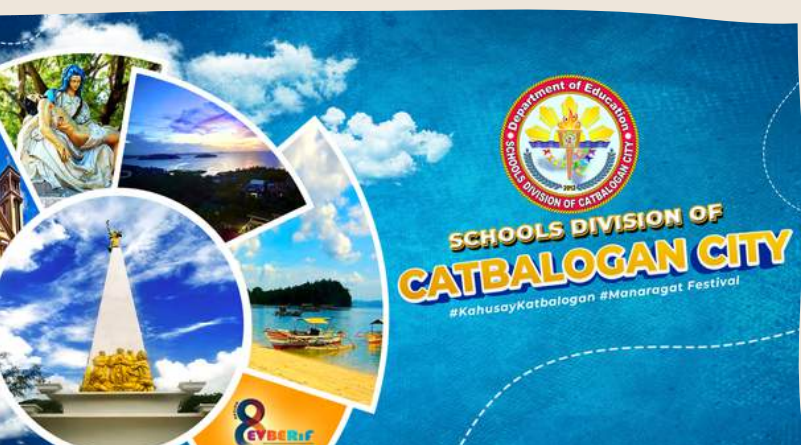
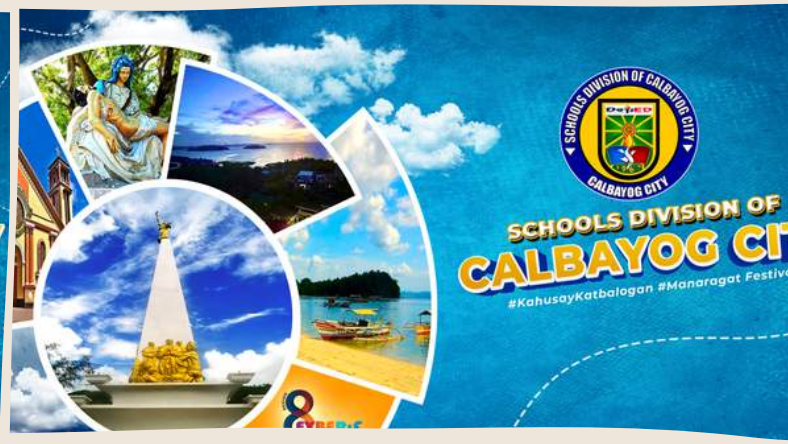
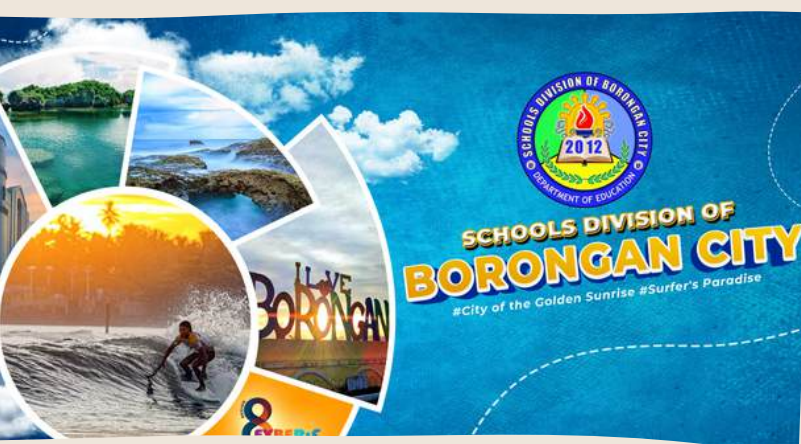
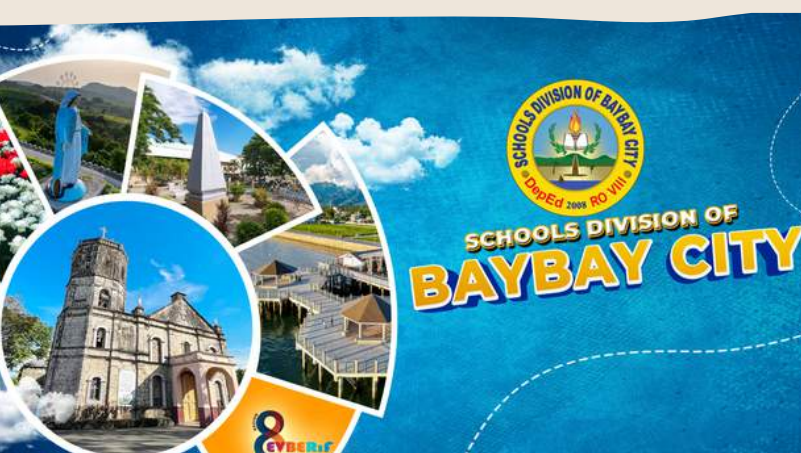
Judges

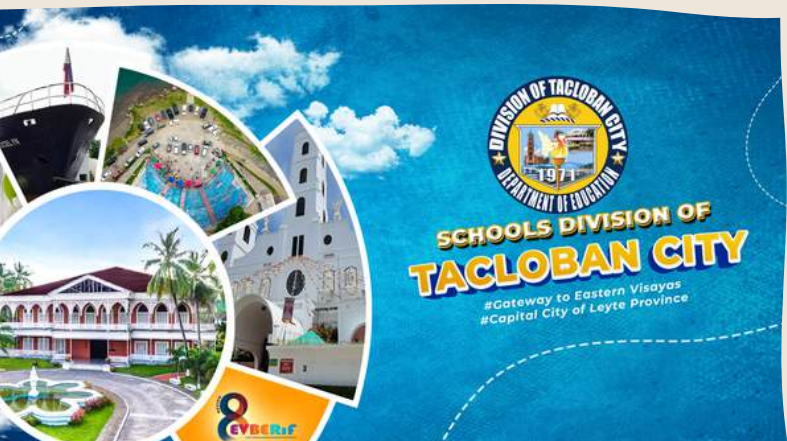
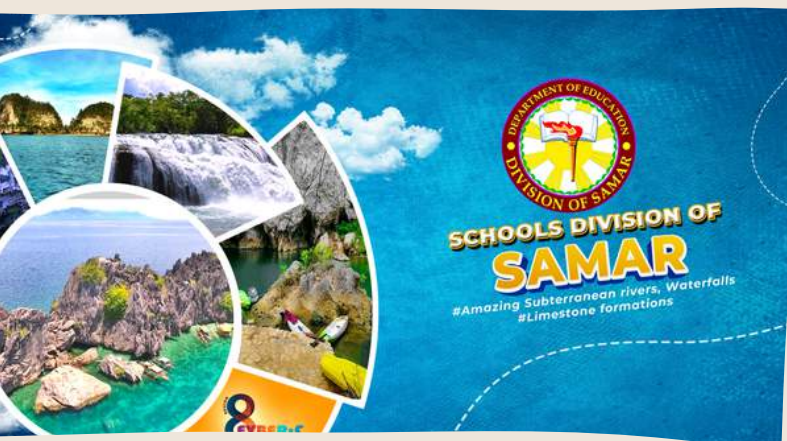
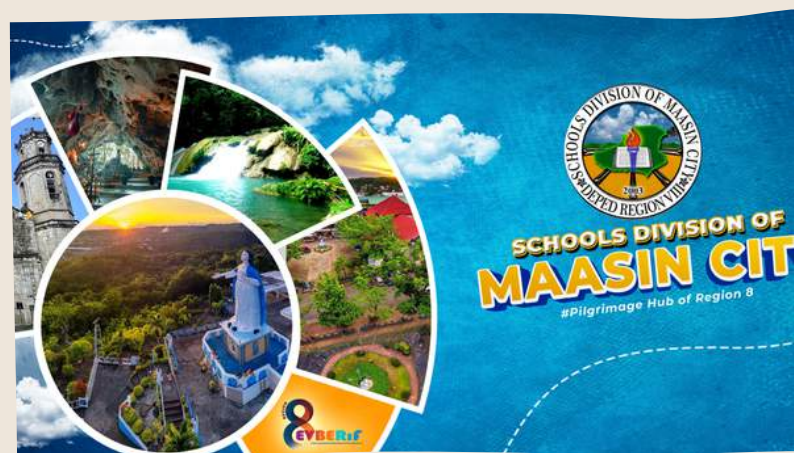
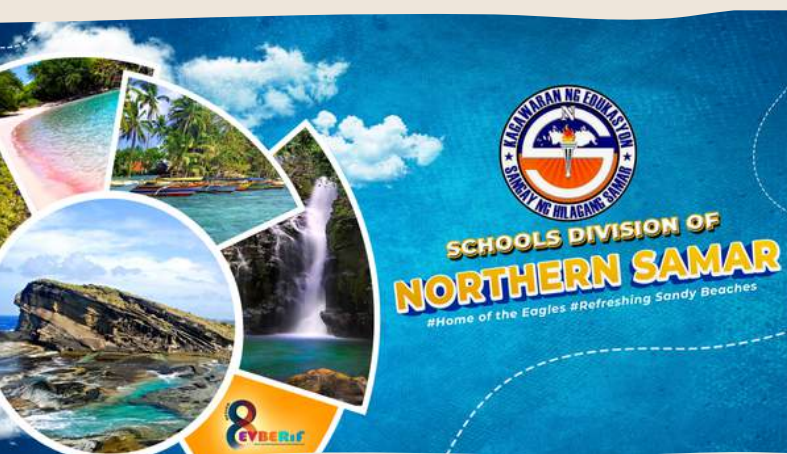
BREAKOUT ROOM C

Innovations



13 SCHOOLS DIVISION OFFICES







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