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The ***International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)*** is a **scholarly, open-access, quarterly, peer-reviewed, international print and online research journal** dedicated to the advancement of knowledge in **education, learning sciences, pedagogy, curriculum studies, and educational leadership**. INJELPS serves as a global platform for **educators, researchers, school leaders, policymakers, and academic practitioners** to disseminate high-quality empirical, theoretical, and practice-based research that contributes to the improvement of teaching and learning across diverse educational contexts. The journal is committed to maintaining **rigorous scholarly standards**, ethical research practices, and global visibility through **international indexing, Crossref DOI registration**, and **print and electronic ISSN accreditation**.

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2. Advance **theoretical and practical understanding** of pedagogy across levels of education
3. Provide a venue for **global and comparative educational studies**
4. Support **educational leadership, policy development, and curriculum reform**
5. Foster interdisciplinary dialogue linking education with psychology, technology, sociology, and policy studies

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- Educational psychology and learner development
- Technology-enhanced learning and digital pedagogy
- Inclusive education and special education
- Higher education, basic education, and lifelong learning
- Comparative and international education
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1. **Academic Significance, Contribution to Discipline or Community, Technical Novelty**
   The paper should demonstrate importance to the academic community or to research in general. It must offer a material contribution to its discipline and present novel or unique ideas that may be useful to the community. Clearly show the research gap, why there was a need to investigate the present study, and how it is different from previous works.
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3. **Abstract**
   The abstract should follow the journal's prescribed format and accurately reflect the study's major components. Ensure that it correctly presents the **aim, methodology, key findings or results, and conclusion** in a concise and logical manner.
4. **Introduction / Background of the Study**
   The introduction must:
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   - Show the **trends and issues** related to the study, supported with recent and relevant citations (2021–2026 preferred).
   - Identify and explain the **research gap/s**, highlighting why the present study is necessary and how it differs from prior works.
5. **Statement of the Problem, Research Objectives and Research Questions**
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   - The **research objectives** represent the specific aims or intentions of the study, focusing on what the researcher seeks to accomplish. These are written in infinitive form such as "To determine…" or "To examine…," ensuring that the targets are clear, measurable, and achievable. Unlike the broad statement of the problem, objectives are narrower and centered on actionable outcomes. For instance, a general objective could be *"To assess the implementation of the Social Pension*

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Program in Balbalan, Kalinga." This may be broken down into specific objectives, such as: (1) To determine the accessibility of the program, (2) To examine its impact on beneficiaries, and (3) To identify challenges faced in its implementation.

- The **research questions** are the interrogative form of the objectives, expressed as direct questions the study seeks to answer. They are usually written in formats such as "What is…?" or "How does…?" and serve the purpose of guiding data collection and analysis by pointing to specific inquiries. Research questions are even more specific than objectives, as they operationalize the study's goals into answerable items. Using the same example, the research questions could include: *RQ1: How accessible is the Social Pension Program to senior citizens in Balbalan? RQ2: What impact does the program have on the beneficiaries' quality of life? RQ3: What challenges hinder the effective implementation of the program?*

6. **Review of Related Literature and Studies**
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Important Reminders:

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   - Support findings with **relevant and recent literature**.
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    - Conclusions must be logically drawn from the study's findings.
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- Avoid old references; prioritize recent ones.
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Editor's Note (Maiden Issue)

International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)

It is with great pride and enthusiasm that we present the maiden issue of the *International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)*. This inaugural publication marks an important milestone in ETCOR's continuing commitment to advancing high-quality educational research that informs theory, policy, and practice across diverse global contexts.

Education remains at the heart of societal transformation. As learning environments evolve in response to technological advancements, shifting learner needs, and complex global challenges, the need for rigorous, ethical, and impactful educational research has never been more urgent. INJELPS was established to serve as a scholarly platform where such research can be critically examined, shared, and translated into meaningful educational action.

INJELPS welcomes empirical, theoretical, and practice-based studies that contribute to the understanding of teaching and learning across all levels of education. From early childhood to higher education and lifelong learning, the journal recognizes that effective pedagogy is both context-sensitive and globally informed. This maiden issue reflects that diversity through studies addressing curriculum, leadership, learner development, and instructional innovation.

As a peer-reviewed international journal, INJELPS upholds rigorous academic standards through a double-blind review process, strict adherence to publication ethics, and commitment to originality and methodological soundness. Each article published undergoes careful scrutiny to ensure it contributes new knowledge and meaningful insights to the field of education.

The journal also seeks to bridge the gap between research and practice. Educational research achieves its fullest value when it informs classroom instruction, institutional leadership, and policy development. INJELPS therefore encourages submissions that demonstrate clear implications for educators, school leaders, curriculum developers, and policymakers.

This maiden issue is a testament to the collaborative efforts of authors, reviewers, editors, and language specialists who share a common vision of scholarly excellence. Their collective dedication has shaped a publication that aspires to meet international indexing standards while remaining responsive to local and regional educational realities.

INJELPS is intentionally positioned as a global journal. By welcoming contributions from researchers across different countries and educational systems, the journal promotes comparative perspectives and cross-cultural dialogue. Such diversity enriches scholarly discourse and deepens our collective understanding of education as a universal yet context-bound endeavor.

The journal is equally committed to nurturing emerging scholars and practitioner-researchers. INJELPS recognizes the importance of providing a supportive yet rigorous platform where early-

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career researchers can engage with established scholars, refine their work, and contribute confidently to the international research community.

As we launch this first issue, we reaffirm our commitment to ethical publishing, transparency, and continuous improvement. INJELPS will evolve alongside developments in education and research methodologies, ensuring that it remains relevant, credible, and impactful in the years to come.

On behalf of the Editorial Board, we extend our sincere gratitude to all who contributed to this maiden issue. We invite researchers, educators, and academic leaders worldwide to join us in shaping future issues of INJELPS as we collectively advance knowledge, innovation, and excellence in education.

Richard D. Sanchez, LPT, PhD, Editor-in-Chief
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Table of Contents

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Enhancing the conceptual skills of Grade 7 students in measurements and calculations through a teacher-made module

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Ilocos Sur National High School

Abstract

Aim: This study aimed to determine the effectiveness of a teacher-made instructional module in enhancing the conceptual skills of Grade 7 students in measurements and calculations.

Methodology: A true experimental pretest–posttest equivalent group design was employed. Seventy-four Grade 7 students were assigned to either an experimental group exposed to the teacher-made module or a control group taught using the traditional method. A validated 30-item achievement test was administered before and after the intervention. Data were analyzed using descriptive statistics and t-tests.

Results: Both groups demonstrated improvement from a nearly proficient level in the pretest to a proficient level in the posttest. However, statistically significant differences were found between the pretest and posttest scores of both groups and between the posttest scores of the experimental and control groups, favoring students who used the teacher-made module.

Conclusion: The findings indicate that the teacher-made module was an effective instructional intervention for improving students' conceptual understanding of measurements and calculations. The results support the use of teacher-developed instructional materials as a strategy for enhancing learning outcomes in junior high school mathematics.

Keywords: *teacher-made module, conceptual understanding, measurements and calculations, mathematics education, experimental design*

INTRODUCTION

Enhancing students' conceptual understanding of foundational mathematics competencies continued to be a persistent concern in basic education worldwide. Conceptual understanding in measurements and calculations is essential for problem-solving, scientific reasoning, and real-life decision-making; however, international large-scale assessments consistently showed that many learners struggled to apply mathematical concepts meaningfully rather than procedurally (OECD, 2023; Mullis et al., 2020). At the junior high school level, this challenge became more evident as learners transitioned from concrete operations to formal reasoning, a stage that required deeper conceptual processing rather than rote memorization.

Recent empirical studies underscored that students' difficulties in mathematics were largely attributed to weak conceptual foundations, particularly in measurement-related competencies (Kilpatrick et al., 2021; Rittle-Johnson et al., 2022). Research further demonstrated that instructional approaches emphasizing active engagement, structured learning sequences, and conceptual scaffolding were more effective in supporting mathematical understanding than traditional lecture-based methods (Hiebert & Grouws, 2021). Modular and self-paced instructional materials, when carefully designed, were found to support independent learning, reduce cognitive overload, and improve learning outcomes across mathematics-related disciplines (Mayer, 2020; Schunk, 2022).

In the Philippine basic education context, persistent learning gaps in mathematics had been documented in national and international assessments. Results from large-scale assessments such as the National Achievement Test and the Programme for International Student Assessment (PISA) consistently indicated low proficiency levels among Filipino learners in mathematics, particularly in tasks requiring conceptual understanding and application (Department of Education, 2022; OECD, 2023). In response, the Department of Education promoted the development and utilization of contextualized instructional materials to address least mastered competencies and accommodate diverse learner needs.

Despite the availability of prescribed learning resources, assessment results from public secondary schools revealed that many Grade 7 students continued to demonstrate weak conceptual understanding in measurements and calculations, suggesting that existing materials did not sufficiently address misconceptions or support deep learning. Previous studies reported that teacher-made instructional modules positively influenced students' achievement and engagement (Alelaimat & Ghoneem, 2021; Igbo & Omeje, 2014). However, most prior research focused on general

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achievement outcomes or other subject areas, with limited experimental studies specifically examining conceptual skills in measurements and calculations at the junior high school level, particularly within Philippine public secondary schools.

Moreover, few studies employed true experimental designs to directly compare the effectiveness of teacher-made modules with traditional teaching methods in developing conceptual understanding. This gap indicated the need for rigorous empirical investigation that focused not only on performance gains but also on conceptual skill development in specific mathematical domains.

Thus, this study investigated the effectiveness of a teacher-made instructional module in enhancing the conceptual skills of Grade 7 students in measurements and calculations using a true experimental design. The study provided empirical evidence contributing to mathematics education and instructional design research and offered practical implications for classroom instruction, curriculum development, and teacher professional practice in basic education.

Review of Related Literature and Studies

Conceptual Understanding in Measurements and Calculations

Conceptual understanding is a critical component of mathematical proficiency and problem-solving ability. Research consistently demonstrated that students' difficulties in measurements and calculations stemmed more from conceptual weaknesses than procedural errors (Rittle-Johnson et al., 2022). Learners who relied primarily on memorization often failed to transfer knowledge to unfamiliar contexts, resulting in persistent misconceptions and poor application skills (Kilpatrick et al., 2021).

In secondary education, measurements and calculations served as prerequisite competencies for advanced mathematical and scientific concepts. Studies revealed that students frequently struggled to apply measurement concepts to real-world situations, indicating a disconnect between classroom instruction and authentic application (Hiebert & Grouws, 2021). These findings emphasized the need for instructional interventions that promoted meaning-making, conceptual coherence, and contextualized learning experiences.

Teacher-Made Instructional Modules as Instructional Interventions

Teacher-made instructional modules gained increasing recognition as effective tools for addressing specific learning gaps. Modular instruction allowed learners to progress at their own pace while providing structured content, guided activities, and formative assessments (Schunk, 2022). Recent studies reported that teacher-developed modules improved learner engagement, independent learning, and academic performance, particularly when aligned with learners' needs and curricular objectives (Alelaimat & Ghoneem, 2021).

Unlike commercially produced materials, teacher-made modules were typically contextualized to learners' language, environment, and prior knowledge. Contextualization was identified as a key factor in improving comprehension and motivation (Igbo & Omeje, 2014). Empirical evidence further showed that students exposed to teacher-designed modules outperformed those taught using purely lecture-based or textbook-centered approaches, especially in concept-intensive subjects.

Effectiveness of Modular Instruction in Basic Education

Recent literature documented positive outcomes associated with modular and self-directed learning in basic education. Studies conducted between 2021 and 2024 indicated that modular instruction supported differentiated learning by allowing students to revisit concepts, engage in guided practice, and receive feedback at their own pace (Mayer, 2020; Schunk, 2022). In mathematics-related subjects, modular learning reduced anxiety and enhanced conceptual understanding by breaking complex topics into manageable units.

Experimental and quasi-experimental studies further demonstrated that modular instruction resulted in significantly higher posttest performance compared to traditional teaching methods (Alelaimat & Ghoneem, 2021). These gains were attributed to the structured sequencing of content, integration of explanations and examples, and opportunities for independent practice.

Synthesis and Research Gap

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Collectively, the reviewed literature indicated that conceptual difficulties in measurements and calculations remained prevalent in junior high school education. While modular instruction and teacher-made materials showed promise, scant experimental research focused explicitly on conceptual skills in measurements and calculations within Philippine public secondary schools, and fewer studies utilized true experimental designs to establish causal relationships. This gap justified the conduct of the present study.

Theoretical Framework

This study was anchored on Constructivist Learning Theory, Cognitive Learning Theory, and Instructional Materials Theory, which collectively explained how learners develop conceptual understanding and how instructional resources influence learning outcomes.

Constructivist Learning Theory, grounded in the works of Piaget (1977) and Vygotsky (1978), posited that learners actively construct knowledge through interaction with learning tasks, prior experiences, and social engagement. Learning occurred as students integrated new information into existing cognitive structures. The teacher-made module supported constructivist learning by incorporating guided activities, reflective tasks, and independent practice that encouraged active engagement with measurement and calculation concepts.

Cognitive Learning Theory emphasized internal mental processes such as comprehension, reasoning, memory, and problem-solving (Bruner, 1996; Mayer, 2020). This theory asserted that instruction should be logically sequenced and designed to facilitate information processing. The teacher-made module reflected cognitive principles through its organized presentation, worked examples, and reinforcement exercises, which supported conceptual processing and minimized misconceptions.

Instructional Materials Theory highlighted the role of well-designed instructional resources in improving learning effectiveness (Dick et al., 2015). According to this theory, instructional materials must align with learner needs, learning objectives, and contextual realities. The teacher-made module was developed to address least mastered competencies identified through assessment data, making it contextually relevant and instructionally effective.

Conceptual Framework

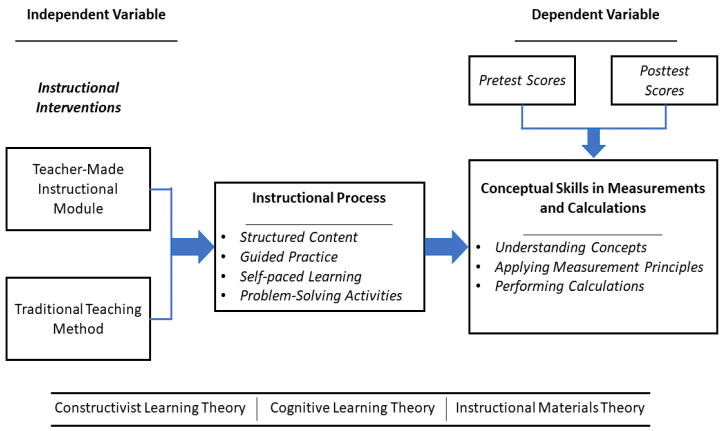

Figure 1. Research Paradigm

The conceptual framework guided the design of the instructional module, the development of the achievement test, and the implementation of the instructional intervention. It identified the teacher-made instructional module as the independent variable, the instructional processes as mediating mechanisms, and students' conceptual skills in measurements and calculations as the dependent variable. The framework also informed the construction of research instruments, instructional planning, and data analysis.

The instructional intervention influenced student learning through specific instructional processes embedded in the module, namely: content presentation, guided practice, self-paced learning, and independent problem-solving tasks. These instructional processes facilitated student engagement, supported cognitive processing, and promoted the active construction of knowledge.

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Students' conceptual skills in measurements and calculations served as the dependent variable of the study. This variable was operationalized in terms of students' ability to understand concepts, apply measurement principles, and perform accurate calculations. Learning outcomes were measured using pretest and posttest scores obtained from a validated achievement test.

The framework assumed that a well-designed and contextualized teacher-made instructional module grounded in constructivist and cognitive learning principles would lead to better conceptual understanding than traditional instruction. This theoretical assumption guided the formulation of research objectives, the selection of the research design, and the analysis and interpretation of research findings.

Statement of the Problem

Conceptual understanding in measurements and calculations plays a vital role in students' performance in mathematics, science, and technology-related subjects, as these competencies underpin problem-solving, analytical reasoning, and real-life application skills. However, many junior high school students demonstrate weak conceptual understanding in these areas, as reflected in classroom assessments and school achievement data. Learners often memorize procedures in measurements and calculations without fully understanding the underlying concepts, resulting in recurring misconceptions and low academic performance.

This concern is evident in Philippine basic education, where measurements and computations are among the least mastered competencies in mathematics. Despite the availability of prescribed learning materials and the use of conventional teaching approaches, many Grade 7 students continue to show limited conceptual skills. This situation indicates the need for instructional strategies that directly address conceptual gaps and promote meaningful learning.

Teacher-made instructional modules have been recognized as potential tools for contextualized and learner-centered instruction that can support independent learning and systematic concept development. However, limited experimental research has examined the effectiveness of teacher-developed modules in improving conceptual skills in measurements and calculations among junior high school students, particularly in the Philippine secondary school context. Moreover, few studies have used rigorous experimental designs to compare teacher-made modules with traditional teaching methods.

Given these gaps, it was necessary to investigate whether a teacher-made instructional module could significantly enhance the conceptual skills of Grade 7 students in measurements and calculations. Addressing this issue provided evidence that could guide instructional practices, encourage teacher-led innovations, and contribute to improved learning outcomes in secondary school mathematics.

General Objective

To determine the effectiveness of a teacher-made instructional module in enhancing the conceptual skills of Grade 7 students in measurements and calculations.

Specific Objectives

The study aimed to:

1. Determine the level of conceptual skills of Grade 7 students in measurements and calculations before and after exposure to the instructional interventions.
2. Examine whether a significant difference existed between the pretest and posttest mean scores of Grade 7 students in measurements and calculations.
3. Determine whether a significant difference existed between the posttest mean scores of students taught using a teacher-made instructional module and those taught using the traditional teaching method.

Research Questions

1. What was the level of conceptual skills of Grade 7 students in measurements and calculations before and after the instructional interventions?
2. Was there a significant difference between the pretest and posttest mean scores of Grade 7 students in measurements and calculations?
3. Was there a significant difference between the posttest mean scores of students exposed to the teacher-made instructional module and those taught using the traditional teaching method?

H_{01}: There was no significant difference between the pretest and posttest mean scores of Grade 7 students in measurements and calculations.

International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)
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National Book Development Board (NBDB) Registration as Book Publisher (Print & Digital): 6312
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H_{02}: There was no significant difference between the posttest mean scores of students taught using the teacher-made instructional module and those taught using the traditional teaching method.

Methodology

Research Design

The study employed a true experimental research design, specifically the pretest–posttest equivalent groups design, to determine the effectiveness of a teacher-made instructional module in enhancing the conceptual skills of Grade 7 students in measurements and calculations. This design involved the comparison of learning outcomes between an experimental group, which utilized the teacher-made module, and a control group, which received instruction through the traditional teaching method.

Group equivalence was established through pretesting, which ensured that both groups had comparable baseline levels of conceptual skills prior to the intervention. Two intact classes were used to maintain the natural classroom setting; however, random assignment of the intact classes to experimental and control conditions was implemented to minimize selection bias. The design was appropriate for the study as it allowed the establishment of causal relationships between the instructional intervention and students' learning outcomes while controlling for initial differences.

Population and Sampling

The participants of the study consisted of 74 Grade 7 students enrolled at Ilocos Sur National High School during School Year 2024–2025. Two intact classes were involved in the study. One class was randomly assigned as the experimental group (n = 37), while the other class served as the control group (n = 37).

An intact group random assignment technique was employed, which is appropriate for true experimental studies conducted in school settings where individual randomization is not feasible. The use of intact classes ensured minimal disruption to regular instructional schedules while maintaining experimental rigor. The equal group sizes ensured balanced comparison and statistical validity.

The table shows the distribution of respondents. It further shows that the two groups, experimental and control groups, were similar in number.

Section	Group	Number
Armstrong	Controlled	37
Aristotle	Experimental	37
	Total	**74**

Research Instruments

The primary data-gathering instrument was a researcher-made 30-item achievement test designed to measure students' conceptual skills in measurements and calculations. The test was developed based on a Table of Specifications (TOS) to ensure alignment with the targeted learning competencies and cognitive levels.

Content Validation

The instrument underwent content validation by three subject-matter experts, consisting of:

- a Head Teacher (Mathematics),
- a Master Teacher (Mathematics), and
- an Education Program Supervisor (Mathematics).

Each validator possessed at least a master's degree and extensive experience in mathematics instruction and curriculum evaluation. A 5-point Likert-type scale was used for validation, where 5 indicated *very highly valid* and 1 indicated *poorly valid*. The instrument obtained a mean validity rating of 4.62, interpreted as Very Highly Valid, indicating excellent content adequacy and relevance.

Reliability Testing

Reliability testing was conducted through a pilot administration involving 30 Grade 7 students who were not part of the actual study sample. Using Cronbach's alpha, the instrument yielded a reliability coefficient of 0.85, which indicated high internal consistency and suitability for research use.

International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)
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National Book Development Board (NBDB) Registration as Book Publisher (Print & Digital): 6312
PRC-CPD Accredited Provider: PTR-2025-749

Data Collection Procedure

Data collection was conducted during the third grading period of School Year 2024–2025 in the regular classroom setting during scheduled Information and Communications Technology periods. Initially, a pretest was administered simultaneously to both the experimental and control groups to determine baseline conceptual skills.

Following the pretest, the experimental group was exposed to the teacher-made instructional module over the designated intervention period, while the control group received instruction using the traditional teaching method. At the end of the intervention, a posttest, using the same validated achievement test, was administered to both groups to determine changes in students' conceptual understanding.

Treatment of Data

Appropriate statistical tools were employed to analyze the data in relation to the research objectives. The mean score was used to determine the level of students' conceptual skills in measurements and calculations before and after the intervention. This measure was appropriate since all test items were equally weighted and contributed uniformly to the total score.

To address the second research objective, the *t*-test for dependent samples was used to determine whether a significant difference existed between the pretest and posttest mean scores within each group. To address the third research objective, the *t*-test for independent samples was used to determine whether a significant difference existed between the posttest mean scores of the experimental and control groups. All statistical tests were conducted at the 0.05 level of significance.

The following scale was used to interpret students' levels of conceptual skills:

Range of Scores	Descriptive Interpretation
25-30	Highly Proficient (HP)
19-24	Proficient(P)
13-18	Nearly Proficient (NP)
7-12	Low Proficient (LP)
0-6	Beginning (B)

Ethical Considerations

Ethical standards were strictly observed throughout the conduct of the study. Approval to conduct the research was obtained from the Schools Division Office and the school administration. Since the participants were minors, written informed consent was secured from both the students and their parents or legal guardians prior to data collection.

Participation in the study was voluntary, and participants were informed of their right to withdraw at any time without penalty. Confidentiality of respondents' identities and data was maintained, and all information collected was used solely for academic and research purposes.

RESULTS and DISCUSSION

This section presents and discusses the results of the study based on the research questions. Findings are interpreted in relation to learning theory and relevant empirical studies to explain observed outcomes.

Table 1. Level of students' conceptual understanding before and after the intervention

Groups	N	Pretest		Posttest		
		$\bar{x}$	Descriptive Rating	$\bar{x}$	Descriptive Rating	Mean Difference
Experimental (Aristotle)	37	13.92	Nearly Proficient	24.00	Proficient	10.08
Control (Armstrong)	37	15.29	Nearly Proficient	20.79	Proficient	5.50

International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)
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PRC-CPD Accredited Provider: PTR-2025-749

The pretest results showed that the experimental group obtained a mean score of 13.92, while the control group recorded a mean score of 15.29. Both groups were interpreted as Nearly Proficient, indicating limited conceptual understanding of measurements and calculations prior to the intervention. The similarity in descriptive ratings suggests that students in both groups had comparable baseline knowledge, confirming the presence of conceptual gaps among Grade 7 learners.

These findings are consistent with previous studies reporting that students often struggle with measurement concepts due to an overreliance on procedural knowledge rather than conceptual understanding (Rittle-Johnson et al., 2022; Kilpatrick et al., 2021). From the perspective of Constructivist Learning Theory, learners enter the classroom with pre-existing misconceptions that must be actively addressed through meaningful learning experiences (Piaget, 1977; Vygotsky, 1978). The pretest results highlight the need for instructional approaches that allow students to actively construct knowledge rather than passively receive information.

After the intervention, both groups improved to a Proficient level in the posttest. However, the experimental group achieved a higher mean score (24.00) than the control group (20.79). The substantially higher mean gain of the experimental group (10.08) compared to the control group (5.50) indicates that the teacher-made instructional module was more effective in enhancing students' conceptual understanding.

This improvement may be explained using Cognitive Learning Theory, which emphasizes structured content, guided practice, and reinforcement as critical factors in concept formation (Bruner, 1996; Mayer, 2020). The teacher-made module provided logically sequenced lessons, worked examples, and opportunities for independent practice, which supported deeper cognitive processing and reduced misconceptions in measurements and calculations.

Table 2. Significant difference on pretest and posttest mean scores of the students in the experimental and control groups

	Paired Differences		t	df	*p*-value (two-tailed)	Decision
	Mean	Sd				
Pre-Post	-7.76000	4.15198	-16.186	74	<.001	Significant

The results of the t-test for dependent samples revealed a statistically significant difference between the pretest and posttest mean scores ($p < .001$). This finding confirms that students' conceptual understanding significantly improved following instruction. The greater improvement observed in the experimental group suggests that the teacher-made module enhanced learning beyond the gains achieved through traditional teaching methods.

According to Constructivist Learning Theory, learning occurs when students actively engage with content and reflect on their understanding (Vygotsky, 1978). The instructional activities embedded in the module required students to analyze problems, apply concepts, and practice independently, thereby facilitating active knowledge construction. Similar findings were reported by Alelaimat and Ghoneem (2021), who found that students exposed to modular instruction demonstrated significantly higher achievement gains compared to those taught using conventional methods.

Furthermore, the module's self-paced design aligns with Cognitive Load Theory, which posits that reducing extraneous cognitive load allows learners to focus on essential information, thereby improving comprehension and retention (Mayer, 2020). By allowing students to revisit explanations and exercises, the module supported sustained conceptual development.

Table 3. Significant difference of the two groups' post test mean scores

	Test Used	Mean	Mean Difference	t-stat	*p*-value (two-tailed)	Significance α=0.05
Pretest	**Control Group**	**15.29**	**1.37**	**-1.71**	**0.08**	**Not Significant**

International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)
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PRC-CPD Accredited Provider: PTR-2025-749

	Experimental Group	**13.92**				
Posttest	**Control Group**	**20.79**	**3.21**	**-6.47**	**<.001**	**Significant**

The t-test for independent samples showed no significant difference between the experimental and control groups during the pretest phase ($p > 0.05$), confirming group equivalence prior to the intervention. However, a statistically significant difference was observed in the posttest mean scores ($p < .001$), favoring the experimental group.

This result indicates that the teacher-made instructional module was more effective than the traditional teaching method in improving students' conceptual understanding of measurements and calculations. The effectiveness of the module may be attributed to its contextualized content and learner-centered structure, which enabled students to connect abstract measurement concepts to real-life situations.

These findings support earlier studies that demonstrated the effectiveness of teacher-made instructional materials in improving academic performance and conceptual understanding (Igbo & Omeje, 2014; Schunk, 2022). Unlike commercially produced materials, teacher-made modules are often tailored to learners' specific needs, language level, and learning context, which enhances comprehension and motivation.

Conclusions

Based on the analysis and interpretation of the data, the following conclusions were drawn.

1. Grade 7 students demonstrated limited conceptual understanding of measurements and calculations prior to the intervention, as reflected in their nearly proficient performance in the pretest. This finding indicates persistent conceptual gaps in foundational mathematics competencies and underscores the need for instructional approaches that explicitly address conceptual understanding.
2. Both the teacher-made instructional module and the traditional teaching method resulted in significant improvement in students' conceptual skills, as evidenced by the posttest results. However, students who were exposed to the teacher-made module achieved substantially higher learning gains than those taught using the traditional approach. This result indicates that the module provided more effective instructional support for enhancing conceptual understanding.
3. The significant difference in posttest performance between the experimental and control groups confirms the effectiveness of the teacher-made instructional module as an instructional intervention. The module's contextualized, structured, and learner-centered design facilitated deeper engagement with content and supported improved conceptual learning outcomes.
4. Overall, the study concludes that teacher-made instructional modules are effective tools for enhancing students' conceptual skills in measurements and calculations and may serve as viable alternatives or instructional supplements to conventional teaching methods in junior high schools.

Recommendations

Based on the conclusions of the study, the following recommendations are offered.

1. Mathematics and technology teachers may integrate teacher-made instructional modules into classroom instruction, particularly for competencies that require strong conceptual understanding. These modules may be used either as primary instructional materials or as supplementary learning resources.
2. Instructional leaders and school administrators may support the development and utilization of teacher-created instructional modules through professional development programs, collaborative lesson planning, and Learning Action Cell sessions. Such institutional support may enhance teachers' capacity to design effective and learner-centered instructional materials.
3. Future researchers may conduct similar studies using larger samples, different grade levels, or other subject areas to further validate the effectiveness of teacher-made instructional modules. Longitudinal studies may also be undertaken to examine the sustained effects of modular instruction on students' conceptual understanding.
4. Further investigations may explore the integration of teacher-made instructional modules within digital or blended learning environments to determine their effectiveness across diverse instructional settings. Such studies may contribute to the continuous improvement of instructional practices in basic education.

International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)
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PRC-CPD Accredited Provider: PTR-2025-749

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Quantitative analysis of the technological skills and experiences of OISCA-Abra Trainees (ASIST Graduates) as technical intern trainees in Japan: An evaluation of OISCA-driven internship training program

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Abstract

Aim: This study aimed to quantitatively evaluate the effectiveness of the OISCA-Abra training program by measuring the technological skill development, workplace experiences, and perceived career relevance of Abra State Institute of Sciences and Technology (ASIST) graduates who participated in Japan's Technical Intern Training Program (TITP).

Methodology: A descriptive-evaluative quantitative research design was employed. Data were gathered through a validated structured questionnaire administered to 50 purposively selected ASIST graduates who had completed at least one year of internship training in Japan. The instrument measured technological skill acquisition, training challenges, and program satisfaction. Data were analyzed using descriptive statistics and paired-samples t-tests.

Results: Findings revealed a statistically significant increase in technological skill levels after program participation ($t(49) = 18.75$, $p < .001$). The highest improvements were recorded in CNC machine operation ($M = 4.65$) and advanced welding techniques ($M = 4.40$). Language barriers ($M = 4.52$) and cultural differences ($M = 4.10$) emerged as the primary challenges. Despite these barriers, trainees reported high overall satisfaction ($M = 4.30$) and strong confidence in the relevance of their acquired skills for future employment in the Philippines ($M = 4.54$).

Conclusion: The TITP significantly enhances the technological competencies of OISCA-Abra trainees through hands-on experience, exposure to advanced equipment, and expert mentorship. However, communication and cultural barriers remain key constraints that may limit deeper skill integration. Strengthening technical language preparation and workplace communication support can further improve program outcomes.

Keywords: *Technical Intern Training Program, OISCA-Abra trainees, technological skill development, international internship training, vocational education, workforce readiness*

INTRODUCTION

The contemporary global economy is defined by an increasingly interconnected labor market where the demand for specialized technical expertise frequently transcends national borders. Developed nations, particularly those facing significant demographic shifts and aging workforces, have established international vocational training programs to bridge critical skill gaps. Japan, in particular, has grappled with a severe labor shortage exacerbated by its "super-aged" society, where over 29% of the population is aged 65 or older (Cabinet Office of Japan, 2023). To address this, the Technical Intern Training Program (TITP) was historically established to promote international cooperation through the transfer of skills to developing countries (Organization for Technical Intern Training [OTIT], 2020).

In the Philippines, programs such as the TITP have been viewed as vital pathways for vocational graduates to enhance competencies. Filipino workers are highly regarded for their adaptability, making them primary candidates for transnational initiatives (Asis, 2020). Locally, institutions like the Abra State Institute of Sciences and Technology (ASIST), operating under the OISCA-Abra framework, played a pivotal role in preparing graduates for these opportunities by providing foundational technical skills required by Japanese industries.

However, while the TITP was intended for skill transfer, critics such as Kamibayashi (2021) and Beltran (2022) argued that the system functioned largely as a de facto labor-supply mechanism, often resulting in human rights concerns and limited actual technological gain for the trainees. In response to these systemic complexities, the Japanese government announced the abolition of the TITP, to be replaced by the Ikusei Shuryo or the Employment for Skill Development Program (ESDP) by April 2027 (Ministry of Justice, 2024). This transition represents a major policy shift focusing on specialized skills and trainee mobility to rectify the wage discrepancies and restricted freedoms of the previous system.

Despite the transition, significant research gaps were identified. First, while broad assessments of the TITP exist, there was a lack of granularity regarding specific technological skill acquisition within localized cohorts, such as

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ASIST graduates. Second, a methodological gap persisted; as noted by Smith and Tanaka (2022), much of the existing literature relied on qualitative narratives, leaving a void in precise, quantifiable data necessary for program optimization. Finally, there was a lack of empirical evidence to help sending organizations (OISCA/ASIST) align curricula with the upcoming 2027 ESDP reform.

This study sought to fill these gaps by implementing a quantitative evaluation framework to measure actual technological gains. Unlike previous studies that focused on general migrant experiences, this research was unique in its localized focus on the ASIST-OISCA framework. By specifically analyzing skill acquisition and the facilitating factors within this niche, the study provided a novel, data-driven roadmap for evolving the program into an ethical, skill-focused initiative aligned with the latest Japanese labor reforms.

Review of Related Literature and Studies

Recent scholarship emphasizes that the Technical Intern Training Program (TITP) has evolved into a critical "strong backbone" for Japan's labor market, specifically serving as a structural pipeline for the Specified Skilled Workers (SSW) program (Ochavillo, 2022). This shift indicates that skill acquisition is no longer a temporary exchange but a foundational phase for long-term professional integration. For instance, longitudinal data on Indonesian agricultural trainees—specifically those affiliated with the Nouen Taya Farm and JICA-supported initiatives—demonstrated a 71% success rate in transitioning to "agripreneurial" roles upon their return, with many alumni earning significantly more than their local counterparts (Syaukat et al., 2022; Fadhilla, 2023). These findings align with Human Capital Theory, which posits that international technical training constitutes a high-value investment yielding substantial lifetime returns through enhanced productivity and specialized knowledge.

Despite this potential, a persistent "linguistic mismatch" was found to hinder the learning process. Salombe', Iskandar, and Rustam (2025) identified that pre-departure training in Job Training Institutions (LPKs) frequently prioritized standardized grammar over the "context-dependent communication" and technical vocabulary required in fields such as manufacturing and caregiving. This creates a barrier for Situated Learning (Lave & Wenger, 1991); when trainees cannot communicate effectively with expert mentors, they are prevented from progressing from "legitimate peripheral participation" to full professional proficiency. Furthermore, the lack of dialect-specific instruction often led to workplace isolation and "verbal violence" when instructions were misunderstood (Rustam, 2023).

A critical turning point in recent literature is the 2027 transition from the TITP to the Employment for Skill Development Program (ESDP), also known as *Ikusei Shuryo*. This framework was designed to address "labor adjustment" criticisms—namely that the TITP functioned as a de facto source of cheap labor rather than a true training mechanism (Kamibayashi, 2021; Chiavacci, 2025). According to the Ministry of Justice (2024), the ESDP prioritizes an ethical model by allowing for greater job mobility and aligning training more closely with the SSW Type 1 requirements, thereby ensuring that the skills acquired are directly transferable to long-term residency.

The reviewed literature collectively frames international training as a dual-purpose instrument serving both the human capital development of the sending country and the labor needs of the receiving nation. Successful outcomes were found to depend on pairing technical training with "workplace-oriented" language instruction and robust institutional support (Salombe' et al., 2025). The emerging consensus indicates that the future of localized programs, such as those at OISCA-Abra, depends on their ability to adapt to these highly regulated 2027 standards. This justifies the present study, which moved beyond general narratives to provide a quantifiable reality of skill transfer for Filipino technical interns.

Theoretical Framework

This study is anchored on two primary theories that explain the process and value of international technical training, updated with modern perspectives to reflect current global labor trends.

1. Human Capital Theory (Schultz, 1961; Becker, 1964; Marginson, 2019)

Human Capital Theory posits that education and training are strategic investments that increase an individual's productivity and earning potential. While the foundational work of Schultz (1961) established that skills are a form of capital, modern applications by Marginson (2019) emphasize that in a globalized economy, "internationalized human capital" is essential for navigating transnational labor markets. In the context of this study,

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PRC-CPD Accredited Provider: PTR-2025-749

the TITP is viewed as a mechanism for OISCA-Abra graduates to accumulate specialized capital in the form of advanced Japanese technological skills, which directly enhances their economic value and employability upon returning to the Philippines.

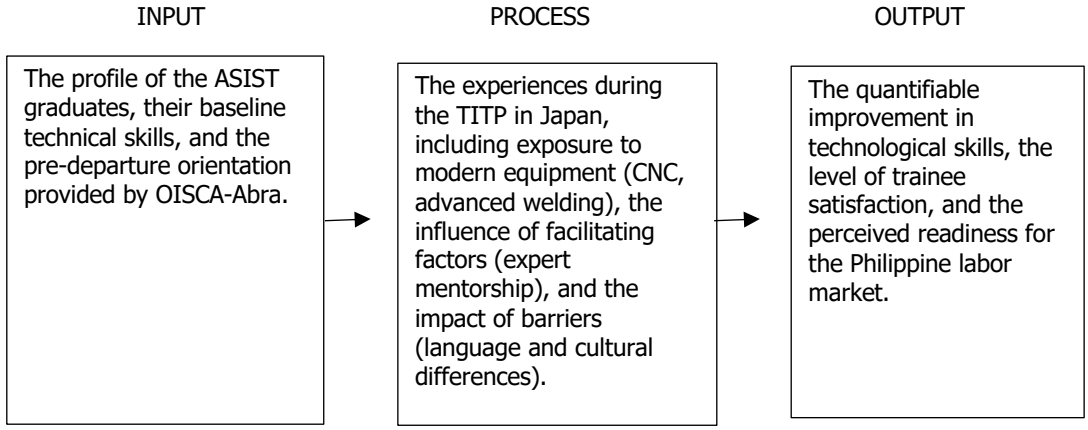
2. Situated Learning Theory (Lave & Wenger, 1991; Fuller & Unwin, 2024)

This theory suggests that learning is not merely a cognitive process but a function of the activity, context, and culture in which it occurs—a concept known as "situatedness." Recent scholarship by Fuller and Unwin (2024) on vocational apprenticeships reinforces that mastery is achieved through "expansive learning environments" where trainees interact with expert mentors. This theory anchors the study's focus on the "hands-on experience" within Japanese factories, where Filipino trainees move from "legitimate peripheral participation" to full professional mastery within a specialized community of practice.

These theories are operationalized through the study's variables by framing the Input (ASIST graduates' baseline skills) as the initial stock of capital, and the Process (exposure to CNC and mentorship in Japan) as the situated environment where skill transfer occurs. Consequently, the Output (quantifiable technological gains and readiness) serves as the measurable return on the human capital investment, validating how localized preparation at OISCA-Abra aligns with international industrial standards.

Conceptual Framework

The study utilized the Systemic Evaluation Model, commonly known as the Input-Process-Output (IPO) framework, to evaluate the effectiveness of the Technical Intern Training Program (TITP) for ASIST graduates. This model was chosen for its capacity to isolate specific variables at different stages of the training lifecycle, allowing for a structured analysis of how foundational preparation translates into actual technological gains.



The **Input** phase represented the foundational conditions of the participants prior to their deployment, encompassing the demographic and professional profiles of the ASIST graduates, their baseline technical competencies acquired in the Philippines, and the pedagogical quality of the pre-departure orientation facilitated by OISCA-Abra. According to the framework, these inputs served as the essential prerequisites determining the trainees' readiness for international immersion.

The **Process** component focused on the transformative experiences during the Technical Intern Training Program (TITP) in Japan, specifically examining variables that facilitated or hindered skill acquisition. This included direct exposure to modern industrial equipment, such as Computer Numerical Control (CNC) and advanced welding technologies, alongside the influence of expert mentorship. Crucially, this stage accounted for environmental barriers—specifically language and cultural differences—which acted as primary interventions affecting the trainees' learning curves.

Finally, the **Output** stage measured the resulting "product" of the training initiative, identified through the quantifiable improvement in technological skills, the overall level of trainee satisfaction, and the perceived readiness of graduates to reintegrate into the Philippine labor market. By linking these three stages, the framework illustrated how institutional support at the local level interacted with Japanese industrial standards to produce a technically superior and globally competitive workforce.

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Statement of the Problem

Despite the intended purpose of Japan's Technical Intern Training Program (TITP) to promote international cooperation through technology transfer, the actual effectiveness of the program in developing high-demand, transferable technological skills among OISCA-Abra graduates from the Abra State Institute of Sciences and Technology (ASIST) remains largely unmeasured and speculative. While participants gain significant overseas work exposure, there is a critical knowledge gap regarding the specific level of technological skill acquisition and the degree to which these competencies align with the evolving demands of the Philippine labor market. Furthermore, the dual nature of the TITP as both a training initiative and a labor supply mechanism creates a complex environment where linguistic and cultural barriers may significantly impede genuine skill development. This lack of empirical data is particularly urgent given the impending abolition of the TITP by 2027 and its replacement by the Employment for Skill Development Program (ESDP), which necessitates a proactive, evidence-based evaluation to ensure that training curricula and support mechanisms are optimized for trainee protection and meaningful career progression.

Research Objectives

General Objective

To evaluate the effectiveness of the OISCA-Abra (ASIST) training program by quantifying the technological skill acquisition, training experiences, and professional outcomes of graduates who participated in Japan's Technical Intern Training Program (TITP).

Specific Objectives

1. **To determine** the extent of improvement in the technological skills of OISCA-Abra (ASIST) graduates before and after their participation in the TITP.
2. **To identify** the specific technical competencies (e.g., CNC operation, welding, and automation) that are most significantly developed during the internship period.
3. **To examine** the facilitating factors and barriers—including linguistic, cultural, and environmental elements—that influence the acquisition of technological skills.
4. **To assess** the perceived relevance and applicability of the acquired skills to the current and future employment landscape in the Philippines.
5. **To measure** the overall level of trainee satisfaction regarding the technological training component and mentorship received during the program.

Research Questions

1. To what extent did OISCA-Abra (ASIST) graduates improve their technological skills after participating in the Technical Intern Training Program (TITP)?
2. Which specific technical competencies—such as CNC machine operation, advanced welding, and industrial automation—showed the most significant development among the trainees?
3. What were the primary facilitating factors and the most significant barriers (linguistic, cultural, or environmental) encountered by trainees during their skill acquisition process?
4. How do the trainees perceive the relevance and applicability of their acquired technological skills to the current employment opportunities in the Philippine industrial sector?
5. What was the overall level of satisfaction among the graduates regarding the quality of technical mentorship and the training environment provided during the program?

HYPOTHESES

Null Hypothesis (H_{01}):

There was no significant difference in the technological competency levels of trainees before and after participation in the TITP.

Alternative Hypothesis (H_{11}):

There was a significant difference in the technological competency levels of trainees before and after participation in the TITP.

International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)
P - ISSN 3116-3769; E - ISSN 3116-3777
National Book Development Board (NBDB) Registration as Book Publisher (Print & Digital): 6312
PRC-CPD Accredited Provider: PTR-2025-749

Hypothesis for Skill Relevance and Satisfaction (Correlation)

Null Hypothesis (H_{02}):
There was no significant relationship between perceived skill relevance and trainee satisfaction.

Alternative Hypothesis (H_{12}):
There was a significant relationship between perceived skill relevance and trainee satisfaction.

METHODS

Research Design

This study utilized a descriptive-evaluative quantitative research design. The descriptive component was applied to characterize the demographic profiles and baseline technical skill levels of the ASIST graduates through measures of central tendency. Simultaneously, the evaluative component was employed to determine the effectiveness of the Technical Intern Training Program (TITP) by analyzing the degree of technological skill acquisition and assessing trainee satisfaction levels.

This design was the most appropriate for the study because it facilitated an objective, numerical measurement of skill transfer, which was necessary to address the identified lack of granularity in existing literature. By employing this framework, the researcher was able to systematically quantify the "what" and "how" of the training experience, providing a standardized basis for evaluating program outcomes against the specific vocational goals of the OISCA-Abra initiative. Furthermore, this dual-approach design best answered the research questions by bridging the gap between participant profiles (Input) and the measurable impact of the 2027-aligned training framework (Output).

Population and Sampling

The target population for this study consisted of all vocational graduates from the Abra State Institute of Sciences and Technology (ASIST) who were deployed to Japan under the OISCA-Abra framework. The actual sample comprised 50 specific participants who had either completed or were currently in the final year of their Technical Intern Training Program (TITP) as of the 2024–2025 period.

A purposive sampling technique was utilized to select these individuals. This non-probability method was deemed the most appropriate because the research objectives required "information-rich" cases—specifically, individuals with direct, firsthand experience in Japanese industrial environments such as CNC manufacturing and advanced welding.

The sample size of 50 participants was considered sufficient for this study based on the following justifications:

- Homogeneity of the Group: The participants shared a highly specialized background, having undergone the same foundational training at ASIST and the same pre-departure orientation at OISCA-Abra, which reduced the variance typically found in larger, more diverse populations.
- Total Enumeration Approach: Given that the specific cohort of ASIST-OISCA graduates currently in Japan or recently returned is a niche group, a sample of 50 represented a significant portion (if not the near-entirety) of the accessible population available during the data collection period.
- Data Saturation: In quantitative descriptive-evaluative research of a specialized nature, this sample size provided enough data points to establish clear patterns in skill acquisition and satisfaction without the redundancy often found in larger, non-specialized samples.

Instruments

The primary data collection tool was a researcher-made structured questionnaire, specifically designed to capture the technical nuances of industrial training, such as Computer Numerical Control (CNC) and advanced welding. The instrument was organized into four distinct sections to ensure a comprehensive measurement of the study's variables:

Part I: Demographic and Professional Profile. This section collected baseline data regarding the respondents' age, sex, specific vocational specialization, and length of stay in Japan.

Part II: Technical Skill Acquisition. This section measured the "Process" and "Output" variables by assessing the level of competency gained in modern industrial technologies. It utilized a 5-point Likert Scale (e.g., 5-Extremely Competent to 1-Not Competent).

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National Book Development Board (NBDB) Registration as Book Publisher (Print & Digital): 6312
PRC-CPD Accredited Provider: PTR-2025-749

Part III: Facilitating Factors and Barriers. This section identified the impact of expert mentorship and linguistic challenges on the learning process. It employed a 5-point Likert Scale (e.g., 5-Strongly Agree to 1-Strongly Disagree).

Part IV: Program Satisfaction and Readiness. The final section evaluated the trainees' satisfaction with the OISCA-Abra framework and their perceived readiness for reintegration into the Philippine labor market.

To ensure face and content validity, the instrument was subjected to a rigorous validation process by a panel of three experts: a technical-vocational specialist from ASIST, a labor migration researcher, and an industrial engineer with experience in Japanese manufacturing. Following their feedback, the questionnaire was refined for clarity and technical accuracy.

To establish reliability, a pilot test was conducted with 10 non-respondent graduates who possessed similar characteristics to the target sample. The results yielded a Cronbach's Alpha coefficient of 0.89, which indicated high internal consistency and confirmed that the instrument was reliable for formal data collection.

Data Collection

The data collection process was conducted over a three-month period, specifically from September 2024 to November 2024. To accommodate the geographical dispersion of the participants, the researcher utilized an online survey platform (Google Forms) as the primary medium for data acquisition.

The distribution process followed a structured protocol:

Coordination: Permission was first secured from the administration of ASIST and the OISCA-Abra coordination office to access the official alumni communication channels.

Distribution: The survey link, accompanied by a digital informed consent form, was disseminated via encrypted messaging groups (e.g., Messenger and Viber) used by the ASIST-OISCA network.

Respondent Location: At the time of data collection, the respondents were situated in two primary locations: approximately 60% were currently residing in various industrial regions of Japan (e.g., Toyota City, Shizuoka, and Nagano), while the remaining 40% had recently returned to the Philippines and were located in the Cordillera Administrative Region (CAR).

Monitoring: The researcher monitored the real-time responses to ensure data integrity. To maintain a 100% completion rate for the 50 identified participants, automated digital reminders were sent to those who had not yet submitted their responses, ensuring all sections of the instrument were fully addressed.

Treatment of Data

The quantitative data were processed and analyzed using SPSS version 27. To ensure the academic rigor of the findings, all hypothesis testing was measured against a significance level of $\alpha = .05$. The following statistical tools were utilized to answer the specific research questions of the study:

1. Descriptive Statistics (Frequency, Percentage, and Weighted Mean): These tools were employed to characterize the demographic and professional profiles of the ASIST graduates. Specifically, weighted means were used to determine the levels of trainee satisfaction and perceived readiness for the local labor market, thereby addressing RQ4 and RQ5.
2. Paired-Samples T-Test: This inferential statistical test was applied to determine if there was a statistically significant difference between the trainees' self-reported technical skill levels before the program (baseline) and after completion. This analysis provided the quantitative evidence required to answer RQ1 and RQ2 regarding actual technological gains.
3. Ranking: This method was utilized to prioritize and identify the most significant facilitating factors (such as expert mentorship) and the most restrictive barriers (such as the linguistic mismatch) encountered by the participants, directly addressing RQ3.
4. Cronbach's Alpha: As previously established during the pilot phase, this coefficient was used to verify the internal consistency and reliability of the research instrument before the final data analysis.

Ethical Considerations

The study was conducted with strict adherence to ethical research standards, with formal approval secured from the ASIST Institutional Ethics Review Committee. Participation in the study was entirely voluntary, and respondents were explicitly informed that they could decline to participate or withdraw their consent at any time without any negative repercussions to their professional standing or relationship with the involved institutions. All participants were required to sign an Electronic Informed Consent form before accessing the survey, which detailed

International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)
P - ISSN 3116-3769; E - ISSN 3116-3777
National Book Development Board (NBDB) Registration as Book Publisher (Print & Digital): 6312
PRC-CPD Accredited Provider: PTR-2025-749

their right to withdraw and the specific nature of their involvement. Data privacy was rigorously maintained through anonymization, ensuring that no individual trainee or specific Japanese host company could be identified in the final report. Furthermore, official permission was granted by the OISCA-Abra Director to access the alumni database for the sole purpose of this evaluation, ensuring compliance with institutional data-sharing protocols.

RESULTS and DISCUSSION

Demographic Profile of Respondents

A total of 50 OISCA-Abra (ASIST) graduates participated as respondents. The sample was predominantly male (n=41, 82%), with an average age of 25.4 years (SD = 2.8). Respondents were distributed across vital industrial sectors: manufacturing (44%), agriculture (30%), food processing (16%), and construction (10%), with an average Technical Intern Training Program (TITP) duration of 3.1 years (SD = 0.5).

The concentration in manufacturing and agriculture reflected the current demand in the Japanese labor market under the TITP framework. This demographic trend suggests that the training was primarily focused on labor-intensive and technically demanding sectors, which may imply a higher necessity for physical stamina and rapid technical adaptation. The 3.1-year average duration was significant, as it suggested that most respondents completed the initial training phase and transitioned into more advanced technical stages, providing them with sufficient time for legitimate peripheral participation (Lave & Wenger, 1991).

Technological Skill Acquisition

The quantitative assessment revealed a statistically significant improvement in technological skills. A paired-samples t-test comparing pre-TITP skill scores (M=2.45, SD=0.62) with post-TITP scores (M=4.18, SD=0.48) yielded a significant increase ($t(49)=18.75$, $p<.001$).

The specific skills showing the highest development were Computer Numerical Control (CNC) machine operation (M=4.65), advanced welding techniques ($M=4.40), and industrial automation involving robotics (M=4.22). These findings strongly supported Human Capital Theory, demonstrating that international internships served as a high-value investment in technical productivity. The mastery of Computer Numerical Control (CNC) and automation aligned with recent findings by Tanaka (2024), who noted that Japanese manufacturing firms have increasingly integrated artificial intelligence (AI) and robotics into the training of foreign interns to address labor shortages. This progression from novice to proficient confirmed that the TITP provided the authentic context necessary for mastery as posited by the Dreyfus Model of Skill Acquisition.

Challenges and Facilitating Factors

The hierarchy of factors influencing skill acquisition identified clear barriers and enablers.

Table 1
Challenges and Facilitating Factors in Technological Skill Acquisition (N=50)

Rank	Factor Category	Specific Factor	Mean (M)	Std. Dev. (SD)	Interpretation
1	**Facilitator**	Hands-on experience and practical application	**4.88**	0.28	Very Highly Influential
2	**Facilitator**	Quality and expertise of supervisors/trainers	**4.60**	0.49	Highly Influential
3	**Challenge**	Language barrier (Technical/Conversational)	**4.52**	0.51	Significant Barrier

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PRC-CPD Accredited Provider: PTR-2025-749

Rank	Factor Category	Specific Factor	Mean (M)	Std. Dev. (SD)	Interpretation
4	**Facilitator**	Access to modern technology and equipment	**4.35**	0.55	Highly Influential
5	**Challenge**	Cultural differences in workplace communication	**4.10**	0.65	Moderate Barrier

The language barrier (M=4.52) remained the most significant obstacle, consistent with recent studies (Suzuki, 2023), highlighting that N4-level Japanese was often insufficient for technical factory environments. However, the high score for hands-on experience (M=4.88) validated Situated Learning Theory. The expert-novice relationship in the Japanese *Genba* (actual workplace or shop floor) effectively mitigated linguistic gaps through visual and tactile instruction.

This finding suggests that while verbal communication was limited, technical mastery was achieved through the observation of Japanese workplace standards. However, cultural differences in communication (M=4.10)—specifically the mastery of *Horenso* (the Japanese workplace communication style of Report, Inform, and Consult)—presented a moderate barrier. This indicates that technical skill transfer must be paired with better socio-cultural orientation to improve workplace harmony.

Program Satisfaction and Transferability

Trainees reported high confidence in the relevance of their skills (M=4.54, SD=0.50) and high overall program satisfaction (M=4.30, SD=0.61). A Pearson correlation analysis revealed a strong, positive relationship between perceived relevance and satisfaction ($r = 0.78$, $p < 0.001$). This indicated that satisfaction was not merely about the experience in Japan, but the perceived transferability of human capital back to the Philippines. This finding implies that graduates see their Japanese experience as a long-term career asset rather than a temporary labor stint, aligning with the goals of the 2024–2027 Japanese labor reforms under the Employment for Skill Development Program (ESDP), which prioritize career-pathing for foreign workers.

Conclusions

Based on the empirical findings of this study, the following conclusions are reached:

1. **Technical Efficacy.** The Technical Intern Training Program (TITP) serves as a highly effective mechanism for technological skill enhancement. The significant increase in proficiency scores ($p < .001$) indicates that the program successfully transforms ASIST graduates from novices into competent technical practitioners, specifically in high-value areas such as Computer Numerical Control (CNC) operation and advanced welding.
2. **Environmental Drivers of Learning.** The *Genba* (actual workplace) functions as the primary classroom for technical immersion. This study concludes that the combination of hands-on experience and expert mentorship, rather than theoretical instruction alone, is the critical driver of skill acquisition. These results suggest the successful application of Situated Learning Theory within the context of international vocational training.
3. **Economic Value Perception.** Trainee satisfaction is inextricably linked to the portability of acquired skills. The strong correlation ($r = 0.78$) between skill relevance and satisfaction suggests that graduates view the TITP not merely as a temporary labor opportunity, but as a long-term human capital investment for their future professional careers in the Philippines.
4. **Non-Technical Barriers.** While technical transfer is successful, a significant communication ceiling exists. The language barrier ($M = 4.52$) acts as the primary bottleneck that prevents trainees from fully engaging in complex problem-solving and deeper professional integration within the Japanese industrial environment.

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PRC-CPD Accredited Provider: PTR-2025-749

Recommendations

To facilitate a successful transition toward the 2027 Employment for Skill Development Program (ESDP) framework, the following measures are humbly proposed for consideration:

For OISCA-Abra and ASIST

- Technical Language Integration. Stakeholders may consider moving beyond basic N4 Japanese grammar by redesigning the pre-departure curriculum. This may include a specialized Technical Japanese Module featuring vocabulary, technical dialects, and safety signage specific to Japanese manufacturing and Computer Numerical Control (CNC) environments.
- Simulated Workplace Orientation. The institution may implement Culture-in-Practice workshops where returned alumni role-play Japanese workplace scenarios. These sessions may focus on *Horenso* (Report, Inform, and Consult) to better prepare trainees for cultural communication norms prior to departure.

For Japanese Host Organizations

- Formalized Mentorship Credits. Host companies may consider incentivizing Japanese supervisors who act as mentors. The adoption of a structured Skills Checklist, signed by both the mentor and trainee quarterly, may formalize the Situated Learning process and ensure consistent technical progress.
- Visual Aid Utilization. To mitigate the identified language barrier, companies may adopt Augmented Reality (AR) or visual technical manuals. The use of icons and diagrams in these manuals may bridge the communication gap during complex technical operations without relying solely on high-level linguistic proficiency.

For Philippine Government Agencies (TESDA and DMW)

- National Skills Registry. The Technical Education and Skills Development Authority (TESDA) and the Department of Migrant Workers (DMW) may develop a dedicated database for TITP/ESDP returnees. This platform may automatically match specialized competencies (e.g., robotics, CNC) with requirements in Philippine Economic Zones to prevent human capital waste.

For Future Research

- Longitudinal Skill Utilization Study. Future researchers may conduct follow-up studies 2–3 years after trainees return to the Philippines. Such research may measure the degree to which acquired human capital is utilized in the local labor market and identify factors that prevent or facilitate skill application upon reintegration.

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Unfold the untold: Stories of Special Program in the Arts teacher-implementers

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Abstract
Aim: The Special Program in the Arts (SPA) plays a crucial role in developing the artistic talents of gifted learners in Philippine public secondary schools. Despite its significance, there remains a scarcity of empirical, teacher-centered research that examines how the SPA curriculum is implemented within actual classroom contexts. This study aimed to explore the challenges encountered by SPA teacher-implementers in curriculum delivery, identify the strategies they employ to address these challenges, and propose recommendations to strengthen the implementation of the SPA program.
Methodology: A descriptive qualitative phenomenological research design was utilized to capture the lived experiences of SPA teacher-implementers. Data were collected through semi-structured interviews with nine (9) SPA teachers representing various arts disciplines in a public secondary school in Northern Luzon. The interview transcripts were analyzed using thematic analysis to identify recurring patterns and shared meanings related to SPA curriculum implementation.
Results: The findings revealed four major challenges affecting SPA curriculum delivery: (1) inadequate facilities, equipment, and instructional materials; (2) learners' varying skill levels and readiness; (3) time constraints and curriculum congestion; and (4) limited teacher training and specialization. To address these challenges, teachers implemented adaptive strategies clustered into four themes: instructional flexibility and curriculum adaptation, resourcefulness and improvisation, collaboration and stakeholder support, and professional self-development. Although these strategies reflect strong teacher agency and commitment, they were found to be insufficient as long-term solutions due to the lack of structured and sustained institutional support.
Conclusion: The study concludes that the sustainable improvement of SPA curriculum implementation necessitates systemic and policy-level interventions. These include strengthened resource provision, curriculum review and alignment, continuous specialization-based teacher training, and clear policy support with regular monitoring mechanisms. The findings offer context-specific insights that may guide policymakers, school administrators, and arts educators in enhancing the effectiveness and long-term sustainability of the SPA program.
Keywords: *arts education; curriculum implementation; phenomenological research; Special Program in the Arts; teacher-implementers*

INTRODUCTION

Arts education is a vital component of holistic, learner-centered development, fostering creativity, critical thinking, collaboration, and emotional expression (Garcia, 2020; Davis, 2021). In the Philippines, the Department of Education established the Special Program in the Arts (SPA) to nurture artistically gifted learners through specialized instruction in music, visual arts, theater, and dance. Despite clear policy goals, SPA implementation faces challenges, particularly in public schools with uneven resources and limited teacher training (Smith & Jones, 2019; Garcia, 2020). Teachers play a central role in program success, as they are tasked with delivering specialized content, scaffolding learning, and integrating the arts within broader curricula. However, many encounter difficulties aligning curriculum standards with local realities and accessing sustained professional development (Davis, 2021; Adams, 2018). While existing research examines program outcomes and conceptual frameworks, limited qualitative studies explore SPA teacher-implementers' lived experiences, their strategies for overcoming challenges, and their responses to systemic constraints.

Addressing this gap, the present study investigates these experiences to generate context-based insights that can inform policymakers, administrators, and educators. These insights may guide curriculum adjustments, professional development initiatives, and resource allocation to ensure that the SPA's goals of artistic excellence and holistic learner development are meaningfully realized in practice.

This study is anchored in Constructivist Learning Theory, primarily associated with Jean Piaget, and in Lev Vygotsky's concept of the Zone of Proximal Development (ZPD). Constructivist Learning Theory posits that learners actively construct knowledge through meaningful engagement, interaction, and reflection rather than passively

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receiving information (Piaget, 1970). In the context of the Special Program in the Arts (SPA), this perspective underscores the importance of experiential, performance-based, and student-centered learning processes, where learners develop artistic understanding through active creation, collaboration, and critique. Complementing this view, Vygotsky's ZPD explains that learning occurs most effectively when students are guided or scaffolded by a more knowledgeable other—such as a teacher or peer—within the space between what they can do independently and what they can achieve with support (Vygotsky, 1978). This framework is particularly relevant to SPA curriculum implementation, as teachers must continuously scaffold instruction to address varied learner readiness, adapt to resource limitations, and facilitate artistic skill development. By grounding the study in constructivist and sociocultural principles, the research interprets SPA teachers' adaptive strategies, instructional flexibility, and professional agency as forms of scaffolded support that mediate learning within real-world classroom constraints.

Statement of the Problem

Despite the policy support and curricular structure of the Special Program in the Arts (SPA) in Philippine public secondary schools, its implementation continues to face significant challenges at the school level. Variations in resource availability, learner readiness, instructional time, and teacher specialization create gaps between curriculum intentions and classroom realities. While previous studies have explored arts education frameworks and program outcomes, there remains limited teacher-centered, experience-based evidence that explains how SPA teacher-implementers navigate these challenges in actual practice. Without understanding the lived experiences of teachers who directly deliver the curriculum, efforts to improve SPA implementation risk overlooking contextual constraints and practical adaptation strategies. This study was therefore conducted to examine the challenges encountered by SPA teacher-implementers, the interventions they employ, and the systemic improvements needed to strengthen the program's sustainability and effectiveness.

Research Objectives

General Objective

To explore the lived experiences of Special Program in the Arts (SPA) teacher-implementers in relation to curriculum implementation in a public secondary school.

Specific Objectives

1. To examine the challenges encountered by SPA teacher-implementers in delivering the SPA curriculum.
2. To identify the instructional and professional strategies employed by SPA teachers to address these challenges.
3. To analyze how contextual and systemic factors influence SPA curriculum implementation.
4. To propose recommendations for strengthening the implementation and sustainability of the SPA curriculum.

Research Questions

1. What challenges do SPA teacher-implementers encounter in delivering the SPA curriculum?
2. What strategies and interventions do SPA teacher-implementers employ to address these challenges?
3. How do contextual and systemic factors influence the implementation of the SPA curriculum?
4. What recommendations can be proposed to improve the effectiveness and sustainability of SPA implementation?

METHODOLOGY

Research Design

This study employed a descriptive qualitative phenomenological research design to explore the lived experiences of Special Program in the Arts (SPA) teacher-implementers in relation to curriculum delivery. A phenomenological approach was appropriate because it sought to understand how individuals interpret and make meaning of their experiences within a specific context. Rather than measuring variables or testing causal relationships, the study aimed to capture rich, first-hand accounts of teachers' realities in implementing the SPA curriculum. This design was particularly suited to addressing the identified research gap concerning the lack of teacher-centered, experience-based evidence on SPA implementation (Eisner, 1998; Strauss & Corbin, 1998).

Participants and Sampling Technique

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PRC-CPD Accredited Provider: PTR-2025-749

The participants of the study were nine (9) SPA teacher-implementers from a public secondary school in Northern Luzon offering the SPA curriculum in music, visual arts, theater, dance and media arts. These teachers represented the entire population of SPA implementers in the school during the conduct of the study.

Purposive sampling was employed to select participants who possessed direct and sustained experience in SPA curriculum implementation (Yin, 2009). Inclusion criteria included: (1) officially designated SPA teacher-implementers, (2) actively teaching an SPA discipline, (3) at least one year of SPA teaching experience, and (4) willingness to participate. Teachers not assigned to SPA or with less than one year of experience were excluded. This sampling ensured rich, relevant, and context-grounded data.

Research Instrument

The primary instrument was a researcher-made semi-structured interview guide designed to gather in-depth qualitative data on teachers' experiences in SPA curriculum delivery. The instrument covered three domains: (1) implementation challenges, (2) intervention strategies, and (3) recommendations for program improvement.

To establish content validity, the interview guide was reviewed by two experts: a senior SPA teacher with extensive program experience and an education research adviser with expertise in qualitative methods. Their feedback focused on clarity, relevance, and alignment with research objectives.

A pilot interview was conducted with one SPA teacher not included in the study. Minor revisions were made for clarity and logical sequencing. Pilot data were excluded from analysis.

Data Collection Procedure

Data were collected over a three-week period through one-on-one semi-structured interviews. Most interviews were conducted face-to-face in a quiet room within the school premises, while a few were conducted through online video conferencing due to scheduling constraints.

Each interview lasted approximately 45 to 60 minutes. With participants' permission, interviews were audio-recorded and supplemented with field notes documenting contextual observations. The same interview guide and procedures were used for all participants to ensure consistency.

Data Analysis Procedure

Interview recordings were transcribed verbatim and reviewed multiple times to ensure familiarity with the data. A thematic analysis approach was employed. The researcher first conducted open coding to identify significant statements related to curriculum challenges, teacher interventions, and systemic influences. Similar codes were then grouped into categories and synthesized into overarching themes.

The analysis was guided by Constructivist Learning Theory and Vygotsky's Zone of Proximal Development, which informed interpretation of how teachers scaffold learning and adapt instruction amid contextual limitations (Piaget, 1970; Vygotsky, 1978).

To ensure trustworthiness, the study applied credibility, dependability, confirmability, and transferability strategies. These included prolonged engagement, member checking, triangulation with relevant documents, maintaining an audit trail, reflexive journaling, and providing thick descriptions of context and procedures.

Ethical Considerations

Ethical standards were strictly observed. Participants were informed about the purpose and procedures of the study and provided written informed consent prior to participation. Participation was voluntary, and participants could withdraw at any time.

Confidentiality was maintained through the use of codes (P1–P9) and the removal of identifying details. Interviews were conducted in private settings to ensure comfort and openness. All data were used solely for academic purposes and stored securely.

RESULTS and DISCUSSIONS

Research Question 1: Challenges in SPA curriculum delivery

Thematic analysis revealed four interrelated challenges affecting the implementation of the Special Program in the Arts (SPA) curriculum: inadequate facilities and materials, learners' varied readiness, time constraints, and limited teacher specialization. These challenges illustrate a systemic misalignment between curriculum expectations and school-level realities.

International Journal of Education, Learning, and Pedagogical Sciences (INJELPS)
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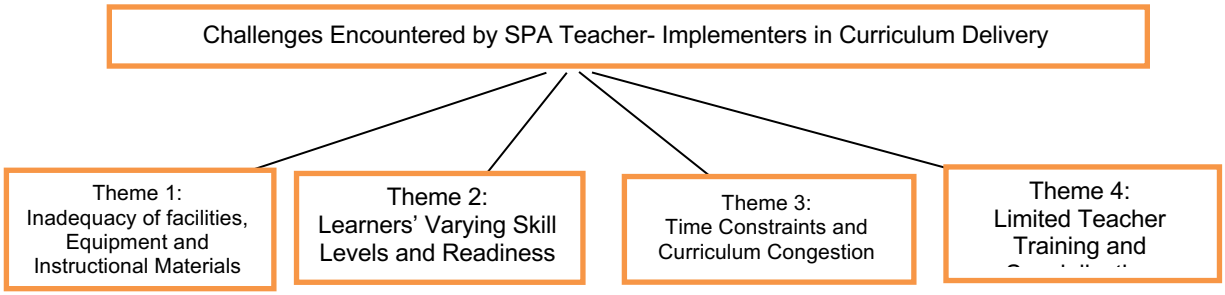
National Book Development Board (NBDB) Registration as Book Publisher (Print & Digital): 6312
PRC-CPD Accredited Provider: PTR-2025-749

Inadequate Facilities, Equipment, and Instructional Materials

Participants described the absence of specialized spaces and tools necessary for effective arts instruction (P1, P6, P8). This limitation restricted hands-on, performance-based learning, which is central to arts education. From a sociocultural perspective, Vygotsky (1978) emphasized that learning is mediated by tools and environment; thus, insufficient resources directly constrain students' opportunities to develop artistic competencies. Similarly, Darling-Hammond et al. (2017) noted that instructional quality is strongly linked to material and infrastructural support. The findings therefore suggest that SPA implementation is not only a pedagogical issue but also a structural one, where resource inequity undermines curriculum intentions.

Learners' Varying Skill Levels and Readiness

Teachers reported significant disparities in students' prior exposure and artistic skills (P2, P7), creating challenges in pacing and differentiation. This aligns with Tomlinson's (2014) view that differentiated instruction is essential in diverse classrooms and with Bruner's (1996) emphasis on developmentally appropriate teaching. However, in the absence of structured support or reduced class size, teachers relied heavily on personal adjustments, which may lead to inconsistent learning outcomes. The results highlight how learner diversity, when unsupported by systemic mechanisms, becomes an instructional burden rather than an opportunity for inclusive practice.



Research Question 2: Interventions Implemented by SPA Teachers

The analysis revealed four major interventions enacted by SPA teachers: (1) instructional flexibility and curriculum adaptation, (2) resourcefulness and improvisation, (3) collaboration and stakeholder engagement, and (4) professional self-development. As researchers, our task extends beyond cataloguing these practices; it involves interpreting what they signify about SPA implementation and situating them within broader theoretical and policy discourses. Across themes, the interventions reflect strong teacher agency but simultaneously illuminate structural gaps that necessitate systemic attention.

Theme 1: Instructional Flexibility and Curriculum Adaptation

Teachers modified pacing, differentiated tasks, and adjusted performance outputs to accommodate learner diversity and contextual limitations.

These adaptations were not random alterations but deliberate pedagogical decisions aimed at sustaining learner engagement and maintaining attainable artistic standards despite uneven readiness levels and resource constraints. Teachers functioned as curriculum negotiators, balancing policy expectations with classroom realities.

Within Constructivist Learning Theory, associated with Jean Piaget, knowledge is actively constructed through developmentally appropriate experiences. Similarly, Lev Vygotsky's Zone of Proximal Development (ZPD) emphasizes calibrated scaffolding to bridge learners' current and potential abilities. The teachers' instructional flexibility represents applied scaffolding—an attempt to situate tasks within learners' ZPD under constrained conditions. Existing literature on differentiated instruction further supports adaptive teaching as essential in heterogeneous classrooms (Tomlinson, 2014).

The deeper implication is that differentiation in SPA currently depends heavily on individual teacher discretion. While this demonstrates adaptive expertise, it risks uneven implementation across schools. For practice, structured differentiation frameworks and diagnostic assessment systems may provide clearer guidance. For policy, curriculum documents must embed principled flexibility rather than rigid prescriptions, ensuring that adaptation becomes systemic design rather than personal improvisation.

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Theme 2: Resourcefulness and Improvisation

Teachers improvised instructional materials, repurposed available tools, and integrated digital resources to compensate for limited facilities and equipment.

These practices demonstrate resilience and professional commitment. Teachers refused to allow material shortages to entirely hinder experiential arts learning, creatively expanding the range of instructional tools within their reach.

Vygotsky's sociocultural theory underscores the role of mediational tools in learning. By introducing improvised or digital tools, teachers broadened the mediational environment within which artistic meaning-making occurs. However, literature on educational equity cautions that teacher-level coping mechanisms may obscure systemic resource disparities (Darling-Hammond et al., 2017).

The "so what" lies in distinguishing innovation from normalization of scarcity. While improvisation sustains instruction in the short term, long-term reliance may inadvertently shift institutional accountability onto teachers. For policymakers, this finding signals the urgency of guaranteed resource provision. For practice, schools may document and systematize effective low-cost innovations—but these must complement, not replace, infrastructural investment.

Theme 3: Collaboration and Stakeholder Engagement

Teachers engaged colleagues, parents, and community partners to enhance instructional delivery and provide authentic arts experiences.

Collaboration extended instructional capacity beyond individual classrooms, enabling performance opportunities, mentorship, and supplemental support that schools alone could not provide.

Sociocultural perspectives view learning as socially constructed within communities of practice. Vygotsky emphasized that cognitive development is shaped by interaction within cultural contexts. Partnerships thus expand the learner's ZPD by situating artistic practice within real-world cultural networks. Research on school–community partnerships (Epstein, 2011) similarly highlights collaborative ecosystems as drivers of enriched learning experiences.

The significance of collaboration lies in its potential to transform SPA from a school-bound program into a community-embedded cultural initiative. However, informal collaboration may remain inconsistent and personality-dependent. Institutionalizing partnership frameworks through memoranda of agreement, cultural linkages, and structured engagement programs would ensure sustainability. Policy support is therefore necessary to formalize what teachers currently initiate independently.

Theme 4: Professional Self-Development

Teachers pursued webinars, peer mentoring, and self-directed learning to strengthen their artistic and pedagogical competencies.

This reflects high professional agency and awareness of evolving instructional demands. Teachers recognized gaps in specialization and proactively sought growth opportunities.

Constructivist principles extend to adult learning; educators construct professional knowledge through reflective practice and collaborative exchange. However, Vygotsky's notion of guided learning also implies that teachers themselves require structured scaffolding within professional communities. Literature on effective professional development emphasizes sustained, discipline-specific training as critical for instructional quality (Darling-Hammond et al., 2017).

The deeper implication is that teacher resilience should not substitute for institutionalized professional development systems. For practice, schools may create specialization-based learning action cells. For policy, structured and continuous SPA-focused training programs are essential to ensure equitable teacher competence across regions.

Integrative Interpretation of Interventions

Across themes, the interventions reveal more than coping strategies; they illuminate the dynamic interplay between teacher agency and systemic limitation. As researchers, our role is not merely to recount adaptive actions but to interpret their structural significance. The findings suggest that SPA teachers are enacting constructivist and sociocultural principles—scaffolding, mediation, collaboration, reflective practice—even when institutional conditions are imperfect.

However, these interventions simultaneously expose a central tension: teacher-driven solutions, while sustaining instructional continuity, cannot fully compensate for systemic deficiencies in resources, specialization, and governance alignment. The broader implication for policy is that sustainable SPA quality depends on shifting from reliance on individual resilience toward coordinated structural reform.

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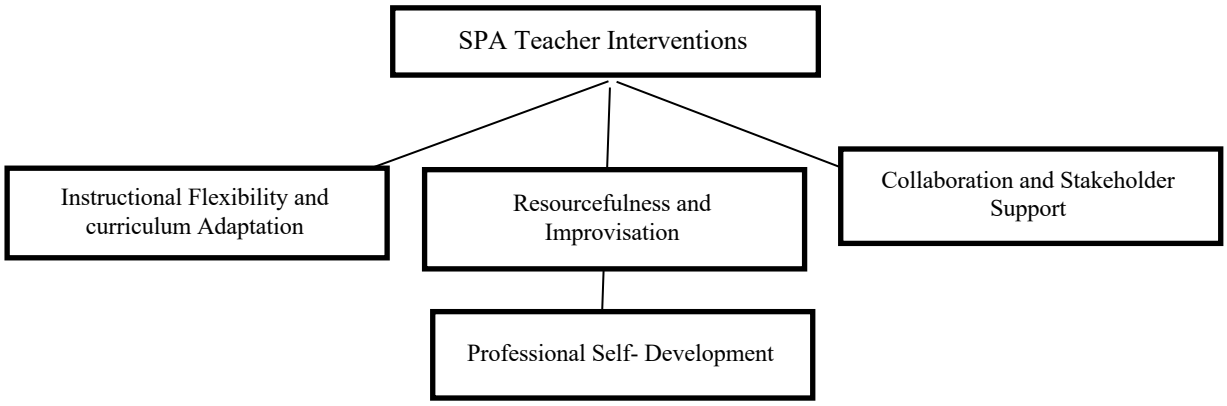
PRC-CPD Accredited Provider: PTR-2025-749

Thus, the discussion reframes the inquiry from "What strategies do teachers use?" to "What institutional designs are required so that teacher expertise translates into consistent, equitable, and high-quality arts education?"

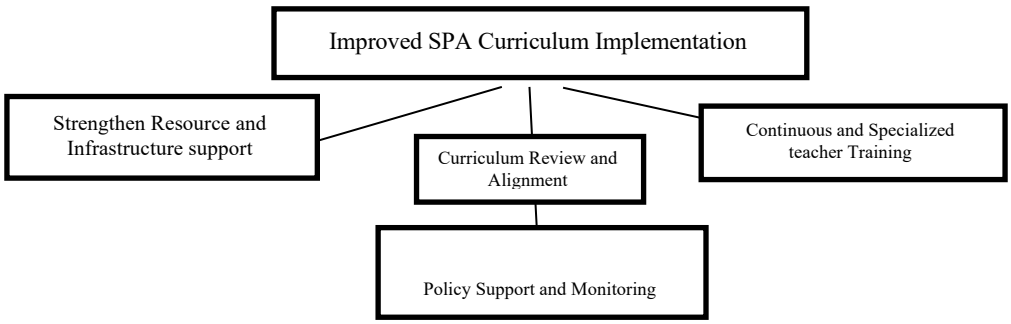


Research Question 3: Recommendations for Improving SPA Curriculum Implementation

Thematic analysis showed that participants proposed strategic recommendations to enhance the quality and sustainability of SPA curriculum implementation. Four major themes emerged: strengthened resource and infrastructure support, curriculum review and alignment, continuous and specialized teacher training, and policy support and monitoring.

Teachers emphasized the need for adequate facilities, equipment, and budgetary support to sustain instruction (P1, P6); curriculum review to streamline content and align competencies with learners' developmental levels (P4, P9); continuous, specialization-based professional development to strengthen pedagogical expertise (P2, P7); and stronger policy support with systematic monitoring to ensure accountability and sustainability (P3, P8).

These recommendations reflect Vygotsky's (1978) emphasis on the role of learning tools and environment, Tyler's (1949) and Ornstein and Hunkins' (2018) focus on curriculum alignment and coherence, Shulman's (1986) pedagogical content knowledge framework, and Fullan's (2016) principles of capacity-building and systemic reform. Collectively, these insights highlight that effective SPA implementation requires coordinated attention to resources, curriculum coherence, teacher competence, and leadership, providing actionable guidance for policymakers, school administrators, and teacher-implementers to strengthen the curriculum's quality, relevance, and sustainability



Conclusions

This study demonstrated that SPA curriculum implementation is shaped by interconnected material, instructional, and systemic constraints. While teacher initiative helped mitigate immediate challenges, sustainable program effectiveness depended on structural support beyond individual effort. The findings underscored that curriculum success in specialized arts programs requires alignment among resources, teacher expertise, learner

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readiness, and institutional policy. By foregrounding teacher experiences, the study contributed context-based insights into how educational reforms are translated into classroom realities, offering evidence that meaningful curriculum implementation is both a pedagogical and governance concern.

Recommendations

For SPA Teacher-Implementers

1. **Institutionalize Structured Differentiation Practices.**
   SPA teachers may apply differentiated instructional strategies within clearly defined learning targets to address learner diversity while maintaining consistent performance standards.
2. **Strengthen Professional Collaboration through Learning Action Cells (LACs).**
   Schools may establish specialization-based LACs where SPA teachers can regularly share instructional strategies, artistic techniques, assessment practices, and contextual innovations.
3. **Engage in Continuous and Specialization-Focused Professional Development.**
   Teachers may pursue sustained professional learning opportunities aligned with their specific arts discipline to enhance pedagogical content knowledge and scaffolding capacity.
4. **Document and Share Effective Instructional Innovations.**
   Teachers may systematically document successful adaptive practices and improvisations to contribute to institutional knowledge-building and peer learning.

For the Department of Education (DepEd) and School Administrators

1. **Prioritize Resource Allocation for SPA Infrastructure.**
   Education leaders may allocate adequate budgetary support for specialized facilities, equipment, and instructional materials essential for experiential arts learning.
2. **Review and Streamline SPA Curriculum Competencies.**
   Curriculum planners may revisit SPA standards to ensure coherence, developmental alignment, and feasibility within existing instructional time.
3. **Align Teacher Deployment with Area of Specialization.**
   Administrators may assign SPA teachers according to their specific artistic expertise to strengthen instructional precision and effective scaffolding.
4. **Provide Structured and Continuous Professional Development Programs.**
   DepEd may institutionalize specialization-based training programs to ensure equitable access to high-quality professional learning across regions.
5. **Establish Clear Monitoring and Technical Support Mechanisms.**
   Policymakers may develop systematic monitoring frameworks to assess curriculum fidelity, resource adequacy, and instructional quality while providing technical assistance to schools.

For Parents and Community Stakeholders

1. **Support Learners' Artistic Development at Home.**
   Parents may provide encouragement, time, and logistical assistance to sustain students' engagement in artistic practice.
2. **Strengthen School–Community Partnerships.**
   Community members and local cultural organizations may collaborate with schools to provide authentic performance venues, mentorship opportunities, and supplemental resources.
3. **Advocate for Sustainable Support of SPA Programs.**
   Stakeholders may participate in initiatives and partnerships that promote resource generation and long-term sustainability of arts education programs.

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Navigating work-related stress: Teachers' strategies for effective job stress management

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Abstract
Aim: This phenomenological study explored the lived experiences of elementary teachers in Jose Abad Santos 1 regarding work-related stress and the coping strategies they employ.
Methodology: The study utilized a descriptive phenomenological design. Fifteen purposively selected elementary teachers participated in in-depth interviews. Data were analyzed using the Colaizzi method to identify significant themes describing teachers' stress experiences and coping practices.
Findings: Teachers identified workload demands, classroom management challenges, administrative pressures, and limited resources as primary sources of work-related stress. Emotional strain and time constraints further intensified their stress experiences. To manage stress, teachers adopted self-care practices, healthy lifestyle habits, and structured time management. Social and professional support systems, including peer collaboration and administrative assistance, also played a vital role in coping. Participants emphasized that supportive leadership, access to mental health resources, and a positive school climate significantly contribute to reducing stress and sustaining teacher well-being.
Conclusion: Work-related stress among teachers is largely driven by workload, instructional demands, and institutional challenges. Strengthening coping mechanisms and enhancing administrative and psychosocial support systems are essential to promoting teacher resilience, well-being, and professional effectiveness.
Keywords: Education, Work-related stress, Coping mechanisms, Phenomenology, Philippines

INTRODUCTION

Work-related stress negatively impacts teachers' performance, motivation, and overall well-being, with major stressors such as heavy workloads, classroom management issues, and lack of administrative support hindering their ability to teach effectively.

Globally, a study conducted by Dos Santos (2020) in South Korea believed that stress is not an isolated situation in a particular region but an international problem at local schools, international schools, universities, private teaching academies, and even community centers. Also, in Singapore, Ng and Meow (2022) elucidated that prolonged exposure to stress among teachers is associated with several undesirable outcomes, including lower job satisfaction and increased motivation to leave the teaching profession. Further, effectively managing stress among teachers requires a combination of institutional support, such as reduced workloads and access to mental health resources, along with professional development and a positive school culture that prioritizes teacher well-being.

In the Philippine arena, a study conducted by Sarabia and Collantes (2020) stated that one of the problems experienced by teachers is work-related stress due to long hours, large class sizes, and limited resources. Also, a study conducted in Manila by Panuelos and Pili (2025) elucidated that it is important to address occupational stress and enhance the working conditions of teachers to improve their quality of life and teachings.

In the province of Davao Occidental, the same problem is manifested among the elementary teachers in Jose Abad Santos (JAS) 1, wherein some of the teachers opted to resign because of burnout and stress. Subsequently, there is a notable gap in existing research on work-related stress among teachers, as most studies predominantly utilize quantitative methods and that qualitative research is needed because it seeks to capture the lived experiences, personal narratives, and contextual realities of teachers facing work-related stress. Conducting this study is necessary to gain a deeper understanding of the underlying causes, coping mechanisms, and support systems available to teachers, which can serve as a basis for developing responsive interventions and policies to improve their well-being and retention in the profession.

Subsequently, this study aims to address this gap by adopting a qualitative approach, providing deeper insights into the lived experiences of teachers and the nuanced, personal impact of work-related stress that quantitative data alone may overlook. Thus, this study may explore the work-related stress of teachers to understand the specific challenges they face in their profession.

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Review of Related Literature and Studies

Work-related stress among teachers has emerged as a critical issue with far-reaching consequences for both educator well-being and instructional quality. Hence, Benevene et al. (2020) identified persistent stressors such as heavy workloads, extended working hours, large class sizes, and intense emotional demands, while Kreuzfeld et al. (2022) emphasized that prolonged exposure to these conditions contributes to burnout, anxiety, depression, and other adverse physical and psychological outcomes. These findings underscore that teacher stress is not merely an individual concern but a systemic issue that directly influences teacher retention, classroom effectiveness, and the overall quality of education.

Similarly, global evidence affirms that teachers operate within increasingly complex professional environments characterized by limited resources, accountability pressures, and escalating performance standards (Katsantonis, 2020). Moreover, Montano (2023) further argued that understanding the multifaceted effects of work-related stress is essential to addressing the challenges embedded in the teaching profession. However, while existing studies extensively document the sources and consequences of stress, there remains a notable gap in research that deeply examines how teachers themselves actively manage and navigate these stressors in their specific contexts. Thus, this study takes a strong and necessary position by focusing on teachers' strategies for effective job stress management, contributing context-based, practice-oriented insights that move beyond problem identification toward actionable solutions that support resilience, professional sustainability, and improved educational outcomes (Cook & Babyak, 2019).

Job stress is a significant challenge faced by teachers, impacting their well-being, job satisfaction, and overall effectiveness in the classroom (Cropley et al., 2020). They also stated that effective stress management strategies are crucial to mitigating the adverse effects of stress and maintaining teacher well-being. According to Redondo-Flores et al. (2020), engaging in physical exercise, maintaining a balanced diet, and prioritizing sleep are foundational elements of stress management for teachers. Moreover, physical well-being directly impacts mental health, with regular physical activity shown to reduce stress and anxiety levels (Rogowska et al., 2020). They also stated that teachers who prioritize self-care report feeling more energized and better equipped to manage their professional responsibilities. In line with these findings, this study seeks to examine teachers' strategies for effective job stress management to better understand the practical approaches they employ in sustaining their well-being and professional effectiveness.

Synthesis

The reviewed literature consistently positions teaching as a highly demanding profession characterized by substantial work-related stress. Moreover, Elomaa et al. (2023) emphasized that teachers regularly confront excessive workloads, time pressures, challenging student behavior, and limited administrative support wherein conditions that not only heighten daily strain but also contribute to burnout, absenteeism, and attrition. Although Ghasemi (2022) noted an increasing scholarly interest in how educators cope with these stressors, much of the existing research remains concentrated on identifying stressors and documenting their negative consequences rather than critically examining how teachers actively and strategically manage stress within their specific professional contexts. This imbalance reveals a clear research gap: there is insufficient in-depth, context-based exploration of the coping strategies teachers employ to sustain their well-being and effectiveness. Consequently, investigating teachers' strategies for effective job stress management is not only relevant but necessary, as it advances the discourse from problem identification to solution-oriented understanding, generating practical insights that can inform targeted interventions, institutional support systems, and policies aimed at strengthening teacher resilience and long-term professional sustainability.

Theoretical Framework

This study was viewed through the lens of the Transactional Model of Stress and Coping (TSC) of Folkman and Lazarus (1986), which emphasizes the dynamic relationship between the individual and their environment, suggesting that stress results from a transaction between a person and their surroundings. In this study, this theory offered a valuable framework for understanding how teachers experience and manage stress. Moreover, through examining how teachers appraise stressful situations and the coping resources they use, teachers can develop targeted strategies to reduce stress and promote well-being. Moreover, effective stress management involves improving teachers' coping resources, fostering a supportive work environment, and training teachers to reframe challenges as manageable (Hayes, 2021). Further, the TSC model underscores the importance of both individual and

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collective efforts in managing stress, ensuring that teachers can remain healthy, motivated, and effective in their teaching roles.

Guided by the TSC, this research specifically explores how teachers cognitively appraise work-related stressors and the problem-focused and emotion-focused coping strategies they employ in response, thereby aligning the theoretical framework with the study's objective of examining teachers' strategies for effective job stress management. Through applying this model, the study systematically analyzes the interaction between environmental demands and personal coping resources, enabling a deeper understanding of how these processes inform the development of practical interventions and evidence-based recommendations to enhance teachers' well-being and professional sustainability.

Statement of the Problem

Work-related stress has become a growing concern in the teaching profession due to its adverse effects on educators' well-being, job satisfaction, and instructional effectiveness. Teachers are frequently exposed to heavy workloads, complex classroom environments, and increasing administrative demands, which contribute to emotional exhaustion and burnout. While numerous studies have examined teacher stress, many have relied primarily on quantitative methods that measure stress levels without fully capturing teachers' lived experiences and the personal meanings they attach to their challenges.

In the Philippine context, teachers continue to face resource limitations, large class sizes, and evolving institutional expectations that intensify occupational stress. However, there remains limited qualitative research exploring how elementary teachers in specific local settings experience and cope with work-related stress. Without an in-depth understanding of teachers' lived experiences, interventions and support systems may fail to address the realities teachers encounter daily.

This study therefore sought to explore the lived experiences of elementary teachers in Jose Abad Santos 1 regarding work-related stress and the coping strategies they employ. By examining their personal perspectives and support needs, the study aimed to provide context-specific insights that may inform school leadership practices, teacher support programs, and policy initiatives designed to promote teacher well-being.

Research Objectives

General Objective

To explore the lived experiences of elementary teachers in Jose Abad Santos 1 regarding work-related stress and their coping strategies.

Specific Objectives

1. To identify the most pervasive sources of work-related stress among elementary teachers.
2. To examine the coping strategies teachers use to manage work-related stress.
3. To determine the types of institutional and social support teachers need in addressing work-related stress.
4. To describe the insights teachers can share with the academe regarding stress management and professional well-being.

Research Questions

1. What are the most pervasive sources of work-related stress among elementary teachers?
2. How do elementary teachers manage work-related stress, and which coping strategies do they find most effective?
3. What forms of support do teachers perceive as necessary in addressing work-related stress?
4. What insights can elementary teachers share with the academe regarding stress management and teacher well-being?

METHODS

Research Design

This study utilized a descriptive-phenomenological research design to explore the lived experiences of elementary teachers in Jose Abad Santos 1 who were experiencing work-related stress and to examine the coping strategies they employed to improve their work-life balance in the academe. This design was utilized as work-related

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PRC-CPD Accredited Provider: PTR-2025-749

stress is a deeply personal and subjective phenomenon, and phenomenology allows for an in-depth understanding of how teachers perceive, interpret, and respond to their experiences. Through focusing on participants' firsthand accounts, the study captured meaningful insights into their strategies for effective job stress management within their specific educational context.

Population and Sampling and Other Sources of Data

The study was conducted at the division of Davao Occidental particularly the elementary teachers in JAS 1 district.

Sampling Technique. Purposive sampling was employed to deliberately select participants who could provide rich and relevant insights into the phenomenon under study. This technique was used because it allows the researcher to focus on individuals with specific experiences and characteristics that are most relevant to addressing the research questions.

Participants. There were 15 purposively chosen elementary teachers teaching in the JAS 1 district to participate in the study. In Subedi (2021), it was recommended and suggested that anywhere from 5 to 50 participants are adequate. The participants were selected based on specific inclusion criteria: they held teaching positions within the school, had at least five years of service in the Department of Education (DepEd), and were responsible for advisory classes. Participants excluded from the study included elementary teachers who were part of non-teaching personnel, teachers from other districts, and volunteer or temporary teachers.

Instruments

The primary instruments for data collection were semi-structured interview guides used for in-depth interviews (IDIs). The guides contained open-ended and probing questions designed to elicit detailed narratives about participants' experiences.

Validation. The instruments underwent 3 expert validation which evaluated the guides for content relevance, clarity, and alignment with the research objectives. Feedback from the validators which were experts in education, management and qualitative research were incorporated to refine and improve the instruments prior to actual data collection.

Data Collection

Data were collected through in-depth interviews (IDIs) with fifteen purposively selected elementary teachers from Jose Abad Santos 1 District, Davao Occidental. The interviews were conducted face-to-face in the participants' respective schools at mutually agreed schedules during the designated data collection period. Each interview lasted approximately 45 to 60 minutes. To ensure participants' comfort and clarity of expression, the interviews were conducted using a combination of English and the participants' preferred local language.

A semi-structured interview guide with open-ended and probing questions was used to elicit detailed narratives about teachers' experiences of work-related stress, coping strategies, and perceived support systems. With participants' consent, all interviews were audio-recorded and supplemented with field notes to capture non-verbal cues and contextual observations. Data collection continued until information saturation was achieved, that is, when no new significant insights emerged from subsequent interviews.

Data Analysis

Data analysis was conducted following Colaizzi's (1978) descriptive phenomenological method, ensuring a systematic and rigorous examination of participants' lived experiences. The analysis proceeded through the following clearly defined steps:

1. All audio-recorded interviews were transcribed verbatim, and transcripts were reviewed alongside field notes to ensure accuracy and completeness.
2. Significant statements directly related to teachers' experiences of work-related stress and coping strategies were identified and extracted from each transcript.
3. Meanings were formulated from these significant statements through careful interpretation while remaining faithful to the participants' original expressions.
4. The formulated meanings were organized and clustered into theme categories, capturing shared patterns across participants' experiences.
5. An exhaustive description of the phenomenon was developed by integrating all identified themes into a coherent and comprehensive narrative of teachers' stress experiences and coping mechanisms.

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6. The fundamental structure of the phenomenon was then articulated to clearly represent the essence of teachers' lived experiences.
7. Finally, member checking was conducted by returning the summarized findings to selected participants to validate the accuracy and credibility of the interpretations.

This systematic process ensured methodological rigor, transparency, and alignment with the phenomenological orientation of the study.

Ethical Considerations

The study strictly adhered to established ethical standards to protect participants' rights and maintain research integrity. Prior to data collection, all participants were provided with a written informed consent form detailing the study's purpose, procedures, duration, potential risks, and benefits. Participation was entirely voluntary, and participants were informed of their right to withdraw at any time or to decline answering any question without penalty. Written consent was obtained before conducting and audio-recording the interviews.

To ensure confidentiality and anonymity, pseudonyms were assigned to all participants, and any personally identifiable information was removed from transcripts and research reports. All audio recordings, transcripts, and related documents were securely stored in password-protected digital files accessible only to the researchers, while printed materials were kept in a locked and secure location. Collected data will be permanently deleted and properly disposed of after the completion of the study in accordance with institutional guidelines.

Furthermore, the study complied with the provisions of the Data Privacy Act of 2012 (Republic Act No. 10173), ensuring that all personal information was lawfully, ethically, and responsibly collected, processed, stored, and disposed of.

RESULTS and DISCUSSION

This section presented the data on the lived experiences of elementary teachers in Jose Abad Santos 1 regarding the work-related stress they encountered and how they cope with it. These findings provide valuable insights into the challenges teachers face and the strategies they employ to maintain their well-being and effectiveness in the classroom.

1. **The Most Pervasive Sources of Work-Related Stress Among Teachers**

Theme

Diverse Teacher Challenges Driven by Workload, Classroom Complexity, and Resource Gaps

1.1 Diverse Teacher Challenges Driven by Workload, Classroom Complexity, and Resource Gaps

Teachers described workload demands, classroom complexity, and limited resources as major contributors to work-related stress. Participants reported that overlapping instructional duties and administrative reporting created persistent time pressure and physical exhaustion. These accounts indicate that stress stemmed not only from teaching responsibilities but also from institutional requirements that extended beyond classroom instruction. This finding suggests that work-related stress among teachers is multidimensional, involving both pedagogical and organizational factors. The experiences shared by participants reflect how excessive workload and administrative demands reduce opportunities for rest and recovery, thereby increasing emotional and mental strain. Similar patterns were observed by Kreuzfeld et al. (2022), who noted that sustained workload pressure contributes significantly to teacher burnout. The present findings reinforce the need to view teacher stress as a systemic issue rather than solely an individual challenge.

Participant 1: "Lisod kaayo kung magdungan ang klase ug ang daghang reports. Magsugod pa lang sa buntag, kapoy na dayon kay magtindog pirmi, magtudlo, unya mag-check pa sa mga papel sa gabii. Mura'g walay katapusan ang trabaho."

(It's very stressful when classes and numerous reports coincide. From early morning, I already feel tired because of standing all day, teaching, and checking papers at night. The workload seems endless.)

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Participant 2: **"Ang pagdala sa klase ug maghimo ug lesson plan kada adlaw makapakapoy. Dili na ma-manage ang oras sa pamilya."**
(Managing the class and making daily lesson plans is tiring. It's hard to manage time with family.)

Participant 3: **"Ang pinaka-lisod nako nga experience kay kung magbaha sa workload during year-end reports. Murag wala na'y katapusan ang papel."**
(My hardest experience is during the flood of workload in year-end reporting. The paperwork feels endless.)

The abovementioned scenarios indicate that teachers face complex interplay of challenges that stem from heavy workloads, demanding classroom environments, and insufficient resources and support. More so, these factors collectively contribute to physical fatigue, emotional strain, and mental stress, which can compromise both teaching effectiveness and personal well-being. The experiences shared by the teachers illustrate how overlapping administrative responsibilities, performance pressures, and limited materials exacerbate stress and reduce the capacity for instructional focus.

2. **Coping Mechanisms**

Themes

Prioritizing Self-Care and Enhancing Well-Being and Effective Time Management
Building Strong Social and Professional Support Networks

2.1 Prioritizing Self-Care and Enhancing Well-Being and Effective Time Management

This theme highlights the coping strategies elementary teachers in JAS 1 professed that managing work-related stress involved prioritizing self-care, enhancing personal well-being, and practicing effective time management. In fact, during the in-depth interview (IDI), teachers emphasized the importance of these strategies in coping with the demands of teaching. The following are samples of transcription:

Participant 1: **"Usahay mag-exercise ko sa buntag before mag-klase, kay makatabang gyud nga ma-refresh akong mind. Mag-walking ko sa school grounds para mawala ang tension."**
(Sometimes I exercise in the morning before class because it helps refresh my mind. I walk around the school grounds to release tension.)

Participant 2: **"Tulog ug sakto nga pagkaon. Dili ko magpugos kung kapoy na."**
(I prioritize sleep and eating properly. I don't force myself to work when I'm already exhausted.)

Participant 3: **"Ako gyud gina-set ang oras sa gabi-i para magpahuway. Nakatabang gyud nga dili ko dali masuko sa klase."**
(I make sure to set aside time at night to rest. It helps me become less irritable in class.)

The statements suggest that teachers intentionally adopt structured time management strategies such as scheduling dedicated rest periods, organizing daily tasks, and designating non-work days, as a deliberate response to the persistent demands of their profession. This pattern likely emerges because teaching is characterized by overlapping responsibilities, blurred work–home boundaries, and continuous emotional engagement, which, if unmanaged, can accelerate fatigue and emotional exhaustion. By proactively setting boundaries and planning their schedules, teachers attempt to regain a sense of control over their workload, thereby reducing the intensity and spillover effects of occupational stress.

This finding aligns with McCarthy (2019), who emphasized that effective time management reduces stress levels and enhances emotional regulation and work performance. Consistent with related studies highlighting the protective role of self-regulation and structured coping, the present findings reinforce the view that time management is not merely an organizational skill but a psychological strategy for sustaining resilience. The implication is clear: schools should not assume that stress management rests solely on individual initiative; instead, institutional policies that support reasonable workloads, protected planning time, and clear work–life boundaries are essential to complement teachers' personal coping efforts and promote long-term professional sustainability.

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2.2 Building Strong Social and Professional Support Networks

The theme highlights when elementary teachers in JAS 1 were asked on their work-related stress management was building strong social and professional support networks. Further, teachers rely on the support of colleagues, mentors, family, and friends to share experiences, seek advice, and gain encouragement, which helps them navigate the emotional and professional demands of teaching. The following are samples of the transcription:

Participant 1: **"Oo, mag-share ko sa akong mentor kung naa koy problema. Makatabang nga naa kay giingnan ug gihatagan ka ug advice."**
(Yes, I share my problems with my mentor. It helps to have someone who listens and gives advice.)

Participant 2: **"Ang among school naga-provide ug stress management seminar ug team-building. Maka-relax ug makapalig-on sa teamwork."**
(Our school provides stress management seminars and team-building activities. It's relaxing and strengthens teamwork.)

Participant 3: **"Ang school naga-provide ug peer coaching sessions kada quarter."**
(The school provides peer coaching sessions every quarter.)

The findings indicate that structured administrative support such as peer coaching, mentoring, and recognition programs which play a critical role in strengthening teachers' professional growth, motivation, and sense of belonging within the school community. This occurs because supportive leadership and collegial collaboration reduce feelings of isolation, clarify professional expectations, and provide teachers with both emotional reassurance and practical guidance in navigating workplace challenges. When teachers perceive that their efforts are acknowledged and that assistance is readily available, their stress appraisal shifts from viewing demands as overwhelming to perceiving them as manageable and shared responsibilities.

This interpretation is consistent with Toropova et al. (2021), who found that mentoring and recognition significantly enhance teacher resilience, commitment, and performance. Similar studies on organizational support further emphasize that positive school climates and collaborative cultures buffer the negative effects of occupational stress and reduce turnover intentions. The implication of these findings is substantial as stress management should not be framed solely as an individual responsibility but as an institutional priority. Moreover, schools that intentionally embed structured support systems into their organizational practices are more likely to cultivate resilient, satisfied, and professionally engaged teachers, thereby promoting both teacher retention and improved educational outcomes.

3. Teachers' Support Needs in Addressing Work-Related Stress

Themes

Strengthened Administrative Support and Responsive School Climate

3.1 Strengthened Administrative Support and Responsive School Climate

A supportive and responsive school environment is critical for helping teachers manage work-related stress effectively. Subsequently, strengthened administrative support and a positive school climate provide teachers with the guidance, resources, and emotional reassurance necessary to navigate professional challenges. Some of the teachers believed that their school was supportive and responsive. Sample transcriptions are as follows:

Participant 1: **"Ang akong principal kay aware kung unsa ka-stressful ang trabaho, labi na karon nga daghan programs."**
(My principal is aware of how stressful teaching is, especially now with many programs.)

Participant 2: **"Ang among intervention kay team sharing ug prayer sessions kada Friday."**
(Our intervention is team sharing and prayer sessions every Friday.)

Participant 3: **"They organize wellness programs like zumba or laughter therapy."**
(Nagahimo sila ug wellness programs parehas sa zumba ug laughter therapy.)

These findings suggest that access to counseling and mental health support is essential for helping teachers manage stress, maintain emotional balance, and sustain professional effectiveness. This need arises because

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teaching involves high emotional labor, constant interpersonal demands, and ongoing performance pressures, which can accumulate over time and lead to burnout if not properly addressed. Moreover, through providing structured mental health resources, such as counseling services, open-door policies, and wellness programs, schools equip teachers with practical coping tools and emotional guidance, allowing them to navigate challenges more effectively and maintain long-term well-being.

This aligns with the findings of Seibt and Kreuzfeld (2021), who argued that access to mental health resources combined with administrative support significantly reduces teacher stress and burnout. Further, comparative studies further demonstrate that proactive organizational mental health initiatives not only buffer the negative effects of occupational stress but also enhance job satisfaction, teacher engagement, and overall professional resilience. The implication is clear and schools must integrate mental health support as a core component of teacher development and workplace culture, recognizing that fostering psychological well-being is critical for sustaining teacher performance, retention, and a positive learning environment.

4. Insights From Elementary Teachers in Addressing Work-Related Stress

Themes

Promote Teacher Well-Being Through Stress Awareness, Coping Strategies, and Resilience-Building

4.1 Promote Teacher Well-Being Through Stress Awareness, Coping Strategies, and Resilience-Building

Promoting teacher well-being is essential for sustaining both professional effectiveness and personal health in the face of the demanding nature of the teaching profession. More so, fostering stress awareness, equipping teachers with effective coping strategies, and supporting resilience-building, schools can help educators navigate work-related challenges more effectively. Sample transcriptions are as follows:

> ***Participant 1:*** **"Worth sharing ni kay makapa-realize sa uban nga teachers nga normal ang stress, pero dapat kabalo magpahuway ug mangayo ug tabang."**
> (It's worth sharing to remind others that stress is normal, but teachers should know when to rest and ask for help.)
>
> ***Participant 2:*** **"Nakat-on ko nga ang pagpasensya ug dedication mao gyud ang backbone sa teaching. Dili tanan adlaw maayo, pero kung consistent ka sa imong purpose, molahutay ka."**
> (I learned that patience and dedication are the backbone of teaching. Not every day is perfect, but if you stay true to your purpose, you'll endure.)
>
> ***Participant 3:*** **"Naka-experience ko nga kapoy na, maghilak na lang kay wala nay tulog. Pero pag-makita nimo nga daghan na kaayong nakat-on ang mga bata, mawala tanan stress."**
> (I've cried from exhaustion before, but seeing my students learn makes all the stress go away.)

The statements above suggest that teachers derive motivation and resilience from meaningful connections with their students, recognition of small achievements, and appreciation from parents. This occurs because teaching is an inherently relational profession, where daily interactions and feedback significantly influence emotional energy, professional identity, and the perception of personal efficacy. Positive interpersonal relationships and social reinforcement provide teachers with emotional validation and a sense of purpose, helping them navigate challenges, sustain commitment, and maintain a constructive outlook despite the high demands and pressures of the profession.

These findings align with Salimzadeh et al. (2021), who reported that teacher motivation and resilience are significantly enhanced through supportive relationships and acknowledgment of their efforts. Moreover, studies further highlight that social support, whether from students, parents, or colleagues, acts as a protective factor against occupational stress and burnout. The implication is that fostering strong, appreciative, and collaborative relationships within the school community is not only beneficial for teacher well-being but also essential for sustaining instructional quality, engagement, and long-term professional effectiveness.

Conclusions

This study showed that elementary teachers in JAS 1 experienced work-related stress primarily due to workload pressures, classroom challenges, and limited institutional resources. Teachers managed stress through self-

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care practices, time management, and social support, while also expressing the need for stronger administrative and mental health support systems. These findings highlight that teacher well-being is influenced by both personal coping strategies and the quality of the school environment.

Recommendations

This study provides practical insights into the lived experiences of elementary teachers in JAS 1, particularly regarding the work-related stress they face and the coping strategies they employ. Based on the findings, school administrators and DepEd officials may implement targeted interventions such as reducing non-instructional administrative tasks, streamlining reporting requirements, and providing dedicated planning or rest periods to alleviate workload pressures. Additionally, introducing digital tools for lesson planning and reporting, as well as allocating resources for teaching materials, may help minimize stress while maintaining instructional quality. Professional development programs may focus on enhancing teachers' coping skills, resilience, and time management, complemented by structured training on stress management, mindfulness, and work-life balance specifically tailored to the challenges of remote or isolated school contexts. Finally, periodic monitoring and evaluation of these initiatives, possibly through follow-up surveys or focus group discussions, may provide evidence-based feedback to refine support systems and ensure their effectiveness in reducing teacher stress.

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Shaking up disaster preparedness in schools: Uncovering the lived experiences among elementary school DRRM coordinators during actual earthquakes

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Abstract

Aim: This study explored the lived experiences of elementary school Disaster Risk Reduction and Management (DRRM) coordinators in Jose Abad Santos regarding school earthquake preparedness and response during actual earthquake events.

Methodology: A descriptive phenomenological research design was employed. Ten elementary school DRRM coordinators were purposively selected as participants. Data were gathered through in-depth interviews using validated researcher-developed guides. The Colaizzi method was used for thematic analysis of the narratives.

Findings: The findings revealed that DRRM coordinators perceived their roles as centered on coordination and communication, both within the school and with external agencies. Major challenges included limited resources, communication difficulties, time pressure, and managing student panic. Coping strategies involved maintaining composure, relying on prior training and experience, and strengthening collaboration among staff, students, and the community. Experiences from actual earthquakes led to improvements in evacuation systems, safety protocols, resource allocation, and leadership practices.

Conclusion: The study concludes that DRRM coordinators play a vital role in strengthening school earthquake preparedness through effective communication, adaptive leadership, collaborative engagement, and continuous improvement of disaster response systems despite existing constraints.

Keywords: *disaster preparedness, earthquake response, DRRM coordinators, phenomenological study, school safety, Philippines*

INTRODUCTION

Despite the increasing frequency and severity of natural and man-made disasters, many schools remain inadequately prepared, putting students and staff at significant risk due to insufficient planning, outdated infrastructure, and a lack of comprehensive emergency training. Although there have been advancements in disaster preparedness, schools still face critical challenges during earthquakes that compromise student safety and severely disrupt the continuity of education.

In the international context, a study conducted in Pakistan by Shah et al. (2020) elucidated that students, teachers, and other staff constantly face risks as they spend most of their time in schools and become easy victims of natural hazards. Moreover, in Indonesia, Muzani et al. (2022) explained that disaster preparedness in schools is hindered by disparities in resources, infrastructure, and governmental support, particularly in low-income and disaster-prone regions. They also added that these challenges result in inconsistent emergency protocols, inadequate training for staff, and a lack of necessary safety measures, putting students and teachers at heightened risk during disasters.

In the Philippine arena, a study conducted by Salita et al. (2021) in Angeles City stipulated that many schools in rural or disaster-prone areas lack the necessary infrastructure to withstand natural disasters such as typhoons, earthquakes, and floods. Further, a study in Zambales City by Viado (2023) stated that teachers and staff often receive insufficient training in disaster response and safety procedures, further compromising students' safety during emergencies. More so, these issues underscore the urgent need for improved policies, stronger community involvement, and more efficient resource allocation to ensure that schools are adequately prepared for disaster situations.

Despite ongoing efforts to strengthen disaster preparedness in schools, many elementary institutions in earthquake-prone areas continue to face challenges in effectively implementing disaster risk reduction and management (DRRM) measures. Existing research has largely focused on preparedness levels, policy implementation, and training outcomes, but limited attention has been given to the lived experiences of school-based DRRM coordinators during actual earthquake events. These coordinators play a critical leadership role in ensuring student safety, managing emergency responses, and coordinating with internal and external stakeholders. However, there

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remains insufficient understanding of how they interpret their roles, address real-time challenges, and apply coping strategies in actual disaster situations. This gap in experiential knowledge limits the development of context-responsive training programs, policies, and support systems for school disaster leadership. Therefore, there is a need to investigate the lived experiences of elementary school DRRM coordinators in Jose Abad Santos to better understand their roles, challenges, coping mechanisms, and professional growth in the context of real earthquake events.

Review of Related Literature and Studies

Disaster Preparedness of Schools

Disaster preparedness in schools is critical for safeguarding students, faculty, and staff during emergencies, as it directly influences the effectiveness of response and the minimization of harm. Studies such as Opabola et al. (2023) underscore that well-organized and systematically implemented disaster preparedness plans can significantly reduce the risk of injury and loss of life during crises. Moreover, disaster preparedness encompasses planning for a wide range of hazards, including natural events like earthquakes and typhoons, as well as human-induced incidents such as fires and acts of violence. While these studies provide valuable insights into structural and procedural aspects of school preparedness, they largely adopt a general or policy-focused perspective, often emphasizing readiness at a procedural level rather than the lived experiences of those responsible for executing these plans. This indicates a gap in understanding how DRRM coordinators experience, interpret, and respond to actual emergencies, particularly earthquakes, highlighting the need for research that captures their firsthand perspectives and decision-making processes in real-time contexts.

Mandatory Earthquake Drills in Philippine Schools

The Department of Education (DepEd) in the Philippines has institutionalized unannounced earthquake and fire drills in all public schools to enhance disaster preparedness among learners. According to Division Memorandum No. 003, s. 2023, these drills are scheduled every first and third week of the month to ensure that students are adequately guided on appropriate actions during and after emergencies. Beyond merely conducting drills, school heads, with support from School Disaster Risk Reduction and Management (SDRRM) Coordinators, are tasked with planning, implementing, and continuously monitoring these activities to maintain safety standards. While these regulations highlight the procedural framework for disaster preparedness, existing literature often emphasizes compliance and frequency of drills rather than the practical realities faced by coordinators responsible for executing them. This underscores a critical gap, although policies mandate preparedness measures, little is known about the lived experiences of SDRRM coordinators during actual earthquake events, including the challenges, decision-making processes, and adaptive strategies they employ in real-time crisis situations.

Outcomes of Disasters in Schools

The impact of disasters, particularly earthquakes, on schools can be profound, affecting both physical infrastructure and the psychological well-being of students, teachers, and staff (Bachri et al., 2021). According to Seddighi et al. (2021), earthquakes often cause significant structural damage to school buildings, resulting in the destruction of classrooms, loss of educational resources, and interruption of regular school activities. Such damage frequently displaces students and staff, forcing them to relocate to temporary facilities or suspend classes altogether, which can lead to prolonged educational disruption. Beyond the immediate physical consequences, these interruptions may have long-term effects on students' academic performance and emotional resilience, particularly in communities where recovery is slow or resources are limited. While these studies underscore the severity of earthquake impacts, they primarily document outcomes at a macro or structural level, leaving little understanding of how DRRM coordinators experience, respond to, and manage these disruptions in real time.

Importance of Earthquake Preparedness in Schools

Schools, being densely populated with children, are among the most vulnerable institutions during earthquakes. According to Epe (2023), earthquake preparedness is essential in minimizing casualties and injuries in school settings. Further, schools not only serve as learning spaces but also act as community shelters during emergencies. Therefore, implementing comprehensive preparedness measures including drills, evacuation plans, and early warning systems is critical to ensuring both student and community safety.

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Drills and Simulation Exercises as Preparedness Tools

Regular earthquake drills are a proven method to build preparedness. According to Manalang et al. (2020), mandatory unannounced earthquake drills help students internalize correct responses like "Duck, Cover, and Hold." Further, participating in realistic simulations also trains teachers and staff in coordination, crowd management, and emergency communication, all of which are crucial in mitigating chaos and confusion during actual earthquakes.

In the Philippines, the Department of Education (DepEd) institutionalized mandatory earthquake drills through DepEd Order No. 53, s. 2022, requiring all public schools to conduct unannounced drills twice a month. This policy aims to create a culture of preparedness by ensuring that emergency procedures become second nature to learners and staff. Thus, repeated exposure to realistic simulations significantly improves behavioral responses in emergencies, especially among younger students who are less likely to recall emergency protocols without practice. They also added that the drills are often conducted in partnership with local government units and emergency responders, further strengthening school-community collaboration.

Coping Mechanisms of Schools during Disasters

Effective school disaster preparedness involves proactive planning, the systematic establishment of safety protocols, and ongoing training of internal stakeholders. As Davis et al. (2019) emphasize, a central component of preparedness is the development of coping mechanisms that enable schools to respond efficiently and effectively during and after emergencies. Similarly, Cels et al. (2023) argue that schools with well-defined disaster plans and adaptive coping strategies are better positioned to mitigate both physical and emotional harm. These findings suggest that preparedness is not limited to immediate safety measures but also encompasses the psychological and emotional well-being of students, staff, and coordinators involved in disaster response. However, while existing studies document the presence of plans and strategies, they often adopt a procedural or policy-focused lens, leaving limited understanding of how these mechanisms are experienced and operationalized in real-time emergencies. This highlights a research gap in capturing the lived experiences of DRRM coordinators during actual earthquake events, including the challenges they face, the decisions they make under pressure, and the coping strategies they employ.

Synthesis

The reviewed literature highlights that disaster preparedness and its associated coping mechanisms are fundamental for safeguarding the safety, well-being, and resilience of schools during and after emergencies. Studies indicate that while significant progress has been made in establishing evacuation plans, safety protocols, and psychological support programs, schools continue to encounter persistent barriers such as limited resources, inadequate infrastructure, and weak coordination with local emergency services. These challenges suggest that effective disaster reduction requires a multi-dimensional approach, encompassing not only physical improvements and staff training but also stronger communication and collaboration between schools and local authorities. However, much of this research focuses on policy implementation, procedural compliance, or preparedness metrics, leaving a critical gap in understanding the experiences and perspectives of those responsible for operationalizing these measures, particularly DRRM coordinators during real earthquake events. This gap underscores the need for a phenomenological investigation to explore the practical, emotional, and decision-making realities faced by coordinators in actual crisis situations, thereby providing deeper insights into school-level disaster leadership and adaptive management practices.

Theoretical Framework

This study is anchored in Rogers' (1975) Protection Motivation Theory (PMT), which explains how individuals are motivated to protect themselves from perceived threats. More so, PMT posits that individuals first appraise a potential threat by evaluating its severity and probability, and then assess their ability to cope with or mitigate the threat through protective actions. When a person perceives a threat as serious and believes they have the capacity to respond effectively, they are more likely to engage in proactive protective behaviors. Further, this theory integrates both cognitive and emotional responses, emphasizing how perceived vulnerability, fear, and efficacy influence decision-making and risk-reduction behaviors. In the context of this study, PMT provides a conceptual lens for understanding the decision-making processes of DRRM coordinators during earthquakes. It guided the formulation of research questions by focusing on how coordinators perceive earthquake threats, assess school vulnerabilities, and choose specific preparedness and response strategies. During data collection, interview questions were designed to probe coordinators' threat appraisal, coping appraisal, and motivational factors, capturing both rational and emotional dimensions of their decisions. For data analysis, PMT framed the interpretation of coordinators' lived experiences,

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allowing the researcher to examine how perceptions of risk and self-efficacy influenced their protective actions, adaptive strategies, and leadership choices in real-time disaster scenarios. Through linking cognitive and emotional processes to concrete disaster management behaviors, PMT provides a robust framework for understanding how school-level leaders operationalize preparedness and respond to crises.

Statement of the Problem

Despite ongoing efforts to strengthen disaster preparedness in schools, many elementary institutions in earthquake-prone areas continue to face challenges in effectively implementing disaster risk reduction and management (DRRM) measures. Existing research has largely focused on preparedness levels, policy implementation, and training outcomes, but limited attention has been given to the lived experiences of school-based DRRM coordinators during actual earthquake events. These coordinators play a critical leadership role in ensuring student safety, managing emergency responses, and coordinating with internal and external stakeholders. However, there remains insufficient understanding of how they interpret their roles, address real-time challenges, and apply coping strategies in actual disaster situations. This gap in experiential knowledge limits the development of context-responsive training programs, policies, and support systems for school disaster leadership. Therefore, there is a need to investigate the lived experiences of elementary school DRRM coordinators in Jose Abad Santos to better understand their roles, challenges, coping mechanisms, and professional growth in the context of real earthquake events.

Research Objectives

To explore the lived experiences of elementary school Disaster Risk Reduction and Management (DRRM) coordinators in Jose Abad Santos regarding school earthquake preparedness and response during actual earthquake events.

Specific Objectives

1. To describe the roles and responses of elementary school DRRM coordinators during school earthquake events.
2. To examine the challenges experienced by elementary school DRRM coordinators in managing school safety during real-time earthquake situations.
3. To identify the coping strategies employed by elementary school DRRM coordinators to address challenges encountered during earthquake emergencies.
4. To determine how actual earthquake experiences shaped the personal and professional perspectives of elementary school DRRM coordinators on disaster preparedness and response.

Research Questions

1. How do elementary school DRRM coordinators describe their roles and responses during school earthquake events?
2. What challenges do elementary school DRRM coordinators experience in managing school safety during real-time earthquake situations?
3. What coping strategies do elementary school DRRM coordinators apply to address the challenges encountered during real-time earthquake situations?
4. In what ways have actual earthquake experiences shaped the personal and professional perspectives of elementary school DRRM coordinators on disaster preparedness and response?

METHODS

Research Design

This study employed a descriptive-phenomenological approach to explore and understand the lived experiences of elementary school DRRM coordinators in the JAS 1 district. Moreover, descriptive phenomenology focuses on capturing and describing experiences exactly as they are perceived by individuals, without imposing pre-existing interpretations or theoretical assumptions. This approach is appropriate for examining the experiences of DRRM coordinators, as it allows the research to uncover their firsthand perceptions, challenges, and decision-making processes during actual earthquake events. Further, data were collected through in-depth interviews, ensuring that participants' narratives were fully explored, documented, and allowed to emerge naturally. Through emphasizing the

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authentic experiences of coordinators, descriptive phenomenology provided a framework to identify key themes and insights into how they perceive risk, respond to emergencies, and implement protective measures in real-time disaster situations, thereby aligning the methodology with the study's focus on lived experience.

Participants and Sampling Procedure

The participants in this study consisted of 10 elementary school DRRM coordinators from the JAS 1 district, purposively selected to provide rich, relevant insights into school disaster management. These coordinators were chosen based on their extensive experience, having served in the Department of Education for at least three years, and their active engagement in professional development through symposiums and seminars on disaster risk reduction and management. The sample size of 10 was deemed appropriate for a phenomenological study, as it allowed for an in-depth exploration of each coordinator's lived experiences while ensuring data saturation, where recurring themes and patterns could be meaningfully identified. This purposeful selection ensured that participants possessed both the practical experience and specialized knowledge necessary to provide detailed accounts of challenges, decision-making, and coping strategies during earthquake events, aligning with the study's focus on capturing authentic, operational, and emotional perspectives of DRRM coordinators.

Purposive sampling was employed to deliberately select participants who could provide rich and relevant insights into the phenomenon under study. Participants have actively led or facilitated earthquake drills and simulation exercises within the past 12 months. Also, inclusion requires the participant to have been directly involved in drafting or implementing their school's DRRM plan, specifically for earthquake response. Further, volunteer teachers and contractual teachers were not allowed to be part of the study.

Instruments

The primary instruments for data collection were researcher-developed interview guides, specifically designed for in-depth interviews (IDIs) to capture the lived experiences of elementary school DRRM coordinators. The interview guide consists open-ended questions wherein within each section were crafted to elicit detailed narratives, allowing participants to share their experiences in their own words.

To ensure the validity and relevance of the instrument, the guide was reviewed by three experts, specialists in education and qualitative research, who assessed the questions for content accuracy, clarity, and alignment with the research objectives. Recommendations from the validators were incorporated to refine the guide, enhancing its clarity, focus, and effectiveness prior to data collection.

Data Collection

Following data collection, the study employed Colaizzi's phenomenological method to conduct a rigorous and systematic analysis of the DRRM coordinators' lived experiences during earthquake events. All in-depth interviews (IDIs), conducted in the participants' respective schools, were transcribed verbatim, with transcripts carefully verified against audio recordings and field notes to ensure accuracy. Significant statements specifically related to the coordinators' experiences, challenges, and decision-making during disaster preparedness and response were extracted from the transcripts. From these statements, meanings were formulated to capture the essence of the coordinators' perceptions, actions, and coping strategies. These meanings were then organized into clusters of themes that reflected common patterns and variations across participants' responses. An exhaustive description of the phenomenon was subsequently developed, integrating all emergent themes into a cohesive narrative that illustrated the coordinators' experiences, strategies, and leadership in real-time disaster management. Finally, member checking was conducted by returning the findings to the participants, ensuring that interpretations accurately represented their intended meanings and the realities of their roles as DRRM coordinators.

Data Analysis

The data were analyzed using Colaizzi's phenomenological method to ensure a systematic and rigorous exploration of the lived experiences of DRRM coordinators during earthquake events. The in-depth interviews, lasting approximately 45 to 60 minutes each, were conducted within the designated data collection period, using a combination of English and the participants' preferred local language to allow clarity and comfort in sharing their experiences. All responses were transcribed verbatim and carefully reviewed to ensure completeness and accuracy. Significant statements directly related to the coordinators' experiences, challenges, decision-making, and coping strategies were identified, and meanings were formulated to capture the essence of their lived experiences. These meanings were then organized into thematic clusters, which were synthesized into a comprehensive description of

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the phenomenon, illustrating the coordinators' perceptions, actions, and adaptive strategies in real-time disaster management

Ethical Considerations

The researchers strictly adhered to established ethical standards to protect participants' rights and uphold the integrity of the study. Prior to data collection, each participant was provided with a detailed informed consent form explaining the study's purpose, procedures, duration, potential risks, and benefits, and consent was voluntarily obtained. Participants were informed that their involvement was entirely voluntary and that they could withdraw from the study or decline to answer any question at any time without penalty. Permission was also secured before conducting and audio-recording the in-depth interviews.

To ensure confidentiality, pseudonyms were assigned, and all personally identifiable information was removed from transcripts and reports. Digital data, including recordings and transcripts, were securely stored in password-protected files accessible only to the researchers, while hard copies were kept in a locked location. Following completion of the study, all data will be permanently deleted or properly disposed of according to institutional guidelines. The study also complied with the Data Privacy Act of 2012 (Republic Act No. 10173), ensuring that all personal information was collected, processed, stored, and disposed of in a lawful, ethical, and responsible manner.

RESULTS and DISCUSSION

This section presents the data on the lived experiences of elementary school Disaster Risk Reduction and Management (DRRM) coordinators in Jose Abad Santos, focusing on school disaster and earthquake preparedness and their approaches in handling these situations. It highlights the coordinators' perspectives, revealing both the challenges they encounter and the strategies they implement to ensure the safety and resilience of their schools.

1. How Elementary School DRRM Coordinators Describe Their Roles and Responses During School Earthquake Events

Theme

Coordination and Communication in Earthquake Response
Managing Challenges and Maintaining Calm
Protocols and Systems for Effective Earthquake Response

1.1 Coordination and Communication in Earthquake Response

One key theme that emerged is the elementary school Disaster Risk Reduction and Management (DRRM) coordinators in Jose Abad Santos professed that they describe their roles and responses during school earthquake events as coordination and communication in earthquake response with the sub-themes: internal coordination with staff and students and external coordination with agencies and community.

Participant 1: ***"Kung naay linog, isturyahun nako dayun ang mga teachers gamit ang group chat para ma-monitor ang mga bata. Tapos, ako ang nakikipag-coordinate sa Municipal Disaster Risk Reduction and Management Office (MDRRMO) para sa updates ug safety clearance."***
(During an earthquake, I immediately communicate with teachers through our group chat to monitor the students. Then, I coordinate with the MDRRMO for updates and safety clearance.)

Participant 2: ***Ginagamit namin ang whistle signal ug megaphone para ma-coordinate ang evacuation. Ako pud ang naga-update sa MDRRMO kung naa bay naangol.***
(We use whistle signals and a megaphone to coordinate the evacuation. I also update the MDRRMO if anyone is injured.)

Participant 3: ***"I always remind teachers to stay with their students during evacuation. Ako ang naga-coordinate sa barangay officials for additional safety support.***
(I always remind teachers to stay with their students during evacuation. I coordinate with barangay officials for additional safety support.)

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The findings suggest that effective external coordination in school disaster management extends beyond internal communication systems and requires sustained collaboration with local government units and emergency response agencies. This underscores that disaster preparedness is not solely an intra-school responsibility but a networked process that depends on inter-agency partnerships to ensure comprehensive safety measures. Consistent with the study of Kawasaki et al. (2020), which emphasizes the mandated role of school DRRM teams in maintaining active linkages with local authorities during emergencies, the present findings affirm that strong coordination mechanisms significantly enhance preparedness and response capacity in public elementary schools. However, while previous studies largely frame coordination as a structural or policy requirement, the current findings deepen this understanding by illustrating how DRRM coordinators operationalize these linkages in real-time earthquake scenarios. The coordinators' proactive efforts to maintain calm, continuously monitor safety conditions, and promptly communicate with disaster management authorities demonstrate that effective coordination is not merely procedural but leadership-driven and situationally adaptive

1.2 Managing Challenges and Maintaining Calm

Managing panic among students and staff is a crucial component of effective disaster response in schools. During emergencies, fear and confusion can escalate quickly, compromising safety and hindering orderly evacuation or response procedures. The following are samples of transcription:

Participant 1:"Isa sa mga challenge ay ang panic ng mga estudyante. Minsan di sila makafollow sa instruction, kaya ginamit ko ang megaphone para marinig nila clearly ang commands."
(One of the challenges is the students' panic. Sometimes they cannot follow instructions, so I used a megaphone to make sure they clearly hear the commands.)

Participant 2:"Ginagamit namin ang whistle signal ug megaphone para ma-coordinate ang evacuation. Ako pud ang naga-update sa MDRRMO kung naa bay naangol."
(We use whistle signals and a megaphone to coordinate the evacuation. I also update the MDRRMO if anyone is injured.)

Participant 3: "Ang pinakalisod kay kung walay signal ug power outage. Gi-address namo ni pinaagi sa paggamit ug handheld radio ug whistle system."
(The hardest part is when there's no signal or power outage. We addressed this by using handheld radios and a whistle system.)

The findings indicate that effective disaster response in schools depends not only on established communication protocols but also on contingency planning and the strategic use of alternative communication channels when conventional systems fail. This highlights the critical role of DRRM coordinators as adaptive problem-solvers who must ensure continuous monitoring, coordination, and student safety despite infrastructural damage or technological disruptions. Their ability to shift from standard procedures to improvised yet functional communication strategies demonstrates leadership flexibility under crisis conditions. These results align with Stough et al. (2020), who documented how alternative communication tools, such as radio transmissions, were utilized to disseminate vital information during Typhoon Haiyan in the Philippines. However, while previous studies primarily describe alternative communication as a logistical response to system breakdowns, the present findings extend this perspective by emphasizing the decision-making and situational judgment of DRRM coordinators in activating these alternatives. Thus, the study underscores that communication resilience in schools is not merely technological but leadership-driven, relying heavily on the coordinators' capacity to anticipate failures and implement adaptive strategies in real time.

1.3 Protocols and Systems for Effective Earthquake Response

Pre-established protocols and regular disaster drills play a crucial role in strengthening school preparedness and ensuring an organized response during emergencies. Indeed, these practices help familiarize students, teachers, and staff with safety procedures, reduce confusion, and build confidence in executing evacuation and emergency actions. The following are samples of transcription:

Participant 1:"Ang among protocol kay "Duck, Cover, and Hold" gyud dayon. Pag humog linog, diretso mi sa

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evacuation area ug gina-check ang attendance sa mga estudyante. Effective kaayo siya kay controlled ang movement sa tanan."
(Our main protocol is "Duck, Cover, and Hold." After the shaking stops, we proceed immediately to the evacuation area and check student attendance. It's very effective because everyone's movement is organized.)

Participant 2:"Gisunod namo ang earthquake drill procedure nga among gina-practice kada bulan. Human sa linog, mag-line up ang mga bata ug moadto sa open field. Epektibo kaayo ni kay nakamao na sila unsay buhaton."
(We follow the earthquake drill procedure we practice monthly. After the quake, students line up and go to the open field. This is very effective because they already know what to do.)

These findings indicated that the use of clear and standardized signaling systems strengthened the efficiency of school emergency responses by reducing uncertainty and promoting uniform action among students and staff. This supports the study of Manalang et al. (2020), which emphasized that repeated exposure to structured drills enhances coordinated behavioral responses during emergencies. Similarly, Opabola et al. (2023) highlighted that clearly defined procedures and communication systems are essential components of effective school disaster preparedness. Moreover, such low-tech yet highly effective tools contribute to smoother evacuation procedures, especially in situations where noise, panic, or environmental limitations may hinder verbal communication.

2. **Challenges Of Elementary School DRRM Coordinators in Managing School Safety During Real-Time Earthquake Situations**

Themes

Resource and Infrastructure Limitations
Time Pressure and Student Panic
Communication Challenges

2.1 Resource and Infrastructure Limitations

This theme ensures the safety and well-being of students and staff is a fundamental responsibility of every educational institution. Furthermore, adequate safety equipment and readily available medical supplies play a critical role in preventing accidents, addressing emergencies, and minimizing health risks within school environments. The following are samples of transcription:

Participant 1: "Ang pinakadako nga problema namo kay ang kakulangan sa emergency kits ug medical supplies. Lisod magtabang sa mga bata nga nagkasamad kung wala gyud gamit."
(Our biggest problem is the lack of emergency kits and medical supplies. It's difficult to help injured students when we don't have proper equipment.)

Participant 2: "Ang among loudspeaker ug alarm system kay guba na. Kung maglinog, maglisod mi og signal sa evacuation kay di madungog sa tanan."
(Our loudspeaker and alarm system are already broken. During an earthquake, it's difficult to signal the evacuation because not everyone can hear it.)

Participant 3: "Gamay ra among first aid kits ug walay stretcher. Kung naay ma-injured, maglisod mi og carry padulong sa safe area."
(We only have a few first aid kits and no stretcher. When someone is injured, we struggle to carry them to the safe area.)

The findings indicate that the shortage of essential emergency equipment such as complete first aid kits and stretchers, substantially weakens a school's capacity to deliver immediate, safe, and effective assistance during accidents or disaster-related injuries. This limitation not only delays first-response actions but also increases the risk of secondary harm, particularly when injuries require prompt stabilization and transport. The results affirm Sakurai et al. (2020), who found that inadequate emergency resources significantly reduce the efficiency of school-based first responders and heighten the vulnerability of affected learners. However, while prior studies primarily frame equipment shortages as a resource or compliance issue, the present findings reveal the operational consequences at

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the ground level. DRRM coordinators reported being compelled to rely on improvised methods, which, although reflective of resilience and initiative, may compromise safety standards and prolong evacuation processes. This suggests that beyond policy mandates, sustained investment in emergency resources is critical, as the effectiveness of disaster response depends not only on planning and training but also on the availability of essential life-saving tools.

2.2 Time Pressure and Student Panic

The behavior of students during emergencies plays a crucial role in determining the overall effectiveness of a school's response efforts. Even with well-established protocols, trained personnel, and adequate safety equipment, the ability of students to follow instructions, remain calm, and act responsibly greatly influences the speed and success of evacuation and emergency procedures. The following are samples of the transcription:

Participant 1: "Ang panic sa mga bata makapahinay sa evacuation process. Mao nga akong priority kay ang paghatag ug klaro nga instruction ug calm voice."
(Student panic slows down the evacuation process. That's why my priority is to give clear instructions in a calm voice.)

Participant 2: "Dali ra kaayo mawala sa focus ang mga bata kung magpanic, ug dili nila ma-follow ang duck, cover, and hold. Kinahanglan gyud ko magdali pero kalmado para di sila maapektuhan."
(The students easily lose focus when they panic and fail to follow "duck, cover, and hold." I have to move quickly but calmly so they won't get more anxious.)

The findings suggest that maintaining student composure during emergencies is not merely a behavioral concern but a critical component of effective disaster response. When students panic or become overwhelmed, their capacity to follow established safety procedures declines, potentially delaying evacuation, disrupting coordination, and increasing the likelihood of injury. Thus, emotional regulation among learners directly influences the overall efficiency and safety of school-based emergency operations. These results align with Dipon (2023), who reported that heightened student anxiety and panic significantly undermine the effectiveness of emergency drills and response systems in schools. However, while previous research tends to frame student panic as an outcome of inadequate preparedness, the present findings emphasize the active leadership role of teachers and DRRM coordinators in mitigating such reactions. Specifically, coordinators' ability to provide calm, clear, and consistent instructions serves as a stabilizing force that helps regulate student behavior and sustain order during crises. This underscores that effective disaster management extends beyond procedural compliance to include emotional leadership and real-time behavioral management within the school setting.

2.3 Communication Challenges

Effective communication is a cornerstone of successful emergency response in schools. The ability to quickly convey instructions, warnings, and updates to students, staff, and emergency personnel can significantly influence the outcome of critical situations. The following are samples of transcription:

Participant 1: "Lisod kaayo kung maguba ang megaphone o dili madungog ang command. Ang mga bata ug teachers maglibog unsay buhaton sunod."
(It's very difficult when the megaphone fails or commands can't be heard. Both students and teachers get confused about what to do next.)

Participant 2: "Ang kulang sa radio communication mao'y usa sa problema namo. Kung wala ang signal, lisod i-coordinate ang updates gikan sa DRRM office."
(The lack of radio communication is one of our main problems. When there's no signal, it's hard to coordinate updates from the DRRM office.)

Participant 3: "Kung walay klaro nga communication line, ang mga teachers mag-una-una og decision. Usahay magka-doble og command nga makapalisod sa response."
(When there's no clear communication line, teachers tend to make their own decisions. Sometimes this causes conflicting commands, making the response harder.)

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The findings demonstrate that ineffective communication tools and unclear communication protocols substantially weaken the coordination and overall efficiency of school emergency responses. When equipment malfunctions or established channels are absent or poorly understood, confusion emerges among staff and students, increasing the likelihood of inconsistent actions, delayed evacuations, and heightened risk during critical moments. This indicates that communication breakdowns are not merely technical failures but operational vulnerabilities that directly affect safety outcomes. These results are consistent with Sakurai et al. (2020), who argued that inadequate communication equipment in schools often results in mismanagement and delays in implementing safety procedures during emergencies. However, while previous studies primarily emphasize equipment insufficiency as the central issue, the present findings suggest that the problem also lies in the integration of tools, training, and clear protocols. In this study, ineffective communication was linked not only to technological limitations but also to gaps in preparedness and coordination practices. This underscores the need for reliable communication systems complemented by structured training and well-defined procedures to ensure timely, coherent, and coordinated action during disaster situations.

3. Coping Strategies

Themes

Maintaining Composure and Focus
Training, Experience, and Support Systems
Collaborative Involvement of Staff, Students, and Community

3.1 Maintaining Composure and Focus

The ability of school personnel to maintain personal and emotional control during emergencies is a crucial factor in ensuring an effective and orderly response. Consequently, DRRM coordinators, teachers, and staff are often placed under intense pressure as they guide students, make rapid decisions, and manage unexpected challenges. The participants stated;

Participant 1: ***"Sa panahon sa linog, ginapaningkamotan nako nga kalma lang ko para makasunod ang uban. Ginaremind ko sa team nga mag-focus sa safety sa mga bata kaysa sa kahadlok."***
(During earthquakes, I try my best to stay calm so that others will follow. I remind my team to focus on the safety of the children rather than their fear.)

Participant 2: ***"Ang sekreto nako kay deep breathing ug klaro nga instructions. Kung makita sa mga bata nga composed mi, mas musunod sila ug magpuyo ra."***
(My secret is deep breathing and giving clear instructions. When the students see that we are composed, they tend to stay calm and follow us.)

Participant 3: ***"Ako mismo ginakontrol nako akong emotion kay kung magpanic ko, magpanic pud ang uban. Ginapahinumduman nako ang team nga naa ta sa role nga dapat kalmado ug klaro."***
(I control my emotions because if I panic, others will panic too. I always remind my team that our role requires calmness and clarity.)

The findings indicate that the emotional regulation of DRRM coordinators is a decisive factor in shaping how staff and students respond during emergencies. When coordinators demonstrate composure, confidence, and control, they influence the emotional climate of the school, helping to prevent panic and enabling smoother implementation of safety procedures. This suggests that disaster response effectiveness is not determined solely by plans and protocols, but also by the leader's capacity to model calm and stability under pressure. These results align with Toyoda et al. (2021), who found that emotionally stable school leaders cultivate a calmer environment, thereby reducing panic and strengthening collective crisis response. However, while prior studies generally describe emotional stability as a desirable leadership trait, the present findings highlight its practical and immediate impact in real-time earthquake scenarios. Specifically, coordinators' self-regulation functioned as an operational tool that directly influenced adherence to instructions, coordination efficiency, and overall safety outcomes. This underscores that emotional competence is not peripheral but integral to effective school disaster leadership.

3.2 Training, Experience, and Support Systems

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Preparedness in school emergency management is greatly enhanced through consistent training and well-structured drills. These practices equip both teachers and students with the necessary skills, confidence, and familiarity to respond appropriately during real hazards. Sample transcriptions are as follow;

> ***Participant 1: "Nakakatabang gyud ang DRRM seminars ug simulation drills nga gina-conduct sa division. Tungod ana, kabalo mi unsaon pag-handle sa panic ug pag-lead sa evacuation."***
> (DRRM seminars and simulation drills conducted by the division really helped. Because of those, we know how to handle panic and lead evacuations properly.)
>
> ***Participant 2*: "Ang experience sa mga past earthquake drills mao'y nakatabang nga mas ma-ready mi. Nakabalo mi unsaon pag-react ug unsa nga area ang pinakasafe."**
> (Our experience from past earthquake drills helped us become more prepared. We learned how to react and which areas are the safest to go to.)

This finding indicates that sustained training and regular emergency drills do more than enhance teachers' technical competencies—such as administering first aid and implementing evacuation procedures—they also strengthen their confidence, critical thinking, and decision-making under pressure. Schools with strong external partnerships are better positioned to institutionalize routine drills and foster coordinated responses among teachers and students during crises. Both the present findings and prior research underscore the value of repeated practice in cultivating a proactive safety culture within schools. However, while earlier studies primarily highlighted structural support systems, the current results further demonstrate the psychological impact of continuous drills, particularly in enhancing educators' self-efficacy and readiness. Further, repeated and well-supported training initiatives contribute significantly to more efficient crisis management and improved protection of both students and staff.

3.3 Collaborative Involvement of Staff, Students, and Community

Active involvement of both staff and students is a crucial component of effective emergency preparedness in schools. When all members of the school community are engaged in drills, training sessions, and safety initiatives, it fosters a culture of shared responsibility, ensures that everyone understands their roles, and enhances the overall efficiency of emergency response efforts. The participants stated;

> ***Participant 1: "Ginapahimo namo ang mga teachers og assigned roles before pa magka-emergency. Ang mga parents ug barangay officials apil pud sa evacuation ug safety monitoring."***
> (We assign roles to teachers ahead of time before any emergency happens. Parents and barangay officials also participate in evacuation and safety monitoring.)
>
> ***Participant 2: "Ang mga estudyante among ginatudluan daan sa drill para kabalo sila unsay buhaton. Ang mga teachers ug Parent–Teacher Association (PTA) officers tabang sa pagtabang sa mga bata nga nagpanic."***
> (We train students through drills so they know what to do. Teachers and PTA officers help manage students who panic during earthquakes.)
>
> ***Participant 3: "Ang mga staff among gi-train nga mag-lead og evacuation sa ilang mga klase. Ang barangay DRRM team maghatag og first aid ug assistance kung naay masamdan."***
> (We train the staff to lead their respective classes during evacuation. The barangay DRRM team provides first aid and assistance when someone gets injured.)

The statements suggest that effective emergency response in schools depends largely on the active participation of both staff and students, reinforced by the support of community stakeholders. This underscores that preparedness is not solely an administrative responsibility but a shared commitment that requires coordinated effort. The present finding aligns with the study of Salita et al. (2021), which found that consistent engagement in drills and collaborative safety initiatives significantly enhances emergency readiness and minimizes panic during real-life incidents. Both the current results and previous research emphasize that regular involvement in safety activities strengthens practical preparedness skills and promotes a culture of collective responsibility. However, while earlier studies primarily focused on measurable improvements in readiness and reduced anxiety, the present findings further highlight the relational dimension of preparedness, particularly the development of trust, cooperation, and shared

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confidence within the school community. Thus, sustained and inclusive participation fosters a more cohesive and resilient response system, enabling schools to manage crises more effectively.

4. How Actual Earthquake Experiences Shaped the Personal and Professional Perspectives of Elementary School DRRM Coordinators on Disaster Preparedness and Response

Themes

Enhancement of DRRM Strategies and Protocols
Personal Realizations and Lessons Learned
Community Engagement and Collaborative Preparedness

4.1 Enhancement of DRRM Strategies and Protocols

Operative evacuation systems are essential for comprehensive school emergency preparedness. Thus, regular evaluation and improvement of these systems ensure that evacuation routes, procedures, and safety measures are clearly marked, effectively communicated, and readily accessible, allowing students and staff to respond efficiently and safely during emergencies. Sample transcriptions are as follows;

Participant 1: "Human sa tinuod nga linog, among gi-update ang evacuation routes ug gibutang ug klaro nga signs. Naga-assign pud mi ug more safety marshals per classroom."
(After the real earthquake, we updated the evacuation routes and put up clear signs. We also assigned more safety marshals per classroom.)

Participant 2: "Ang mga evacuation routes gi-review ug gi-expand aron walay congestion. Gi-reassign pud ang mga teachers para mas klaro ang supervision sa mga bata."
(The evacuation routes were reviewed and expanded to avoid congestion. Teachers were also reassigned to ensure clear supervision of the students.)

Participant 3:"Nagdugang mi og emergency kits ug first aid stations sa mga classrooms. Gihimo pud namo nga mandatory ang quick headcount kada evacuation drill."
(We added emergency kits and first aid stations in the classrooms. We also made quick headcounts mandatory during every evacuation drill.)

The statements suggest that the continuous upgrading and proper maintenance of school resources and safety equipment contribute not only to a safer physical environment but also to clearer communication systems, more efficient evacuation procedures, and heightened overall preparedness among both staff and students. Adequate and functional resources serve as the foundation for effective emergency management, ensuring that protocols can be implemented smoothly and without confusion during critical situations. This finding aligns with the study of Labanan (2022), which reported that schools that consistently review and rehearse their evacuation procedures tend to record fewer injuries and demonstrate quicker response times during actual emergencies. Both the present results and prior research emphasize the importance of systematic preparation and resource readiness in minimizing harm. More so, while earlier studies primarily highlighted measurable outcomes such as reduced injuries and faster response, the current findings further underscore the broader institutional impact—particularly how well-maintained resources enhance communication flow and collective confidence.

4.2 Personal Realizations and Lessons Learned

Maintaining emotional control and composure is a critical aspect of effective emergency management in schools. Teachers and staff who remain calm under pressure can make better decisions, provide clear instructions, and reassure students, thereby minimizing panic and ensuring a more orderly and efficient response during crises. Sample transcriptions are as follows;

Participant 1: "Naka-realize ko nga ang kalma ug pasensya mao gyud ang pinaka-importante. Kung composed ka, mas dali nimo matabangan ang uban ug malikayan ang panic."
(I realized that calmness and patience are the most important. When you are composed, it's easier to help others and prevent panic.)

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Participant 2: ***"I learned nga preparation dili lang sa drills, kundi pati sa mindset. Kinahanglan ready mentally ug emotionally para mo-react sa tama nga paagi."***
(I learned that preparation is not just about drills, but also mindset. You must be mentally and emotionally ready to respond appropriately.)

Participant 3:"Ang lesson nako kay kinahanglan flexible ug alert ka pirmi. Dili tanan predictable sa real situation, so dapat ready ka mag-adjust anytime."
(*My lesson is that you must be flexible and alert at all times. Not everything is predictable in real situations, so you must be ready to adjust anytime.)*

This finding implies that emotional preparedness is equally as vital as physical readiness in effective school emergency management. Moreover, beyond having established protocols and equipment in place, the ability of teachers and staff to regulate their emotions, remain composed, and think clearly under pressure significantly influences the outcome of crisis situations. Emotional stability enables educators to make sound decisions, provide reassurance, and maintain order during high-stress events. These results are consistent with the study of Babcicky and Seebauer (2019), which found that training programs emphasizing stress management and emotional regulation enhance teachers' confidence and decision-making abilities during emergencies. Both the present findings and previous research highlight that psychological readiness strengthens overall response effectiveness. However, while earlier studies primarily focused on improvements in individual confidence and cognitive performance, the current findings further emphasize the broader social impact, particularly how calmness, patience, and mental flexibility among educators help reduce student panic, foster trust, and promote collective resilience. Thus, integrating emotional preparedness into emergency training programs enhances not only individual competence but also the safety and stability of the entire school community.

4.3 Community Engagement and Collaborative Preparedness

Successful emergency preparedness in schools relies on the seamless integration of staff and students in planning, drills, and response activities. When both groups are actively involved and coordinated, it ensures that everyone understands their roles, responsibilities, and procedures, fostering a safer and more efficient environment during crises. The participants shared;

Participant 1: ***"Human sa linog, among gibuhat nga drills dili na lang monthly pero bi-monthly. Ang mga teachers gi-assign og klarong roles during evacuation aron dili maglibog."***
(After the earthquake, we changed our drills from monthly to bi-monthly. Teachers were assigned clear roles during evacuation to avoid confusion.)

Participant 2: ***We started conducting role-specific drills for teachers, students, ug staff para mas prepared ang tanan. Gi-revise pud ang mga evacuation signs.***
(We started conducting role-specific drills for teachers, students, and staff so everyone is more prepared. We also revised the evacuation signs.)

Participant 3:I learned nga ang students tan-awon ang teachers kung unsaon nila pag-react. Kung kalma ka, mas dali ma-control ang panic sa classroom.
(I learned that students watch how teachers react. If you stay calm, it's easier to control panic in the classroom.)

This finding indicates that the integration of both staff and students in emergency planning and drills is fundamental to establishing a coordinated and systematic response framework. Moreover, when all members of the school community clearly understand their roles and responsibilities, the likelihood of confusion is reduced, safety procedures are executed more efficiently, and evacuation processes become more organized. Shared participation fosters accountability and reinforces a culture of collective preparedness. These results are consistent with the study of Astuti et al. (2021), which emphasized that clearly defined role assignments and regular joint drills enhance collaboration and significantly reduce panic during real emergency situations. Both the present findings and prior research underscore the importance of structured involvement in strengthening response efficiency. However, while earlier studies primarily highlighted improvements in collaboration and reduced anxiety, the current findings further stress the operational benefits. Further, actively involving both staff and students in emergency preparedness not only improves coordination but also contributes to a safer, more resilient school environment.

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Conclusions

The study concluded that elementary school DRRM coordinators in Jose Abad Santos played a vital role in strengthening school earthquake preparedness through effective coordination, adaptive leadership, and collaborative engagement with stakeholders. Despite challenges related to limited resources, communication barriers, and student panic, coordinators demonstrated resilience by applying coping strategies grounded in training, experience, and emotional regulation. Their experiences during actual earthquakes led to improvements in evacuation systems, safety protocols, and leadership practices, contributing to enhanced school disaster preparedness.

Recommendations

The findings of the study indicate that schools may strengthen disaster preparedness by enhancing structured communication systems and clearly defining DRRM roles among personnel. Schools may also consider continuous training programs that focus not only on technical skills but also on emotional regulation and leadership during emergencies. Strengthening collaboration with local disaster management offices and community stakeholders may further improve coordinated response efforts and resource mobilization during earthquake events.

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