Voices from the Classroom: A Phenomenological Study on the Instructional Practices of Senior High School Mathematics Teachers

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ABSTRACT

Mathematics education has increasingly emphasized student-centered and inclusive instructional practices that promote critical thinking, problem-solving, and meaningful learning. In this context, teachers play a vital role in translating these principles into effective classroom instruction. This study explored the instructional experiences, challenges, and adaptive strategies of Senior High School Mathematics teachers at Kananga National High School–Senior High School during the School Year 2025–2026. Using a phenomenological research design, the study aimed to capture teachers' lived experiences of implementing their instructional methods in real classroom settings. Three Senior High School Mathematics teachers were selected through purposive sampling. Data were collected through semi-structured interviews and analyzed using Braun and Clarke's six-phase thematic analysis. The findings revealed three major dimensions of teachers' instructional practice: experiences, challenges, and adaptations. Teachers reported diverse learner needs, the importance of student-centered instruction, effective communication, and differentiated strategies as key aspects of their teaching experience. However, they also encountered challenges such as persistent student disengagement, teacher anxiety during lesson delivery or observations, and the complexity of designing inclusive lessons for diverse learners. In response, teachers demonstrated adaptive strategies, including flexible application of strategies, continuous self-development and preparation, and relationship-building with students through empathy and supportive classroom management. The study highlights that effective mathematics instruction extends beyond content knowledge and involves responsiveness, reflective practice, and relational competence. These findings underscore the importance of professional development, institutional support, and teacher preparation programs that strengthen teachers' capacity to implement adaptive, student-centered teaching practices in diverse Senior High School classrooms.

Keywords: Mathematics instruction, phenomenology, teacher experiences, student-centered strategies, differentiated instruction,

INTRODUCTION

Mathematics education has increasingly shifted toward student-centered and inclusive instructional approaches that emphasize critical thinking, problem-solving, and meaningful real-world application. Educational reforms across many countries promote teaching strategies that encourage learners to actively construct knowledge rather than passively receive information. In the Philippine Senior High School context, teachers play a crucial role in translating these pedagogical reforms into daily classroom practice. Effective mathematics instruction therefore requires not only strong content knowledge but also pedagogical competence and responsiveness to diverse learners (Ball, Thames, & Phelps, 2008). Understanding how teachers implement these expectations in actual classroom settings remains an important area of inquiry.

Contemporary classrooms are characterized by diverse learner needs, learning styles, and varying levels of motivation. Differentiated instruction has been widely recognized as an effective approach to address such diversity. According to Tomlinson and Moon (2017), differentiation allows teachers to adjust content, process, and learning environments based on students' readiness levels, interests, and learning profiles. Recent research further supports this perspective, indicating that varied instructional strategies enhance engagement and learning outcomes in mathematics classrooms (Aguhayon, Tingson, & Pentang, 2023). When instruction is responsive to

students' differences, learners are more likely to develop deeper conceptual understanding and sustained interest in mathematical learning.

Teaching mathematics is therefore not a rigid or purely technical activity but a dynamic process requiring continuous adaptation. Teachers frequently modify explanations, examples, and activities based on immediate classroom feedback. In such contexts, teaching becomes an interpretive and reflective activity shaped by ongoing classroom interactions.

Student-centered instructional approaches have also been associated with improved engagement and learning outcomes in mathematics. Inquiry-based and collaborative learning strategies encourage students to actively participate in problem-solving, discussion, and reasoning processes. Empirical research has shown that inquiry-based pedagogy can positively influence students' mathematical attitudes and academic performance, particularly when learners are encouraged to explore concepts through guided investigation and collaborative work.

Clear and effective communication also plays a central role in mathematics instruction. Teachers must present abstract concepts in ways that are accessible and understandable to students. Research indicates that teaching clarity significantly influences students' attitudes toward mathematics and their academic performance (Ball, Thames, & Phelps, 2008). Additionally, supportive learning environments contribute to students' engagement and achievement in mathematics (Fredricks, Reschly, & Christenson, 2019). These findings suggest that instructional effectiveness depends not only on the strategies used but also on the quality of teacher–student interaction.

Teaching also involves emotional and relational dimensions. Teachers often experience pressure during classroom observations, lesson demonstrations, or challenging instructional situations. Studies on teacher development emphasize that reflective practice and professional learning opportunities can help teachers manage instructional challenges and strengthen pedagogical confidence. Furthermore, supportive teacher–student relationships have been found to strengthen students' motivation and classroom participation (Roorda et al., 2017).

Despite the growing body of research on student-centered and differentiated instruction, relatively few qualitative studies examine how these practices are implemented by Senior High School Mathematics teachers in Philippine public schools. Much of the existing literature focuses primarily on instructional outcomes rather than teachers' lived experiences, emotional challenges, and adaptive decision-making in real classroom contexts.

This study addresses this gap by providing a phenomenological account of Senior High School Mathematics teachers' instructional practices, challenges, and adaptive strategies in Kananga National High School–Senior High School. By documenting teachers' lived experiences, the research contributes contextual insights into how contemporary pedagogical principles are translated into actual classroom practice. The findings aim to inform teacher development programs, instructional mentoring, and curriculum support initiatives grounded in authentic classroom realities.

This study aimed to determine the instructional methods most commonly utilized by Senior High School Mathematics teachers of Kananga National High School–Senior High School during the School Year 2025–2026. Furthermore, it sought to explore their experiences, challenges, and adaptations in implementing these methods.

Explicitly, this study aimed to answer the following questions:

1. **Experiences:** What are the experiences of Senior High School Mathematics teachers in the implementation of their instructional methods?

2. **Challenges:** What are the challenges encountered in applying these methods?

3. **Adaptations:** How do teachers adapt to address their varied experiences and challenges in classroom instruction?

METHODS

This chapter presents the research methods in full, including the research design, participants, research setting, data collection instruments and procedures, and data analysis process. The methods are described comprehensively to ensure methodological transparency, rigor, and replicability, in accordance with qualitative research standards.

This study employed a phenomenological research design to gain an in-depth understanding of the lived experiences, challenges, and adaptive strategies of Senior High School Mathematics teachers in implementing instructional methods. Phenomenology is appropriate for this inquiry because it focuses on describing participants' personal experiences and the meanings they assign to them (Creswell & Poth, 2018). By using this approach, the researchers sought to capture the essence of teachers' perspectives regarding their classroom practices.

The research was conducted at Kananga National High School – Senior High School, a public secondary institution located in Kananga, Leyte, Philippines. The school offers different strands, including Accountancy, Business and Management, General Academic Strand, Humanities and Social Sciences (HUMSS), and Industrial Art, serving students from diverse cultural and socio-economic backgrounds. Its classrooms provide a typical setting for Senior High School mathematics instruction, making it a suitable environment for investigating teachers' instructional approaches.

The participants of the study were three (3) Senior High School Mathematics teachers currently handling Grade 11 and Grade 12 classes during the School Year 2025–2026. They were selected using purposive sampling to ensure the inclusion of individuals with direct and relevant experience with the phenomenon under investigation. Each participant had at least one year of teaching experience in the Senior High School curriculum.

Data were gathered through semi-structured interviews, which allowed the researchers to ask prepared guiding questions while also probing for deeper responses when necessary. The questions were developed based on the objectives of the study and covered three main areas: (1) teachers' experiences in implementing their instructional methods, (2) the challenges they encountered, and (3) their adaptive strategies in response to these experiences. Semi-structured interviews are widely used in qualitative research because they provide flexibility while maintaining focus on the research problem (Kallio et al., 2016). Follow-up questions were used to clarify and enrich participants' answers, and all interviews were conducted in a quiet, comfortable setting on the school premises to ensure participants felt at ease. Each session lasted approximately 30–45 minutes and was audio-recorded with consent to ensure accurate transcription.

Data analysis followed Braun and Clarke's (2006) six-phase thematic analysis framework. First, the researchers engaged in data familiarization by repeatedly reading the interview transcripts while listening to the audio recordings to ensure accuracy and immersion in the data.

Second, initial coding was conducted manually by identifying meaningful units of text related to instructional experiences, challenges, and adaptive practices. These codes were data-driven and closely aligned with participants' actual statements.

Third, related codes were grouped to generate initial themes, which were then reviewed and refined to ensure internal coherence and distinction across themes. Fourth, themes were reviewed and validated by rechecking them against the full data set to confirm that they accurately represented participants' experiences.

Fifth, themes were defined and named, capturing their central essence and relevance to the research questions. Finally, the themes were reported and interpreted through rich descriptions, supported by verbatim excerpts, and linked to the existing literature to enhance analytical depth.

To strengthen trustworthiness, prolonged engagement with the data, careful documentation of analytic decisions, and peer consultation were employed throughout the analysis process.

Throughout the process, ethical considerations were strictly observed. Participants provided informed consent, and confidentiality was maintained by assigning pseudonyms to all records and reports. The data collected were used solely for academic purposes.

RESULT AND DISCUSSION

Teachers' Experience

This study identifies themes based on the information and data gathered from participants about the method or approach they usually use to teach Mathematics to their learners. Below is a list of positive experiences participants have encountered during their implementation.

Table 1 Teachers' Experiences

Essential Theme	Verbatim Excerpt	Thematic Interpretation
Diversity of Student Needs	"Every class is different. Some students learn fast, while others need more examples. I cannot use the same approach all the time." (Teacher A)	Teachers experience a variety of student intelligences, interests, and learning styles in every class session.
Emphasis on Student-Centered Instruction	"I avoid long lectures. I let them solve problems in groups so they can explain to each other." (Teacher A)	Senior High School Math teachers prefer using student-centered strategies to enhance engagement and participation.
Importance of Effective Communication	"If my explanation is not clear, I can see immediately that they get lost." (Teacher B)	Teachers recognize that confident and clear delivery is vital to maintaining students' attention in Math classes.
Value of Differentiated Instruction	"In one section, they prefer activities, but in another, they want step-by-step explanation." (Teacher B)	Lessons are often tailored to match students' varying readiness, interests, and abilities to foster understanding.

Diversity of Student Needs. Teachers observed that students in Senior High School Mathematics classes demonstrate varied learning styles, interests, and levels of readiness. As a result, a single instructional strategy cannot effectively address all learners. Participants described the need for flexibility and creativity in selecting activities and approaches to ensure inclusive participation.

This observation aligns with Tomlinson and Moon (2017), who emphasize differentiated instruction as essential for addressing diverse learner profiles by adjusting content, processes, and the learning environment. Anderson (2016) similarly notes that instructional variety improves engagement and achievement, particularly in cognitively demanding subjects like mathematics. These insights support the participants' view that responsiveness to learner diversity is a core component of effective instruction.

Emphasis on Student-Centered Instruction. Participants highlighted their preference for student-centered strategies such as collaborative problem-solving, guided discussion, and real-life application. Rather than relying solely on lectures, teachers encouraged active student participation and peer interaction to deepen understanding.

This finding supports research indicating that student-centered approaches enhance engagement and learning outcomes in mathematics. Gningue, Peach, and Schroder (2013) found that learner-centered classrooms promote active participation, while Britwum, Ntow, and Smith (2024) reported improved mathematical performance and growth mindset among students exposed to inquiry-based strategies. Local studies (Ignacio & Bajet, 2022) further suggest that student-centered instruction improves conceptual understanding, though effective implementation requires sufficient training and institutional support.

Importance of Effective Communication. Participants emphasized that clear and confident communication is critical in teaching mathematics, where abstract concepts require precise explanation. Teachers noted that unclear delivery often results in immediate student disengagement, highlighting the role of clarity in sustaining attention and comprehension.

This aligns with Derakhshan et al. (2021), who found that teacher clarity significantly influences student engagement and achievement. Likewise, Ball, Thames, and Phelps (2008) emphasize that effective mathematics teaching involves not only content expertise but also the ability to communicate ideas clearly and foster interaction. These perspectives reinforce the importance of communication as a fundamental instructional skill.

Value of Differentiated Instruction Teachers described adapting their strategies based on students' readiness, motivation, and learning preferences. Differentiation included modifying explanations, adjusting activities, and providing varied levels of support to ensure that all learners could access the lesson.

This experience reflects Tomlinson's (2017) assertion that differentiation enhances motivation and conceptual understanding by aligning instruction with learner needs. Supporting this, Aguhayon, Tingson, and Pentang (2023) found that differentiated mathematics instruction improves student confidence and reduces achievement gaps. These findings affirm differentiation as a practical and inclusive approach in diverse Senior High School classrooms.

Teachers' Challenges

The gathered data also revealed several common difficulties faced by Senior High School Mathematics teachers in their teaching practice. These challenges often stem from student behavior, personal confidence in delivery, and the complexity of meeting diverse learner needs. The table below summarizes the recurring issues experienced by the participants during instruction.

Table 2 Teachers' Challenges

Essential Theme	Verbatim Excerpt	Thematic Statement
Persistent Student Disengagement	"Even if I prepare activities, there are still students who are not interested." (Teacher A)	Despite efforts, some students remain inattentive, unmotivated, or disruptive during class.
Teacher Anxiety and Pressure	"During observations, I feel nervous even if I know the topic." (Teacher C)	Nervousness during lesson delivery—especially during observations—affects teachers' confidence and clarity.
Complexity of Inclusive Lesson Design	"It's hard to prepare lessons that will fit everyone without consuming too much time." (Teacher B)	It is challenging to create lessons that address diverse student backgrounds without hindering overall progress.

Persistent Student Disengagement. Participants reported that some students remain inattentive or unmotivated despite the use of student-centered strategies. This suggests that responsive instruction alone may not fully address disengagement, which may stem from emotional, psychological, or contextual factors beyond classroom design.

Research consistently highlights the role of teacher–student relationships and emotional support in sustaining engagement. Studies indicate that supportive classroom environments enhance motivation, resilience, and academic persistence by addressing students' psychological needs for belonging and competence (Fredricks, Reschly, & Christenson, 2019; Roorda, Koomen, Spilt, & Oort, 2017). These findings suggest that improving engagement requires not only instructional innovation but also relational and affective dimensions of teaching.

Teacher Anxiety and Pressure. One participant reported feeling nervous during classroom observations or when introducing unfamiliar lessons. Despite content mastery, performance anxiety affected delivery, confidence, and instructional flow. To cope, the teacher relied on preparation strategies such as outlining key points, rehearsing explanations, and engaging in reflective practices.

This aligns with literature on teacher performance anxiety, which indicates that communication apprehension can influence instructional clarity and classroom presence. Research suggests that preparation, reflective practice, and professional learning opportunities can help teachers manage anxiety and strengthen instructional confidence (Derakhshan, Coombe, Zhaleh, & Tabatabaee, 2021; Schön, 1983). These insights highlight the importance of both personal coping strategies and institutional support systems to sustain teacher effectiveness.

Complexity of Inclusive Design. Participants also noted the difficulty of designing lessons that accommodate diverse learning needs while maintaining overall class progress. Balancing differentiation with time constraints and curriculum demands remains a persistent challenge in inclusive classrooms.

This finding aligns with inclusive pedagogy literature, which emphasizes extending instruction to benefit all learners rather than creating separate pathways. However, research also acknowledges that differentiated instruction requires significant time, creativity, and resources. Without adequate training and systemic support, teachers may struggle to implement inclusive practices effectively, particularly in diverse or resource-limited settings (Tomlinson, 2017; Smale-Jacobse, Meijer, Helms-Lorenz, & Maulana, 2019).

Teachers' Adaptations

In response to the challenges encountered in the classroom, the participants demonstrated a range of adaptive strategies to improve teaching effectiveness and student engagement. These adaptations reflect the teachers' commitment to flexible, student-centered instruction and their efforts to continuously refine their methods. The table below presents the recurring adjustments made by the participants to address diverse classroom demands.

Table 3 Teachers' Adaptation

Essential Theme	Verbatim Excerpt	Thematic Statement
Flexible Strategy Application	"If they are not responding, I shift immediately. I give real-life examples or let them work in pairs." (Teacher A)	Teachers regularly revise strategies, use non-verbal cues, and incorporate motivational hooks.
Self-Development and Preparation	"I prepare outlines and practice explanations so I will not lose my flow." (Teacher C)	Teachers overcome anxiety by preparing lesson outlines, attending training, and practicing delivery.
Relationship-Building and Empathy	"You need to understand students first before correcting them." (Teacher B)	Positive student-teacher relationships and empathetic behavior management improve classroom dynamics.

Flexible Strategy Application. Participants described frequently adjusting instructional strategies in response to student engagement. When learners appeared unresponsive, teachers shifted approaches by introducing real-life examples, pair work, or motivational hooks. Subtle nonverbal cues were also used to manage behavior without disrupting lesson flow, reflecting an adaptive, responsive teaching style.

This practice aligns with the differentiation literature, which frames effective teaching as a dynamic process that requires real-time instructional adjustments based on learner needs (Tomlinson, 2017). The concept of reflective practice also explains how teachers interpret classroom feedback and modify strategies to sustain engagement (Schön, 1983). These perspectives position adaptability as a key component of responsive mathematics instruction.

Self-Development and Preparation. Participants acknowledged that preparation plays a crucial role in managing teaching anxiety. Strategies such as outlining key ideas, rehearsing explanations, and engaging in reflective practices were used to maintain confidence during lesson delivery. Some teachers also pursued professional development opportunities and peer collaboration to strengthen communication skills.

This aligns with research suggesting that preparedness and reflective practice can reduce performance anxiety and improve instructional clarity. Professional learning communities and continuous teacher development are likewise recognized as important mechanisms for strengthening instructional competence and confidence (Derakhshan et al., 2021; Creswell & Poth, 2018).

Relationship – Building and Empathy. Teachers emphasized that effective classroom management involves understanding students' emotional contexts. By building trust and responding with empathy rather than punishment, participants reported improved student cooperation and a more positive learning environment.

This approach is supported by studies highlighting the importance of teacher–student relationships in promoting engagement and behavioral regulation. Positive relationships between teachers and students contribute significantly to students' motivation, classroom participation, and academic achievement (Roorda et al., 2017; Fredricks et al., 2019). These findings highlight relational competence as a vital dimension of instructional success.

INTEGRATIVE DISCUSSION

The findings from this study affirm that Senior High School Mathematics teachers' lived experiences are rooted in responsive and adaptive pedagogical practice, where flexibility and learner engagement are central. Teachers in this research repeatedly described shifting instructional strategies in real time—moving from whole-class direct instruction to collaborative problem-solving or real-life examples as needed. This aligns with recent conceptualizations of teacher responsiveness that emphasize using students' thinking as instructional leverage rather than merely as content delivery (Stockero et al., 2025). In situationally adaptive classrooms, teaching becomes an interpretive act in which educators continually read and respond to student cues, resonating with Schön's reflection-in-action and reinforcing the view that effective mathematics instruction is dynamic rather than static.

Beyond instructional moves, teachers in this study articulated how reflective practice and preparation supported their ability to adjust under pressure and maintain confidence. Many described preparation routines, rehearsal of key explanations, and reflective thinking about lesson flow—practices that mirror themes in emerging research on structured reflective teaching praxis. A 2026 study found that when reflection is systematically embedded into teaching practice—not merely as self-evaluation but as a cycle of experience, reflection, and adaptation—it can catalyze deeper pedagogical responsiveness and professional growth. This connection suggests that teachers in your study were not only reacting to classroom conditions but engaging in ongoing sense-making that deepens their instructional judgment and strengthens their capacity for real-time adaptation.

While teacher confidence and clarity were assets, participants also reflected on the emotional and identity dimensions of teaching—particularly anxiety during evaluations and the relational work required to engage disengaged students. These affective facets of practice are now gaining attention in contemporary literature, which highlights that teacher identity, self-efficacy, and emotion regulation are intertwined with instructional choices and classroom outcomes. For example, research exploring teacher identity tensions in 2026 underscores how educators' beliefs about themselves—how they see their role, authority, and relational orientation—influence the pedagogies they enact. Your findings around communication confidence and emotional regulation resonate with this broader view that effective instruction is not solely about technique but interconnected with self-perception and relational competence.

Participants' challenges with persistent student disengagement and the complexity of inclusive lesson design echo recent empirical work on the structural demands of differentiated and inclusive practice. Contemporary research indicates that planning and delivering instruction that meets diverse needs requires intentional strategies anchored in both didactic and relational dimensions—framing content accessibly while fostering safe and supportive learning environments. These studies reinforce your participants' lived experiences: differentiation and inclusion are not merely add-on strategies but constitute a holistic approach that integrates lesson design, teacher-student relationships, and classroom climate.

Finally, the adaptive strategies teachers described—relationship building, empathy, and flexible strategy application—point toward an expanded understanding of effective mathematics teaching that bridges pedagogy, emotion, and professional identity. Rather than viewing challenges as deficits, participants construed them as opportunities for growth and connection, illustrating how teaching involves negotiation between curricular goals, student needs, and interpersonal dynamics. This resonates with recent literature that situates teacher development as both instructional and emotional work, where reflective practice, responsive decision-making, and empathetic

engagement are essential competencies in complex, real-world classrooms. Taken together, the themes in your findings not only support existing theoretical perspectives on adaptive and student-centered instruction but also contribute to an ongoing shift in the literature toward recognizing the holistic, reflective, and relational nature of effective mathematics teaching across diverse senior high school contexts.

CONCLUSION

A reflective and adaptive approach to teaching enhances the instructional effectiveness of Senior High School Mathematics educators. Student-centered and differentiated instruction describe how teachers adjust, develop, and apply pedagogical strategies to meet diverse learner needs and improve classroom engagement. Teaching is a systematic process in which one key component is the intentional design of instructional methods responsive to student variability. The approaches identified in this study aim to make mathematics learning more inclusive and effective; such strategies enable the learning environment to achieve its objectives by fostering equitable opportunities for understanding and participation. Student achievement results from the interaction between teaching actions and learning behaviors. To ensure optimal educational outcomes, instructional practices must be consciously, deliberately, and systematically planned, guided by flexible methodologies that align with academic goals and the classroom realities.

RECOMMENDATIONS

Based on the findings of this study, several recommendations are proposed to enhance the implementation of student-centered and differentiated instruction in Senior High School Mathematics.

First, professional development programs should place greater emphasis on strengthening teachers' communication skills, classroom discourse strategies, and confidence in facilitating student-centered learning. Training activities such as workshops, peer mentoring, and classroom demonstrations may help teachers manage instructional anxiety and improve learner engagement.

Second, school administrators are encouraged to provide institutional support by ensuring manageable class sizes, adequate instructional time, and access to teaching resources that facilitate differentiated instruction. Supportive supervision and constructive feedback may further help teachers refine their pedagogical practices.

Third, curriculum developers and policymakers should consider integrating flexible instructional guidelines that acknowledge contextual challenges faced by Mathematics teachers in public Senior High Schools. Policies should support adaptive teaching practices that respond to learners' diverse needs rather than relying solely on standardized instructional models.

Fourth, future research may explore similar instructional experiences using mixed-methods or longitudinal designs to examine how teachers' practices and confidence evolve over time. Studies involving multiple schools or regions may also enhance the transferability of findings.

Finally, teacher education institutions are encouraged to strengthen pre-service training by emphasizing reflective practice, classroom communication, and emotional preparedness for real teaching environments. Embedding experiential learning opportunities may better prepare future teachers for student-centered Mathematics instruction.

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