The Academic Journey of Learners Experiencing Difficulty in General Mathematics: A Narrative Inquiry

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ABSTRACT:

Introduction: This study explored the academic journey of Senior High School learners experiencing difficulty in General Mathematics. It focused on how instructional practices, classroom conditions, emotional factors, coping strategies, and support systems shaped learners' engagement, persistence, and changing perceptions of the subject.

Methods: The study employed a qualitative narrative inquiry design. Two Senior High School learners who experienced consistent difficulty in General Mathematics were purposively selected. Data were gathered through semi-structured interviews, narrative or life-story interviews, and written reflections. The narratives were analyzed using thematic analysis and narrative re-storying.

Results: Findings revealed seven themes: General Mathematics as challenging yet achievable; emotional struggles and mathematics anxiety; complex mathematical concepts as learning barriers; supportive teaching practices; support systems that foster confidence; persistence and self-regulated learning; and changing perceptions from fear to confidence. The learners' struggles were influenced by abstract concepts, fast-paced instruction, fear of mistakes, language demands, socioeconomic conditions, and cultural beliefs about mathematics.

Discussion: The study shows that difficulty in General Mathematics is not caused by lack of ability alone but by the interaction of cognitive, emotional, instructional, social, linguistic, and cultural factors. Learners developed confidence when supported through scaffolded instruction, teacher feedback, peer collaboration, family encouragement, online resources, and opportunities to connect mathematics with real-life situations.

Keywords: General Mathematics, narrative inquiry, mathematics anxiety, academic resilience, scaffolded instruction, Senior High School learners

Problem and Its Settings

The Philippines is ranked second lowest among the 79 countries participating in the Mathematics Assessment of the Programme for International Student Assessment (PISA), which is one of the major assessments used globally to evaluate students' mathematical literacy. More than half of Filipino students scored below the lowest level of proficiency in this subject. According to Hwang et al., 2021, mathematics is commonly a prerequisite for higher education. Languban (2020) highlighted that when teaching mathematics, three key aspects must be considered: the way teachers deliver instruction, the abilities and experiences of learners, and the school environment and resources available for learning. Additionally, Guner (2021) noted that high school students often face challenges in mathematics. However, research focusing on topics in the General Mathematics curriculum of the Senior High School (SHS) in the Philippines has not been thoroughly explored. Most of the existing studies on secondary mathematics classrooms globally have focused on performance and achievement, often linking them to personal and psychological factors across a wide range of mathematical topics.

The researcher aims to explore the academic journey of students who are struggling in mathematics education, specifically in the context of General Mathematics within the senior high school curriculum, where it is a core subject offered regardless of the track or strand chosen, as mandated by the Department of Education under the

K-12 program. This subject includes essential competencies such as functions, business mathematics, logic, and financial literacy, which are crucial for lifelong learning and real-life decision-making. Unfortunately, many learners find it difficult to understand these concepts, leading to poor academic performance, math anxiety, disengagement, and in some cases, academic failure. While quantitative studies often measure student performance through test scores and statistical analysis, they rarely capture the lived experiences behind these numbers. By using a narrative inquiry approach, this study gives a voice to a struggling learner, enabling educators to understand the emotional, psychological, instructional, and socio-cultural influences on the student's academic journey. Furthermore, the findings could help teachers develop more responsive and tailored instructional strategies, provide insights for remediation programs, assist school administrators in creating learner-centered interventions, and reduce the stigma associated with struggling learners by highlighting their resilience and coping strategies. Ultimately, this study contributes to the limited qualitative literature on struggling learners in the context of General Mathematics in the Philippine SHS system. Understanding one student's story can shed light on broader systemic issues and inspire reforms that promote equity and inclusivity in mathematics education.

Statement of the Problem

This study seeks to explore and narrate the academic journey of Senior High School learners experiencing difficulty in General Mathematics. Through narrative inquiry, it aims to understand how the learner's experiences are shaped by instructional practices, classroom conditions, personal and emotional factors, and available support systems. It also seeks to examine how the learner interprets these experiences over time and how these interpretations shape engagement, coping, and persistence in learning mathematics.

Specifically, this study seeks to answer the following questions:

How does the learners narrate their academic journey in learning General Mathematics?

What significant experiences or turning points have shaped the learners' struggle in General Mathematics?

How do instructional practices, classroom environment, and personal factors influence the learner's experiences in the subject?

What coping strategies and support systems does the learner draw upon in navigating difficulty in General Mathematics?

How has the learner's perception of General Mathematics changed across time and experience?

Theoretical Lens

This study is anchored on an integrated theoretical lens that combines **Lev** Vygotsky**'s Sociocultural Theory of Learning (1978), Mathematics Anxiety Theory, and Academic Resilience Theory.** This multi-theoretical perspective provides a comprehensive framework for understanding the academic journey of a Senior High School learner experiencing difficulty in General Mathematics. Rather than attributing mathematical struggle solely to cognitive limitations or low ability, this study conceptualizes difficulty as a dynamic process shaped by social interaction, emotional experience, and adaptive capacity across time. By integrating these complementary perspectives, the study situates the learner's experience within a broader ecological and developmental context. The theoretical lens allows for a nuanced examination of how instructional practices, classroom conditions, personal emotions, and support systems collectively influence engagement, coping, and identity formation in mathematics learning.

The primary foundation of this study is Sociocultural Theory, which posits that learning is fundamentally a socially mediated process. According to Vygotsky (1978), cognitive development occurs through interaction with more knowledgeable others, such as teachers and peers, and through engagement with cultural tools, including language, symbols, and instructional materials. Central to this theory is the concept of the **Zone of Proximal Development (ZPD)**, which describes the space between what learners can accomplish independently

and what they can achieve with guidance and scaffolding. Within the context of General Mathematics, the learner's understanding of functions, logic, business mathematics, and financial literacy is shaped by the quality of instructional mediation and classroom discourse. Through this lens, difficulty in mathematics is not merely an internal deficit but may reflect mismatches between instructional delivery and learner readiness, insufficient scaffolding, or limited opportunities for meaningful interaction. According to the study of Kim & Park (2022), López & Sullivan, (2023) they emphasize that insufficient scaffolding and limited instructional support contribute significantly to students' difficulties in mathematics. When instruction does not align with the learner's ZPD, conceptual understanding becomes fragmented, leading to persistent misconceptions. Thus, difficulties in General Mathematics are not solely attributed to learner ability but are shaped by the quality of instructional mediation and social interaction and the learner's academic journey is examined as socially situated and developmentally mediated. While this Theory explains the structural and interactional dimensions of learning, **Mathematics Anxiety Theory** provides insight into the emotional experiences that may disrupt cognitive functioning.

Mathematics anxiety refers to feelings of tension, fear, and apprehension that interfere with numerical manipulation and problem-solving processes. According to Ashcraft and Ridley (2021), math anxiety consumes working memory resources, reducing a learner's ability to solve problems effectively. For learners experiencing repeated difficulty, negative classroom encounters, or perceived evaluation pressure, anxiety may emerge as a significant barrier to engagement. Anxiety can reduce working memory capacity, impair concentration, and reinforce avoidance behaviors, thereby affecting academic performance. In this study, mathematics anxiety is viewed not as a fixed personal trait but as an emotional response shaped by sociocultural experiences. Carey et al., (2023) and Zhang et al., (2025) confirms that mathematics anxiety is strongly associated with avoidance behaviors, low achievement, and negative self-perception. In addition, studies in educational contexts reveal that assessment pressure and fear of failure exacerbate anxiety levels among learners. These emotional barriers significantly hinder engagement and contribute to the learner's academic struggles. Narrative inquiry allows explora tion of how moments of embarrassment, validation, encouragement, or failure contribute to the development or reduction of anxiety over time. To avoid framing the learner solely through a deficit perspective, this study integrates **Academic Resilience Theory**. Academic resilience refers to a learner's capacity to succeed or persist despite experiencing academic adversity. It emphasizes protective factors such as supportive relationships, internal motivation, help-seeking behaviors, and adaptive coping strategies. Resilient learners demonstrate persistence, adaptability, and the ability to utilize support systems effectively (Masten, 2021). Within the context of General Mathematics, resilience may manifest in the learner's willingness to seek clarification, persist through challenging problems, reinterpret failure as part of growth, or draw motivation from supportive figures. Resilience serves as a moderating force that can buffer the negative effects of mathematics anxiety and challenging sociocultural conditions.

Together, these theories conceptualize the learner's struggle in mathematics as an **interconnected phenomenon** that involves Social-Instructional Context which explains how sociocultural like teaching practices, classroom interactions and resources shape the learning conditions of the students. Emotional experience which tell how mathematics anxiety emerges from and interacts with classroom conditions and personal interpretations. Adaptive process that helps us find answer how resilience mechanisms help learners sustain engagement, reframe struggle, and develop academic identity. This integrated framework aligns with narrative inquiry, allowing the learner's story to reveal how **instructional, socio-cultural, emotional, and adaptive factors interact and evolve over time**. It situates the learner's experience within broader educational, psychological, and contextual influences, enabling a holistic understanding of struggle, coping, and growth in General Mathematics.

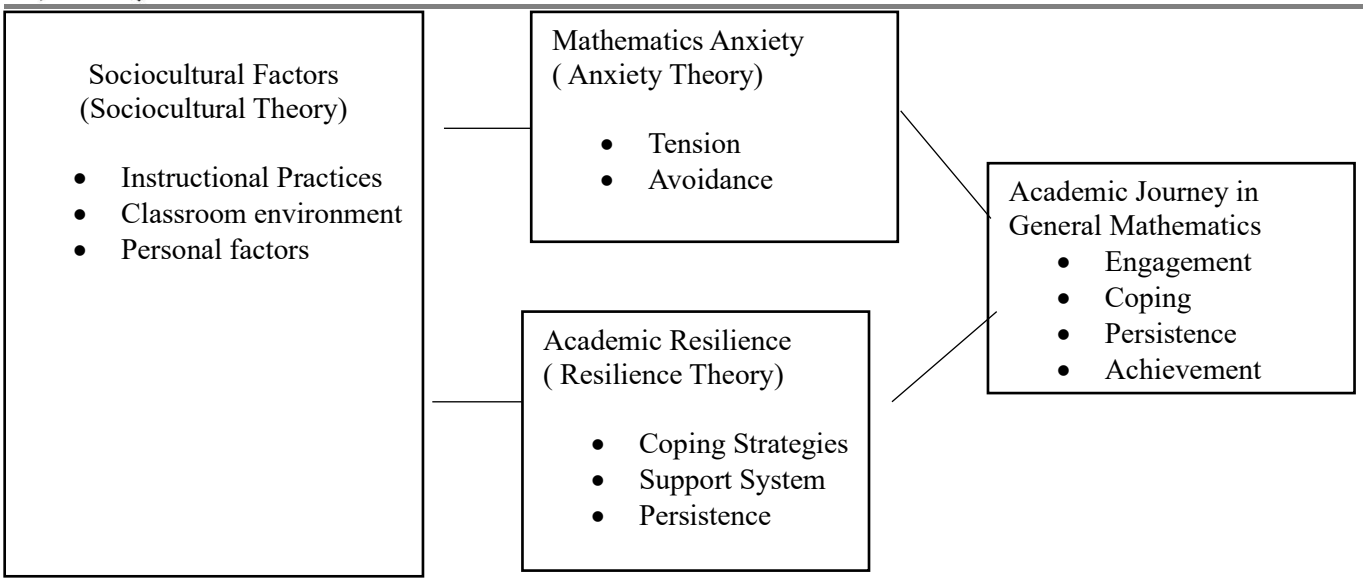

Figure 1: A Narrative Inquiry Paradigm Model of a Learner Experiencing Difficulty in General Mathematics"

REVIEW OF RELATED LITERATURE

This chapter presents a synthesis of contemporary scholarship relevant to the investigation The Academic Journey of a Learner Experiencing Difficulty in General Mathematics. The review is organized into six major sections: (1) Conceptual vs. Procedural Understanding in mathematics (2) *Cognitive demands of General Mathematics* (3) *Common Learning Competencies in Senior High School Mathematics.*, (4) Curriculum standards (e.g., K–12 Mathematics Curriculum Framework), (5) *Struggles in algebra, functions, statistics, and problem-solving and (6)Transition Challenges from Junior High to Senior High Mathematics*. The chapter concludes with a synthesis identifying key research gaps and articulating the contribution of the present study.

Conceptual vs. Procedural Understanding in Mathematics. Understanding mathematics requires both knowledge of concepts and mastery of procedures**.** Contemporary mathematics education research emphasizes that effective learning occurs when students develop a balance between conceptual understanding—knowledge of mathematical principles and relationships—and procedural understanding**,** which refers to the ability to execute mathematical operations and algorithms accurately. Recent studies continue to explore how these two forms of understanding interact and influence students' mathematical achievement.

Conceptual understanding refers to students' comprehension of mathematical ideas, relationships, and structures, allowing them to explain why mathematical procedures work. In contrast, procedural understanding focuses on the ability to carry out mathematical processes and algorithms efficiently. According to Bethany Rittle-Johnson et al (2021), conceptual and procedural knowledge are mutually reinforcing, meaning improvements in one often support development in the other. Their research highlights that students who understand underlying concepts tend to apply procedures more flexibly and accurately. Moreover, Hadar Netiv and Roey Ben-David Kolikant (2021) found that students who engaged in tasks emphasizing conceptual reasoning demonstrated deeper problem-solving skills than those who practiced procedures alone. The researchers concluded that conceptual understanding enables learners to adapt mathematical strategies when encountering unfamiliar problems. Similarly, Arthur C. Graesser et.al (2022) observed that students with stronger conceptual foundations were more capable of transferring mathematical knowledge to new contexts. Their findings suggest that procedural fluency without conceptual grounding may lead to superficial learning, where students can perform calculations but struggle to interpret or apply them in real-life situations.

Another recent study by Drew Polly (2023) examined elementary and secondary students' learning outcomes when instruction emphasized conceptual explanations alongside procedural practice. His found that students exposed to concept-based instruction showed significantly higher retention and problem-solving ability compared with those taught through procedural drills alone. This supports the argument that conceptual knowledge enhances long-term mathematical understanding. Furthermore, a large-scale review conducted by

James Hiebert et.al (2024) emphasized that conceptual understanding promotes meaningful learning by helping students connect mathematical ideas. This shows that classrooms that encourage reasoning, discussion, and representation tend to foster deeper conceptual knowledge while maintaining procedural accuracy.

In the context of mathematics difficulty, scholars argue that students who struggle in mathematics often rely heavily on memorized procedures without understanding underlying concepts. A study by Jo Boaler (2022) found that when students were encouraged to explore multiple solution strategies and explain their reasoning, their conceptual understanding improved significantly, leading to better procedural performance and reduced mathematics anxiety. Effective mathematics instruction integrates conceptual explanations, visual representations, and opportunities for procedural practice to promote deeper mathematical competence.

Cognitive Demands of General Mathematics. Mathematics learning involves complex cognitive processes that require students to engage in reasoning, problem solving, and conceptual thinking. The cognitive demand of mathematical tasks refers to the level of intellectual effort required for learners to understand, interpret, and solve mathematical problems. Tasks with high cognitive demand encourage deeper thinking and conceptual reasoning, whereas low-demand tasks often emphasize memorization and routine procedures. Research in mathematics education emphasizes that the cognitive demand of tasks significantly influences students' mathematical understanding and learning outcomes.

Recent studies highlight that mathematics tasks vary in the degree of cognitive effort they require from learners. According to Dalzell and DiNapoli (2021), cognitive demand refers to the mental processes necessary to solve mathematical tasks, including recalling knowledge, applying procedures, and engaging in higher-order reasoning. Their study found that mathematics curricula often contain a mix of low-level procedural tasks and higher-level reasoning activities, but instructional materials frequently emphasize procedural tasks rather than conceptual reasoning.

In classroom contexts, cognitive demand is often analyzed using the framework developed by Stein and Smith, which categorizes mathematical tasks into levels such as memorization, procedures without connections, procedures with connections, and doing mathematics. Tasks categorized under "doing mathematics" require students to explore relationships, justify solutions, and apply reasoning strategies, thereby promoting deeper mathematical understanding.

Recent empirical research indicates that many mathematics learning materials still emphasize lower levels of cognitive demand. A study examining middle school mathematics textbooks found that a significant proportion of mathematical problems were classified as low-level tasks that primarily required memorization or routine procedures. More than 80% of the analyzed tasks fell under memorization or procedures without connections, suggesting limited opportunities for students to develop higher-order mathematical thinking skills.

Similarly, Namlı and Özçakır (2024) analyzed mathematics textbooks and reported that most tasks required procedural application rather than conceptual reasoning. Their findings revealed that tasks requiring higher cognitive processes—such as mathematical exploration and problem solving—were relatively scarce in instructional materials. This imbalance may hinder the development of critical thinking and reasoning skills among students learning mathematics. Another recent study explored how cognitively demanding tasks influence students' engagement in mathematics learning. Researchers investigating integrated STEM learning tasks found that when students were exposed to activities requiring reasoning, analysis, and problem solving, they demonstrated deeper engagement and sustained cognitive effort during the learning process. Teacher guidance also played a significant role in maintaining the intended level of cognitive demand during classroom activities. Furthermore, contemporary research emphasizes that mathematical performance is closely related to cognitive factors such as working memory, executive functioning, and reasoning ability. A cross-cultural study involving elementary students revealed that cognitive skills, including fluid reasoning and mental flexibility, significantly influenced performance in arithmetic tasks. Students with stronger cognitive abilities were better able to handle complex mathematical problems that required analytical thinking.

In recent developments, researchers have also explored technological approaches to evaluating cognitive demands in mathematics tasks. A 2026 study investigating artificial intelligence tools found that automated

systems still struggle to accurately classify the cognitive demand of mathematical problems, highlighting the complexity of evaluating mathematical thinking processes. The study emphasizes the importance of understanding the cognitive processes involved in mathematics learning when designing instructional materials and assessments. When students are exposed to high-level tasks that require reasoning, exploration, and justification, they develop stronger problem-solving abilities and deeper conceptual understanding. However, many instructional materials still emphasize procedural tasks, which may limit opportunities for students to develop advanced mathematical thinking. Consequently, educators are encouraged to design learning activities that balance procedural fluency with cognitively demanding tasks that foster critical thinking and conceptual understanding in mathematics.

Common Learning Competencies in Senior High School Mathematics. The Senior High School (SHS) mathematics curriculum aims to develop students' analytical thinking, quantitative reasoning, and problem-solving abilities that are necessary for higher education and real-world applications. In the Philippines, mathematics is a core subject within the K–12 curriculum, particularly through the subject General Mathematics, which focuses on competencies such as functions, financial mathematics, and logical reasoning. These competencies are intended to help students apply mathematical concepts to practical situations and decision-making processes.

The SHS General Mathematics curriculum emphasizes competencies related to mathematical representation, reasoning, and real-life problem solving. According to the curriculum guide of the Department of Education (Philippines), the subject includes key competency domains such as functions and their graphs, business mathematics, and logic**.** Students are expected to represent real-life situations using mathematical functions, analyze rational, exponential, and logarithmic functions, compute financial quantities such as interest and annuities, and evaluate logical arguments using mathematical reasoning. These competencies aim to develop both conceptual understanding and practical application of mathematics in everyday contexts. Recent studies indicate that these competencies play a significant role in shaping students' mathematical proficiency in senior high school. A study examining the mathematical skills of Grade 11 students in the Philippines found that the development of competencies in functions, financial mathematics, and logical reasoning significantly influences students' performance in General Mathematics. The researchers noted that these competencies enable learners to analyze mathematical relationships, interpret graphs, and apply mathematical principles to real-life financial situations such as loans, investments, and interest computations. Furthermore, research on the implementation of the SHS mathematics curriculum highlights the importance of aligning learning competencies with teaching strategies and assessment practices. A study conducted among senior high school teachers and students in the Philippines found that the K–12 mathematics curriculum introduced new competencies that require students to engage in deeper analytical thinking and contextualized problem solving. However, the study also reported challenges in achieving mastery of these competencies due to factors such as limited instructional time, students' weak prerequisite knowledge, and difficulties in adapting to the higher cognitive demands of the curriculum. Another study analyzing senior high school students' competency levels in General Mathematics revealed that many learners demonstrate only moderate mastery of prerequisite competencies needed for the subject. The results showed that students often struggle with foundational mathematical skills acquired in earlier grade levels, which affects their ability to fully understand advanced topics such as functions and financial mathematics. The researchers emphasized the need for strengthening prerequisite competencies and improving instructional approaches to enhance students' learning outcomes in SHS mathematics. Recent educational discussions also emphasize the importance of revisiting and strengthening learning competencies in the senior high school curriculum to better prepare students for higher education and the workforce. Education authorities have proposed adjustments to the SHS curriculum to streamline core subjects and focus on essential competencies, including mathematics literacy, problem solving, and quantitative reasoning. These reforms aim to ensure that the competencies taught in senior high school are aligned with the skills required in college and professional fields.

Overall, the literature suggests that common learning competencies in senior high school mathematics focus on developing students' ability to analyze functions, interpret mathematical relationships, apply financial mathematics, and use logical reasoning in solving problems. While these competencies are designed to enhance students' mathematical literacy and real-world application skills, studies indicate that many learners still encounter difficulties mastering these competencies due to gaps in foundational knowledge and instructional

challenges. Consequently, strengthening the alignment between curriculum competencies, teaching strategies, and assessment practices is essential for improving mathematics learning outcomes in senior high school.

Curriculum standards (e.g., K–12 Mathematics Curriculum Framework). Curriculum standards serve as a foundation for organizing mathematics education by defining learning goals, competencies, and expected student outcomes. In many educational systems, mathematics curriculum frameworks guide the structure of teaching, assessment, and instructional practices. In the Philippines, the mathematics curriculum is structured under the **Department of Education** K–12 curriculum framework, which establishes learning standards and competencies that learners must achieve at each grade level.

The K–12 Mathematics Curriculum Framework emphasizes the development of mathematical proficiency, including conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition. These components aim to help learners understand mathematical concepts, apply procedures accurately, and use mathematics effectively in solving real-world problems. The framework also integrates content knowledge, skills development, and mathematical values to support holistic mathematical learning.

The curriculum standards are organized into different types of learning standards, including learning area standards, key stage standards, grade-level standards, content standards, and performance standards. These standards guide teachers in designing lessons, assessments, and instructional activities that align with national education goals. Learning competencies are also specified to ensure that students progressively develop mathematical knowledge and skills throughout the K–12 education cycle.

Recent research has examined how these curriculum standards align with international benchmarks in mathematics education. A study by Marilyn U. Balagtas (2021) analyzed the alignment between the Philippine mathematics curriculum and the Programme for International Student Assessment (PISA) mathematics literacy framework. The findings revealed that the curriculum generally aligns with international expectations regarding mathematical competencies; however, gaps remain in integrating real-world contexts and 21st-century problem-solving skills emphasized in international assessments.

Studies conducted in Philippine schools also highlight challenges in implementing curriculum standards effectively. Research examining the implementation of the senior high school mathematics curriculum found that teachers and students experienced difficulties adjusting to the competencies required by the K–12 framework. These challenges include limited instructional time, insufficient learning resources, and students' weak prior knowledge of fundamental mathematical concepts. Despite these difficulties, the curriculum standards were recognized as essential for promoting higher-order thinking skills and contextualized learning.

Another area of research focuses on the role of curriculum standards in shaping instructional materials and learning resources. A study analyzing senior high school mathematics textbooks reported that the alignment of instructional materials with curriculum standards significantly influences students' learning experiences. When textbooks and learning resources reflect the competencies specified in the curriculum framework, they provide structured opportunities for learners to practice mathematical reasoning and apply mathematical concepts in various contexts.

More recent curriculum reforms in the Philippines also emphasize strengthening the alignment between learning competencies, assessment practices, and instructional strategies. The updated mathematics curriculum under the MATATAG initiative highlights the importance of integrating content knowledge, skills, and learner dispositions while reducing excessive competencies to allow deeper understanding of mathematical concepts. These reforms aim to improve students' mathematical literacy and address learning gaps identified in national and international assessments.

Overall, literature suggests that curriculum standards play a critical role in shaping mathematics education by defining the competencies that learners must acquire and guiding instructional practices. The K–12 Mathematics Curriculum Framework provides a structured approach to developing mathematical proficiency among students. However, effective implementation of these standards requires alignment among curriculum design,

instructional materials, teacher preparation, and assessment systems to ensure that learners achieve meaningful mathematical understanding.

Struggles in algebra, functions, statistics, and problem-solving. Algebra is widely recognized as a difficult domain due to its abstract and symbolic nature. Students often struggle with translating verbal problems into algebraic expressions and applying appropriate solution strategies said by Jupri & Drijvers, (2016); Jupri et al., 2021). Common errors include misinterpretation of variables, incorrect equation formulation, and procedural mistakes. Research further shows that these difficulties are linked to weak foundational skills in arithmetic and comprehension, which hinder students' transition from concrete to abstract reasoning (Arcavi, 2022). In addition, mathematics anxiety significantly contributes to students' poor performance in algebra, leading to increased cognitive load and error frequency (Villanueva & Bernardo, 2023).

In understanding functions, Bicer et.al (2021) said that it requires learners to grasp relationships between variables and represent them across multiple forms. However, students frequently struggle with interpreting graphs, connecting symbolic and graphical representations, and applying functions to real-life contexts. According to recent studies, students tend to rely on memorization of formulas rather than conceptual understanding, limiting their ability to transfer knowledge (Özgen & Alkan, 2022). This results in superficial learning and difficulty solving unfamiliar problems involving functions.

As to the challenges in statistics learning, statistics education presents unique challenges, particularly in interpreting data and understanding variability. Garfield & Ben-Zvi, (2022) states that students often demonstrate difficulty in explaining statistical results and applying statistical reasoning. Sharma (2023) highlights a gap in students' ability to connect statistical concepts to real-world contexts, resulting in fragmented understanding. Moreover, the limited emphasis on statistical literacy in classroom instruction contributes to persistent misconceptions.

In the student's difficulties in Mathematical Problem-Solving, studies show that students commonly struggle at all stages of the problem-solving process, including understanding the problem, planning a strategy, executing procedures, and interpreting results (Polya-inspired frameworks; Schoenfeld, 2022). Since, problem-solving is a complex skill that integrates conceptual understanding, procedural fluency, and reasoning. Additionally, learners often rely heavily on memorized procedures, which limits their ability to solve non-routine problems (Tambychik & Meerah, 2021). Language barriers and reading comprehension issues further exacerbate these difficulties, particularly in word problems.

Students' mathematical struggles are influenced by a range of contextual factors, including socio-economic status, prior knowledge, and learning environment. A recent structural model study found that these variables significantly predict students' performance and difficulties in mathematics (OECD, 2023).

Furthermore, motivation and self-efficacy play critical roles in shaping students' engagement and persistence in learning mathematics (Schukajlow & Rakoczy, 2022). Students with low confidence are more likely to avoid challenging tasks, reinforcing learning gaps.

Across all mathematical domains, common issues include mathematics anxiety, low engagement, and ineffective instructional strategies. Research shows that teacher-centered approaches that emphasize procedural learning contribute to shallow understanding (Boaler, 2022).

Conversely, student-centered approaches that promote reasoning, collaboration, and real-world application improve conceptual understanding and reduce anxiety (Hiebert & Grouws, 2021). These findings highlight the importance of pedagogical practices that foster deep learning.

Transition Challenges from Junior High to Senior High Mathematics. The transition from junior high to senior high school mathematics is often marked by significant learning gaps, particularly in foundational numeracy and algebraic skills. A recent Philippine study found that a large proportion of junior high students demonstrate poor numeracy competence, indicating insufficient mastery of prerequisite concepts before entering higher-level mathematics.

These gaps become more evident in senior high school, where students are expected to engage with more advanced topics such as functions, statistics, and calculus. Similarly, research shows that junior high students struggle with basic algebraic processes, including simplifying expressions, which are essential for success in higher mathematics (Larbi, 2025). Because mathematics learning is cumulative, deficiencies in earlier competencies create a "carry-over effect," making it difficult for students to cope with the increasing complexity of senior high mathematics. The transition to senior high school introduces a shift from procedural to conceptual and analytical learning. Senior high mathematics subjects require higher-order thinking skills such as reasoning, modeling, and problem-solving. However, many students are unprepared for this shift. Studies indicate that students entering senior high school often lack the ability to apply mathematical concepts in real-world contexts, resulting in poor academic performance and difficulty mastering advanced topics .Additionally, the spiral progression curriculum assumes mastery of prior knowledge, yet evidence suggests that many learners progress without fully understanding earlier concepts, creating discontinuities in learning (Robles & Chua, 2024).The transition period is also associated with changes in students' affective domain, particularly their confidence in mathematics. A longitudinal study found that students experience a **decline in mathematical self-concept during educational transitions**, even among high-performing learners. The decline in confidence is linked to lower academic achievement, reduced engagement, and increased risk of academic failure. As students encounter more complex mathematical content in senior high school, their perceived competence often decreases, negatively affecting motivation and persistence.

Mathematics anxiety is another critical factor influencing students' transition experiences. Research among Grade 10 students shows that learners exhibit moderate to high levels of anxiety, particularly when recalling and applying mathematical concepts. As the time students move into senior high school, this anxiety may intensify due to increased academic expectations and unfamiliar content. Anxiety impairs cognitive processing, making it more difficult for students to understand and solve mathematical problems effectively. This suggests that the transition is not only academic but also emotional, requiring support systems that address both cognitive and affective needs.

Differences in teaching approaches, curriculum design, and instructional materials between junior and senior high school can create adjustment difficulties. As instructional practices and learning environments play a significant role in shaping students' transition experiences. For instance, students may encounter more independent and fast-paced learning in senior high school, which contrasts with the structured guidance typically provided in junior high. Research also highlights that instructional materials, such as textbooks and learning resources, influence students' understanding of advanced mathematical concepts (Cuarteros & Roble, 2024). Furthermore, broader educational studies emphasize that transitions in mathematics are often accompanied by changes in expectations, teaching styles, and assessment practices, which can disrupt students' learning continuity (Kaur et al., 2022).

Given these challenges, recent studies emphasize the importance of support systems to facilitate smoother transitions. Interventions such as peer mentoring, targeted remediation, and teacher support have been shown to improve students' mathematical skills and reduce learning difficulties. Bridging programs that reinforce foundational knowledge and promote conceptual understanding are particularly effective in addressing transition gaps. Additionally, fostering positive learning environments and reducing anxiety can enhance students' readiness for senior high mathematics.

Synthesis and Research Gap. The reviewed literature provides a comprehensive understanding of the academic experiences of learners who encounter difficulties in General Mathematics. Across the major themes—conceptual and procedural understanding, cognitive demands, learning competencies, curriculum standards, domain-specific struggles, and transition challenges—a consistent pattern emerges: students' mathematical difficulties are multidimensional, cumulative, and deeply interconnected.

A central theme in the literature is the critical balance between conceptual understanding and procedural fluency**.** Studies consistently emphasize that meaningful mathematics learning occurs when students understand underlying concepts while also being able to execute procedures accurately. However, many learners who experience difficulty in mathematics tend to rely heavily on memorized procedures without fully understanding the concepts behind them. This imbalance leads to superficial learning, limiting their ability to apply knowledge

flexibly and solve non-routine problems. Consequently, students struggle to transfer their learning to new contexts, which is a key requirement in General Mathematics.

Closely related to this issue is the **cognitive demand of mathematical tasks**. Research indicates that many classroom activities and instructional materials emphasize low-level tasks focused on memorization and routine procedures. While such tasks may develop procedural skills, they do not adequately promote higher-order thinking, reasoning, and problem-solving. High cognitive demand tasks—those requiring analysis, justification, and exploration—are essential for developing deep mathematical understanding. However, the limited exposure to such tasks constrains students' ability to engage in meaningful learning, particularly in subjects like General Mathematics that require critical thinking and real-world application.

The literature on Senior High School mathematics competencies further highlights the challenges faced by learners. The General Mathematics curriculum is designed to develop competencies in functions, financial mathematics, and logical reasoning, all of which require both conceptual understanding and analytical skills. Despite this, many students demonstrate only partial mastery of these competencies due to gaps in prerequisite knowledge and difficulty adapting to increased academic demands. These findings suggest that while the curriculum is well-designed in principle, its effectiveness is often limited by students' readiness and the quality of instructional implementation.

In relation to this, the K–12 Mathematics Curriculum Framework provides a structured foundation for developing mathematical proficiency, emphasizing not only content knowledge but also reasoning, problem-solving, and real-world application. However, studies reveal challenges in the implementation of these standards, including insufficient instructional time, lack of resources, and misalignment between curriculum goals and classroom practices. Although recent reforms such as the MATATAG curriculum aim to streamline competencies and promote deeper understanding, gaps in execution continue to affect students' learning experiences.

The literature also highlights specific areas of difficulty in mathematics, particularly in algebra, functions, statistics, and problem-solving. These domains require abstract thinking, representation skills, and the ability to interpret and apply mathematical concepts. Students commonly struggle with translating problems into mathematical expressions, interpreting graphs, analyzing data, and solving complex problems. These difficulties are often rooted in weak foundational skills and are further compounded by factors such as mathematics anxiety, low self-efficacy, and overreliance on procedural learning. As a result, students experience persistent challenges that hinder their overall mathematical performance.

Another critical theme is the transition from junior high to senior high school mathematics, which represents a significant turning point in students' academic journeys. This transition is characterized by increased cognitive demands, a shift toward conceptual and analytical learning, and higher expectations for independent problem-solving. However, many students enter senior high school with insufficient mastery of foundational skills, leading to a "carry-over effect" of learning gaps. In addition, the transition period is associated with a decline in students' confidence and an increase in mathematics anxiety, both of which negatively impact learning outcomes. Differences in instructional approaches and learning environments further complicate this transition, making it difficult for students to adjust successfully.

Overall, the reviewed studies suggest that students' struggles in General Mathematics cannot be attributed to a single factor. Instead, these difficulties arise from the interaction of cognitive, instructional, and affective factors. Weak foundational knowledge, low exposure to high-level cognitive tasks, misalignment between curriculum and instruction, and negative emotional experiences collectively contribute to students' challenges in learning mathematics.

Despite the breadth of existing research, several gaps remain. First, while many studies examine specific difficulties in mathematics, there is limited research that captures the holistic academic journey of learners experiencing difficulty, particularly through qualitative approaches such as narrative inquiry. Most existing studies focus on isolated variables (e.g., achievement, anxiety, or specific competencies) rather than exploring how these factors interact over time in shaping students' experiences.

Second, there is a lack of context-specific research that examines how students in the Philippine Senior High School setting navigate the transition to General Mathematics, especially in relation to the K–12 curriculum reforms. While studies have identified general challenges, fewer have provided in-depth insights into students' lived experiences, coping mechanisms, and personal meaning-making processes.

Third, although curriculum standards and competencies are well-documented, there is limited understanding of how these are experienced by learners who struggle, particularly in terms of how instructional practices, cognitive demands, and emotional factors intersect in real classroom contexts.

In response to these gaps, the present study aims to contribute to the literature by providing a narrative account of the academic journey of learners experiencing difficulty in General Mathematics. By focusing on students' lived experiences, the study seeks to offer a deeper understanding of the challenges they face, the factors influencing their learning, and the ways in which they navigate these difficulties. This contribution is expected to inform more responsive instructional practices, support systems, and curriculum implementation strategies that address the needs of struggling learners.

RESEARCH DESIGN AND METHODOLOGY

This chapter presents the research design and methodology employed in this study. It outlines the qualitative approach adopted to explore and understand the participants' experiences, perspectives, and meanings related to the phenomenon under investigation. It describes the research design, participants of the study, sampling procedures, data collection methods, and data analysis techniques. It also discusses the measures taken to ensure the credibility, dependability, and ethical integrity of the research process. Through these methodological procedures, the study aims to generate comprehensive and trustworthy findings that contribute to a deeper understanding of the research problem.

Research Design

This study employs a qualitative narrative inquiry research design**.** Narrative inquiry is appropriate for this study because it focuses on understanding and interpreting the lived experiences of individuals through their stories. Consistent with Creswell's (2013) recommendation that narrative research typically involves one or two participants whose lived experiences are examined in depth, the participants were purposively selected based on their direct experience with the phenomenon under investigation. This design allows the researcher to explore the academic journey of learners experiencing difficulty in General Mathematics by capturing significant experiences, turning points, and personal meanings over time. Through in-depth narration, the study seeks to understand how instructional, emotional, and socio-cultural factors shape the learner's engagement, coping, and persistence in mathematics.

Participant of the Study

This study involved two Senior High School learners who were experiencing difficulty in General Mathematics. The use of two participants was appropriate because narrative inquiry prioritizes depth, richness, and meaning rather than numerical representation. Each participant provided a unique academic story that allowed the researcher to examine individual experiences while also identifying shared meanings across narratives. The participant will be purposively selected based on specific criteria to ensure that they can provide rich and relevant information about the phenomenon under investigation. The criteria are (1) students must be currently enrolled in General Mathematics; (2) has experienced consistent difficulty or challenges in the subject; (3) willing to share personal academic experiences, and (4) able to communicate experiences clearly (oral or written).

Limitation of the Study

This study is limited to two Senior High School learners; therefore, the findings are not intended for statistical generalization. Since the study used narrative inquiry, its strength lies in the depth of personal stories rather than the number of participants.

The study also will rely mainly on participants' self-reported narratives. Their accounts may be influenced by memory, personal interpretation, and willingness to share experiences. In addition, the study focused only on General Mathematics, so the findings may not fully represent learners' experiences in other mathematics subjects.

Another limitation is that the study will not deeply compare learners across different socioeconomic backgrounds, language groups, school types, or academic strands. These factors may further shape mathematics learning and should be explored more extensively.

Sampling

The study will involve two participants selected through purposive sampling. This number is appropriate for narrative inquiry because the design focuses on the detailed exploration of participants' lived stories rather than statistical generalization. Creswell (2013) emphasized that narrative research may focus on one individual or a small number of individuals the primary goal is to gather detailed and in-depth accounts of individuals' lived experiences. Creswell suggested that narrative studies often focus on one or two participants whose stories are explored extensively to gain a deeper understanding of a particular phenomenon. The use of a limited number of participants allows the researcher to collect rich, comprehensive narratives and conduct a thorough analysis of their experiences.

Data Collection Methods and AI Applications

Data Collection

Prior to data gathering, approval will be secured from the research adviser and relevant authorities, and the research instruments will be prepared and validated. To gather comprehensive and meaningful data, the study employs multiple data collection methods consistent with narrative inquiry.

First, is In-depth Semi Structured Interviews, which can be done multiple sessions. These interviews allow the participant to narrate his/her academic journey, including challenges, coping strategies, and significant turning points. Also, the use of open-ended questions enables the participant to freely express thoughts, feelings, and experiences.

Second, Narrative or Life Story Interviews. These interviews focus on the timeline of the learner's experiences, covering the past experience in mathematics, presents challenges and future expectations or goals. This will help in constructing a coherent and chronological narrative.

Lastly, Reflective Journals or Written Narratives. The researcher will ask the participant to write reflections about his/her experiences in learning mathematics. These written accounts provide deeper insight into the learner's emotions, perceptions, and personal meanings**.**

Data Analysis Techniques

The study will employ a combination of thematic analysis and narrative analysis to interpret the participant's experiences. All interview data will be first transcribed verbatim and repeatedly reviewed to achieve familiarization. Through open coding, significant statements and meaningful segments will be identified and labeled. These initial codes will be then grouped into categories and developed into broader themes such as struggles in mathematical understanding, emotional barriers, coping strategies, social and instructional support, and turning points. Following this, narrative coding will be applied through a process of re-storying, where the participant's experiences were organized into a chronological structure (past, present, and future) to construct a coherent account of their academic journey. Finally, the researcher will interpret the connections between themes and the overall narrative to understand how the learner's experiences shaped their perceptions, behaviors, and engagement in learning General Mathematics. In addition, the researcher will incorporate the use of Artificial Intelligence (AI) applications, such as transcription and text-processing tools, to assist in organizing, transcribing, and managing qualitative data efficiently. AI tools were used strictly as support mechanisms to

enhance accuracy and efficiency; however, all interpretations, coding, and thematic analysis remained the responsibility of the researcher to ensure the authenticity, credibility, and integrity of the findings.

Interview Protocol and Development of Interview Questions

A semi-structured interview protocol will be developed to ensure consistency while allowing sufficient flexibility for participants to narrate their personal experiences. The interview guide will be constructed based on the study's Statement of the Problem, research objectives, and integrated theoretical framework consisting of Vygotsky's Sociocultural Theory, Mathematics Anxiety Theory, and Academic Resilience Theory. The questions are designed to encourage participants to describe their experiences chronologically, beginning with their first encounters with General Mathematics, followed by significant learning experiences, emotional responses, support systems, coping strategies, and changes in their perceptions over time.

The interview protocol will consist primarily of broad, open-ended questions supported by probing questions that encouraged participants to elaborate on their responses. Examples of probing questions included "Can you tell me more about that experience?", "How did you feel during that situation?", "What happened after that?", and "Why do you think that experience was significant?" These follow-up questions enabled the researcher to obtain richer descriptions while allowing participants to tell their stories in their own words. Before the actual data collection, the interview protocol will undergo expert validation by qualitative research specialists to ensure clarity, appropriateness, alignment with the research objectives, and ethical sensitivity. Minor revisions will be incorporated based on the validators' recommendations before implementation.

Duration and Frequency of Interview Sessions

Each participant will participate in multiple interview sessions to facilitate a deeper exploration of their academic journey. Two formal interview sessions were conducted with each participant. The first interview will be focused on establishing rapport and collecting the participant's life story related to learning mathematics, including early experiences, significant challenges, and memorable events. The second interview served as a follow-up session to clarify responses, explore emerging themes, verify previous accounts, and allow participants to expand or refine their narratives.

Each interview session will last approximately 45 to 60 minutes, depending on the participant's willingness to elaborate and the richness of the information provided. The interviews will be scheduled several days apart to allow participants sufficient time for reflection and to minimize interview fatigue. Additional brief follow-up conversations, lasting approximately 10 to 20 minutes, will be conducted when clarification or verification of specific details became necessary during data analysis. These follow-up sessions will contribute to data completeness and enhanced the credibility of the findings.

Ethical Considerations and Consent Procedures

The study will be strictly adhered to established ethical principles governing qualitative research involving human participants. Prior to data collection, approval was obtained from the research adviser and the appropriate school authorities. Permission will be secured from the school principal before approaching prospective participants.

Potential participants will be informed about the purpose of the study, research procedures, expected duration of participation, potential benefits, and minimal risks associated with the interviews. They were assured that participation was entirely voluntary and that they could decline participation or withdraw from the study at any stage without any academic consequences or penalty.

Written informed consent will be obtained from the two (2) participants before the interviews commenced. Since the participants are Senior High School learners, parental or guardian consent and participant assent are secured whenever required by institutional and school research policies. Participants will be given sufficient time to read the consent forms and ask questions before signing.

To protect participants' privacy, pseudonyms such as "Respondent 1" and "Respondent 2" will be used throughout the study. Any identifying information will be removed from interview transcripts and research reports. Audio recordings, transcripts, consent forms, and other research documents will be securely stored in locked storage accessible only to the researcher. These records will be retained only for the period required by institutional research guidelines and will be permanently destroyed thereafter.

Participants will be also informed that the interviews would be audio-recorded solely to ensure accurate transcription of their narratives. They retained the right to request that recording be stopped at any time or to decline answering any question they considered uncomfortable.

To ensure trustworthiness, the researcher conducted member checking by allowing participants to review summaries or transcribed portions of their interviews to verify the accuracy of their statements. Any requested corrections or clarifications will be incorporated into the final dataset. Throughout the research process, the researcher will maintain respect, empathy, confidentiality, and cultural sensitivity to safeguard participants' dignity and well-being while encouraging authentic sharing of their lived experiences.

FINDINGS

This chapter presents the findings of the study based on the narratives of two Senior High School learners regarding their academic journey in General Mathematics. The interview transcripts were analyzed through narrative inquiry procedures involving transcription, initial coding, categorization, theme development, and narrative interpretation. Repeated reading of the narratives allowed the identification of recurring patterns, significant events, turning points, coping mechanisms, and support systems that shaped the learners' experiences. The themes presented in this chapter describe how the participants understood, experienced, and eventually overcame the challenges encountered in General Mathematics.

Data Analysis

The interview transcripts were transcribed verbatim and examined through open coding. Similar codes were clustered into categories, which were further synthesized into major themes. The narratives were re-storied chronologically to preserve the participants' educational journeys while highlighting significant experiences, emotional responses, instructional influences, and personal growth.

Table 1: Emergent Themes

Theme	Description
Theme 1	General Mathematics as a Challenging yet Achievable Learning Experience
Theme 2	Emotional Struggles and Mathematics Anxiety
Theme 3	Complex Mathematical Concepts as Learning Barriers
Theme 4	The Transformative Role of Supportive Teaching Practices
Theme 5	Support Systems that Foster Mathematical Confidence
Theme 6	Persistence, Practice, and Self-Regulated Learning
Theme 7	Changing Perceptions: From Fear to Confidence

Restorying Of Participants Narrative

This section presents the re-storied narratives of the two Senior High School learners who participated in the interview. In narrative inquiry, re-storying arranges participants' accounts into a coherent sequence that foregrounds temporality, sociality, and place. The following narratives were constructed from the participants' responses regarding their early perception of General Mathematics, the difficulties they encountered, the emotional and instructional conditions surrounding their struggles, the support systems that helped them continue, and the meaning they made from these experiences. The names of the participants were retained as Respondent 1 and Respondent 2 to preserve confidentiality.

Respondent 1:

Entering Senior High School with Effort and Self-Doubt

Respondent 1 entered Senior High School as a learner who tried hard and took studies seriously, yet carried a quiet uncertainty about personal capability. The participant did not describe the self as careless or uninterested; instead, the account revealed a learner who wanted to succeed but sometimes doubted the ability to do so because of circumstances beyond personal control. This opening description already frames the mathematical journey as both academic and emotional. Learning General Mathematics was not merely a matter of solving numbers; it was also a struggle with confidence, pressure, and the need to prove that effort could lead to progress.

First Encounter with General Mathematics

When General Mathematics was introduced, Respondent 1 immediately associated the subject with difficulty. The term itself suggested breadth and complexity, as if the subject contained 'everything under the sun.' This perception created an early sense of intimidation. The participant viewed Mathematics as manageable in principle, but only when enough time, critical thinking, and clear explanation were available. The subject was therefore approached with both hope and caution: hope because it could be learned, and caution because it demanded deeper thinking than ordinary recall.

Struggling with Pace, Complexity, and Low Scores

As the lessons progressed, the participant's difficulty became more concrete. The struggle intensified when examples became complex and when the teacher's explanations were delivered quickly. During quizzes and activities, the participant often felt frustrated because the scores remained low despite studying hard. This frustration was significant because it showed a mismatch between effort and outcome. The learner was not indifferent; rather, the learner was attempting to study, yet still felt unable to reach the expected performance level. In this stage of the journey, General Mathematics became a space where effort did not always produce immediate confidence.

The Need for Step-by-Step Learning

A repeated need in Respondent 1's narrative was step-by-step instruction. The participant emphasized that mathematical understanding improved when explanations were broken down carefully and when examples were given before independent work. The participant's difficulty was not described as laziness or refusal to learn; rather, it was connected to the need for pacing, scaffolding, and guided practice. The learner wanted the teacher to recognize that not all learners understand at the same speed and that some require a review of basic operations before moving into more complex lessons.

Emotional Weight of Mistakes and Classroom Participation

The participant experienced moments of nervousness, frustration, and reduced confidence, especially when lessons were hard to grasp. Fear of giving a wrong answer led to avoidance of participation. In the classroom, being called to answer was not only a cognitive task but also a public emotional event. A wrong answer could expose uncertainty before classmates; thus, hesitation became a protective response. However, the participant also described the teacher's encouragement as helpful. When the teacher checked the learner's paper, guided reflection, and allowed evaluation of mistakes, errors became less threatening and more instructional.

Group Leadership as a Turning Point

One meaningful turning point occurred when Respondent 1 became a leader during collaborative group work. This role placed the participant in a challenging position because groupmates relied on the leader for direction and understanding. At first, the responsibility intensified the struggle. The participant had to help others understand the task while still working through personal difficulty. Yet this moment also became transformative. Leadership required participation, communication, and a stronger grasp of the lesson. The group activity changed the learner's role from passive receiver to active contributor, allowing confidence to grow through responsibility.

Support from Teacher, Peers, Family, and Online Resources

Respondent 1's coping process was strongly relational. When lessons were unclear, the participant sought help from the teacher, classmates, parents, and siblings. The learner also watched YouTube videos and used activity sheets for additional practice. These support systems created a learning network that extended beyond the classroom. The teacher provided guidance and encouragement, peers offered collaboration, family members helped with assignments and access to online discussions, and digital resources gave repeated explanations that could be reviewed at home. Through these supports, the participant learned that mathematical difficulty did not have to be faced alone.

Learning to Accept Mistakes

Over time, Respondent 1 began to view mistakes differently. Low scores and wrong answers were no longer seen only as proof of weakness; they became opportunities to review, ask questions, and improve. The learner learned to ask where the error occurred, examine previous answers, and request further activities. This shift was important because it showed movement from avoidance to active problem-solving. Instead of withdrawing after failure, the participant began to use mistakes as a guide for learning.

Meaning-Making and Changed Perception

By the end of the narrative, Respondent 1's perception of General Mathematics had changed. The subject was still challenging, but it was no longer impossible. The participant realized that patience, help-seeking, practice, and moral support could make difficult topics easier to understand. General Mathematics also became meaningful because of its real-life applications in business, growth, and the relationship between variables. The learner's story therefore moved from self-doubt and frustration towards confidence, resilience, and practical appreciation of mathematics.

Respondent 2

A Learner Seeking Mathematical Improvement

Respondent 2 introduced the self as a learner who was trying to improve mathematical skills. The participant acknowledged that, since Junior High School, some mathematical topics were difficult to grasp, particularly those considered complex. This self-description positioned the learner not as incapable but as developing. The narrative began with awareness of limitation, but also with a desire for growth. The participant entered General Mathematics with the understanding that improvement was necessary and possible.

The First Feeling: Hesitation and Discomfort

At the beginning of General Mathematics, Respondent 2 felt hesitant and uncomfortable. The learner even described the feeling as wanting to go home because the topics seemed unfamiliar and difficult. This vivid expression showed how mathematics anxiety can appear at the very start of instruction, even before full engagement with the lesson. The classroom became a place of uncertainty, where new topics created emotional distance and apprehension.

A Journey Compared to a Circus

Respondent 2 described the journey in General Mathematics as similar to a circus. This metaphor captured the unpredictable movement between easy and difficult learning moments. There were times when lessons seemed simple and basic, and there were times when the subject suddenly became hard to understand. The image of a circus suggests movement, surprise, pressure, and performance. In the participant's story, General Mathematics was not a straight path; it was an uneven journey marked by nervousness, uncertainty, and unexpected challenges.

Difficult Topics and Public Performance

Functions, rational functions, and logarithmic functions were the topics that Respondent 2 found most difficult because they required deep understanding, complex solutions, and analysis. One significant moment occurred

when the teacher asked the participant to solve a function problem on the board. At first, the learner hesitated because the answer on paper appeared wrong. Instead of immediately writing on the board, the participant sat down, solved the problem again, and returned once the correct answer was found. This moment revealed both fear and resilience. The learner experienced pressure but did not completely surrender to it.

From Fear of Mistakes to Evaluation of Work

Respondent 2's view of mistakes was notably reflective. Rather than hiding errors, the participant recognized that placing an answer on the board allowed the self, classmates, and teacher to evaluate the work. This perspective transformed public correction into a learning opportunity. Although embarrassment and fear were present, the learner chose to treat visible mistakes as part of understanding the process. This shows the emergence of metacognitive awareness: the learner was not merely seeking the correct answer, but trying to understand why an answer was correct or incorrect.

Teacher Guidance and Positive Feedback

Teacher support played a central role in Respondent 2's journey. The participant valued lessons that used videos, traditional explanations, and step-by-step processes. Positive feedback from the teacher boosted confidence, while additional problems and supplemental activities helped strengthen understanding. The learner also noted that quizzes sometimes appeared more difficult than the examples given, suggesting the need for alignment between instruction and assessment. Nevertheless, teacher guidance remained a major source of confidence and motivation.

Peer Collaboration and Family Support

Respondent 2 described classmates as a great source of confidence. Collaboration with peers helped the learner continue participating and solving tasks. Family support also appeared in the narrative, particularly when parents helped with assignments. Beyond the immediate classroom, YouTube tutorials and supplemental activities became important tools for independent learning. These supports formed a layered system: teacher guidance clarified procedures, peers encouraged participation, parents assisted at home, and online videos allowed review at the learner's own pace.

Motivation through Achievement and Eagerness to Learn

The participant's motivation increased during moments of success, such as receiving the highest score in an examination or successfully delivering an assigned problem-solving task with classmates. These moments became evidence that improvement was possible. However, the learner's motivation was not based only on grades. Respondent 2 also expressed eagerness to learn new concepts and strategies for solving problems. This suggests that confidence developed not merely from external praise but from the growing belief that mathematical understanding could be built through effort.

Realizing the Practical Value of General Mathematics

Over time, Respondent 2 came to see General Mathematics as connected to real life. The participant especially found simple and compound interest easier to understand because of personal engagement with business and future aspirations as a businesswoman. This connection made the lesson meaningful and concrete. Mathematics became less abstract when linked to lived realities and future goals. By the end of the journey, the participant believed that if learners take General Mathematics by heart and accept support from people around them, the subject becomes easier.

Cross-Narrative Thick Description

The two narratives reveal learners who entered General Mathematics with uncertainty but did not remain fixed in that uncertainty. Both participants began with the perception that General Mathematics was hard because it required analytical thinking, complex solutions, and problem solving. This perception shaped their emotional

readiness. Before they could fully engage with mathematical concepts, they first had to manage feelings of hesitation, fear, and low confidence.

The classroom became the central place where struggle and growth occurred. Quizzes, board work, oral recitations, and group tasks acted as critical events in the learners' stories. These activities exposed gaps in understanding and triggered anxiety, yet they also created opportunities for teacher guidance, peer collaboration, and self-correction. In this sense, the same classroom experiences that caused difficulty also became the spaces where confidence was rebuilt.

Both learners identified teacher support as essential. They needed explanations that were paced, guided, and concrete. Step-by-step teaching, examples before independent tasks, instructional materials, modules, and positive feedback made the subject more accessible. When instruction moved too quickly or when examples did not match the difficulty of quizzes, confusion increased. This indicates that the learners' difficulties were shaped not only by the content of Mathematics but also by the way that content was mediated in the classroom.

The participants also showed that mathematical learning is relational. Their progress depended on interactions with teachers, classmates, parents, siblings, and digital learning resources. Help-seeking was a recurring action in both narratives. Asking questions, reviewing mistakes with the teacher, collaborating with classmates, and watching online tutorials became strategies for survival and improvement. Through these practices, the learners shifted from isolated struggle to supported learning.

The narrative arc of both participants moves from fear to confidence. This shift did not happen suddenly. It developed through repeated practice, visible mistakes, teacher affirmation, successful scores, and the gradual realization that Mathematics could be connected to real-life situations. Their stories demonstrate that confidence in General Mathematics grows when learners are given time, guidance, opportunity to practice, and permission to make mistakes without shame.

Table 2: Narrative Structure of the Participants' Academic Journey

Narrative Phase	Respondent 1	Respondent 2	Interpretive Meaning
Beginning	Took studies seriously but doubted personal capability; perceived General Mathematics as difficult.	Wanted to improve mathematical skills but felt hesitant and uncomfortable with new topics.	Learners entered the subject with mixed determination and anxiety.
Rising Struggle	Experienced low scores, fast-paced explanations, complex examples, and fear of wrong answers.	Encountered difficulty with functions, rational functions, logarithmic functions, quizzes, and board work.	Mathematical difficulty became both cognitive and emotional.
Critical Events	Became group leader and had to help classmates understand the task.	Was asked to solve a function problem on the board and hesitated before trying again.	Public and collaborative tasks became turning points.
Support and Coping	Sought help from teacher, classmates, parents, siblings, YouTube videos, and activity sheets.	Relied on teacher guidance, peer collaboration, parents, YouTube tutorials, and supplemental activities.	Learning improved through layered support systems.
Transformation	Learned to accept mistakes, ask for help, and see Mathematics as useful in real life.	Transformed anxiety into motivation and recognized Mathematics as practical for real-life situations.	The journey moved from fear to confidence and appreciation.

Interpretative Synthesis:

The re-storied accounts show that the participants' struggles in General Mathematics were not limited to inability to solve problems. Their narratives involved emotional vulnerability, instructional needs, social support, and

gradual identity formation as mathematics learners. Respondent 1's story emphasized the importance of patience, guided instruction, and help-seeking after repeated frustration. Respondent 2's story emphasized the transformation of anxiety into motivation through evaluation, feedback, and meaningful real-life connections. Taken together, the narratives suggest that learners who struggle in General Mathematics need more than remediation of skills; they need a supportive learning environment where mistakes are normalized, explanations are scaffolded, and confidence is intentionally built.

DISCUSSIONS

This section presents the thematic discussions derived from the narratives of the two Senior High School learners regarding their academic journey in General Mathematics. The discussion integrates the participants' accounts with recent literature on mathematics anxiety, learner confidence, teacher support, collaborative learning, self-regulated learning, and the relevance of mathematics in real-life contexts. The integration of literature is not intended to generalize the findings, but to situate the participants' narratives within broader educational conversations on how learners experience and overcome mathematical difficulty.

Theme 1. General Mathematics as a Challenging yet Achievable Learning Experience

The first theme reveals that the participants entered General Mathematics with an immediate awareness of its difficulty. For them, the subject was not merely associated with numbers; it was associated with deeper thinking, complex solutions, problem solving, and analytical reasoning. This perception shaped their early emotional and academic positioning in the subject. Respondent 1 viewed General Mathematics as difficult because it required deeper thinking, while Respondent 2 associated the subject with numbers, complex solutions, problem solving, and analysis. These statements indicate that learners may construct expectations about mathematics even before full engagement with the lessons begins.

However, the narratives also show that difficulty did not automatically lead to surrender. The participants still described themselves as learners who were trying, improving, and willing to take challenges. This suggests that mathematical difficulty was experienced as a barrier, but not as a permanent limitation. In narrative terms, the participants' stories began with apprehension but moved towards agency. They recognized that General Mathematics was hard, yet they also discovered that the subject could be managed when lessons were explained clearly and when support was available.

Recent international evidence supports the importance of understanding mathematics difficulty as both cognitive and affective. The OECD's PISA 2022 reporting shows that mathematics remains a major area of concern globally, particularly after learning disruptions, and emphasizes the role of student engagement, perseverance, and school support in improving outcomes (OECD, 2023). In a similar direction, recent analysis of PISA-related data highlighted that curiosity and perseverance are associated with stronger mathematics performance, suggesting that learners who continue asking questions and persist through difficult tasks are more likely to perform better (Australian Council for Educational Research [ACER], 2024). These findings connect closely with the participants' accounts because both learners did not deny the difficulty of General Mathematics; instead, they learned to continue despite it.

Therefore, this theme implies that learners' struggles in General Mathematics should not be interpreted only as evidence of weak ability. Rather, struggle may represent the initial stage of mathematical growth. When learners receive proper guidance, opportunities for practice, and emotional encouragement, the subject can shift from being perceived as overwhelming to being viewed as achievable.

Theme 2. Emotional Struggles and Mathematics Anxiety

The second theme centers on the emotional burden carried by learners in General Mathematics. Both participants described feelings of nervousness, hesitation, frustration, pressure, and lack of confidence. These emotions appeared most strongly during quizzes, board work, recitations, and moments when they could not immediately understand the topic. Respondent 1 explained that low scores despite studying hard led to frustration, while Respondent 2 narrated hesitation when asked to solve a function problem on the board. These experiences show

how mathematics learning can become emotionally charged, especially when learners fear public mistakes or poor performance.

The participants' accounts demonstrate that mathematics anxiety is not limited to test-taking. It also appears during classroom participation, group leadership, reporting, and individual problem solving. Fear of giving a wrong answer reduced participation, while uncertainty in solving problems created pressure. In this sense, anxiety functioned as both an emotional reaction and a participation barrier. The learners did not simply struggle with content; they also struggled with the possibility of being judged, embarrassed, or left behind.

Recent literature affirms the close connection between mathematics anxiety, confidence, and performance. Chen, Jamaludin, and Tan (2023) described mathematics anxiety as a common educational concern linked with lower mathematics performance. Their study further suggests that anxiety may be reflected in observable learning behaviors among students who struggle in mathematics. Likewise, recent STEM research continues to show that test anxiety and self-efficacy influence academic outcomes, particularly in high-stakes assessments (Malespina et al., 2025). Although the participants in this study were General Mathematics learners rather than university STEM students, their narratives reflect the same affective pattern: when anxiety rises, confidence and performance are threatened.

This theme indicates that improving mathematics learning requires more than content remediation. Learners need emotionally safe classrooms where mistakes are treated as part of learning. The participants became more confident when their teacher responded positively, checked their work, gave feedback, and allowed them to revise or evaluate mistakes. Thus, emotional support is not supplementary to mathematics instruction; it is part of effective mathematics teaching.

Theme 3. Complex Mathematical Concepts as Learning Barriers

The third theme refers to the participants' specific difficulties with abstract and complex topics. Both respondents identified functions as a major challenge. Respondent 2 further mentioned rational functions and logarithmic functions, while Respondent 1 emphasized problem-solving tasks that required deeper understanding. These topics were difficult because they required more than memorization or basic computation. They demanded conceptual understanding, sequential reasoning, and the ability to analyze relationships among variables.

The participants' difficulty with functions is significant because functions often serve as a bridge between arithmetic procedures and more abstract mathematical thinking. For learners who are still building confidence, topics involving variables, relationships, transformations, and symbolic reasoning may feel intimidating. The participants' narratives suggest that they needed quiet time, guided examples, and step-by-step explanations before they could fully process these ideas. This reveals a mismatch between the complexity of the task and the pace or structure of instruction they sometimes experienced.

Recent mathematics education literature emphasizes that learners benefit from structured opportunities to engage with complex mathematical ideas. Active-learning and flipped-classroom evidence in college algebra suggests that learners may develop improved attitudes, cooperation, confidence, and responsibility when they are given opportunities to engage actively with challenging mathematical content (Karjanto & Acelajado, 2022). This supports the participants' preference for examples, guided activities, peer discussion, and supplemental practice. The point is not to remove complexity from mathematics, but to make complex content accessible through appropriate scaffolding.

The theme further implies that difficult topics should be taught through a gradual movement from concrete examples to guided practice and then to independent work. Learners who experience functions and problem solving as abstract need instructional bridges: visual representations, real-life applications, worked examples, peer explanation, and repeated practice. Without these supports, mathematical complexity may intensify anxiety; with these supports, complexity can become a site of growth.

Theme 4. The Transformative Role of Supportive Teaching Practices

The fourth theme highlights the central role of teaching practices in shaping the learners' experiences. The participants valued step-by-step instruction, examples before independent work, peer discussion, collaborative

learning, activity sheets, modules, instructional devices, interactive videos, and positive feedback. Conversely, fast explanations, vague discussions, and difficult examples without sufficient guidance made the subject harder to understand. This shows that the learners' difficulties were not purely individual; they were also influenced by the instructional conditions surrounding the learning process.

Respondent 1 preferred peer discussion, collaborative learning, and a sequence where the teacher first gives examples before allowing learners to answer. Respondent 2 appreciated videos, traditional explanations, step-by-step processes, and discovery approaches when they helped retain the procedure. These responses demonstrate that effective mathematics instruction requires balance. Learners need challenge, but challenge must be paired with guidance. They also need opportunities to discover, but discovery should not leave them unsupported.

Recent literature supports the value of instructional support and active engagement in mathematics learning. Karjanto and Acelajado (2022) reported that active-learning arrangements in algebra were associated with improved attitudes and greater cooperation, motivation, confidence, and responsibility among learners. Similarly, recent work on mathematics group learning suggests that cooperative learning can reduce anxiety and provide social and pedagogical benefits, although group dynamics should be managed carefully (Toms, Williams, & Mizuhara, 2024). These findings align with the participants' emphasis on guided learning, collaboration, and teacher feedback.

This theme suggests that supportive teaching practices can transform mathematics from a source of fear into a meaningful learning experience. The teacher's role is not only to deliver content but to regulate the level of cognitive demand, provide corrective feedback, and create opportunities for learners to succeed gradually. When instruction becomes responsive to learners' pace and emotional state, mathematical understanding becomes more attainable.

Theme 5. Support Systems that Foster Mathematical Confidence

The fifth theme reveals that the participants did not overcome mathematical difficulty alone. Their support systems included teachers, classmates, friends, parents, siblings, and online resources such as YouTube tutorials. These support systems provided explanations, feedback, collaboration, supplemental activities, moral encouragement, and access to learning materials. Respondent 1 sought help from teachers, classmates, parents, and siblings, while Respondent 2 relied on YouTube discussions and supplemental activities from the teacher. Both participants recognized that asking for help was central to learning.

The role of peers was especially meaningful. The participants described classmates as sources of confidence and collaboration. Peer support reduced isolation and allowed learners to process mathematical problems with others. Family support also mattered, particularly when parents helped with assignments or provided resources such as internet load for watching tutorials. These accounts show that mathematical confidence is socially constructed; it grows when learners are surrounded by people who make learning less threatening and more manageable.

Recent studies and reports support the importance of social support in mathematics learning. Toms et al. (2024) noted that cooperative learning may reduce mathematics anxiety while offering social and pedagogical benefits. Kim and Evans (2025) also emphasized that collaboration in mathematics provides learners with opportunities to develop critical thinking, communication, teamwork, and shared problem-solving perspectives. PISA-related analysis similarly reports that students with engaged parents tend to perform better, reinforcing the value of home-school support in academic learning (ACER, 2024).

This theme indicates that interventions for struggling mathematics learners should include not only teacher-led remediation but also peer collaboration, family involvement, and access to supplemental learning resources. Learners become more confident when they know that support is available and that difficulty does not have to be faced alone.

Theme 6. Persistence, Practice, and Self-Regulated Learning

The sixth theme focuses on how learners responded to mistakes, low scores, and difficult lessons. Both participants developed strategies such as reviewing wrong answers, asking teachers where they made mistakes,

requesting activity sheets, watching YouTube tutorials, practicing independently, and evaluating their own solutions. These actions show the emergence of self-regulated learning. Rather than depending only on classroom instruction, the learners began to monitor their understanding and seek ways to improve.

Respondent 1 learned to accept mistakes because wrong answers became opportunities to learn. Respondent 2 emphasized self-practice and evaluation of answers. These responses are important because they show a shift from passive anxiety to active coping. The learners still experienced difficulty, but they no longer treated difficulty as final. Practice became a way to regain control over learning.

Recent literature supports the value of perseverance and self-regulation in mathematics achievement. PISA-related findings reported by ACER (2024) show that perseverance is positively associated with stronger mathematics performance. Research on active-learning pedagogy also suggests that when students gain more control over their learning, they become more relaxed, motivated, confident, active, and responsible (Karjanto & Acelajado, 2022). These findings resonate with the participants' accounts of independent practice, help-seeking, and reflection on mistakes.

This theme implies that mathematics instruction should intentionally teach learners how to recover from errors. Teachers may strengthen self-regulated learning by providing answer-checking routines, error analysis activities, guided reflection sheets, and opportunities for repeated practice. When learners understand that mistakes are diagnostic rather than shameful, they become more willing to persist.

Theme 7. Changing Perceptions: From Fear to Confidence

The final theme captures the transformation in the participants' views of General Mathematics. At the beginning, the subject was associated with fear, difficulty, hesitation, and uncertainty. Over time, however, the participants began to see General Mathematics as manageable, useful, and connected to real life. Respondent 1 recognized that the subject becomes easier when one knows whom to ask for help, while Respondent 2 described General Mathematics lessons as real-life lessons. This transformation represents the central narrative movement of the study: from fear to confidence.

The participants' changing perceptions were shaped by meaningful events such as receiving praise, getting high scores, solving problems successfully, collaborating with classmates, and receiving teacher feedback. These moments functioned as turning points because they challenged the learners' earlier belief that they could not succeed in mathematics. Confidence was not developed instantly; it was built through repeated experiences of being guided, corrected, encouraged, and allowed to try again.

Recent educational discussions continue to emphasize the importance of confidence, curiosity, and relevance in mathematics learning. ACER's analysis of PISA data highlights that curiosity and perseverance are associated with higher mathematics performance, suggesting that learners who remain engaged and willing to continue despite uncertainty are more likely to succeed (ACER, 2024). Moreover, OECD (2023) underscores that mathematics education must prepare learners to use mathematical reasoning in real-life situations. This aligns with the participants' realization that General Mathematics has practical applications in business, growth, relationships among variables, and everyday decision-making.

This theme suggests that learner confidence grows when mathematics becomes both understandable and meaningful. The participants' narratives show that fear can be reduced when instruction connects mathematical ideas to real-life contexts and when learners experience success through guided effort. In this way, General Mathematics becomes not only a subject to pass, but a field through which learners develop patience, confidence, problem-solving ability, and persistence.

Synthesis:

Across the seven themes, the participants' narratives reveal that their academic journey in General Mathematics was shaped by the interaction of cognitive difficulty, emotional struggle, instructional support, social relationships, and personal persistence. The learners initially viewed mathematics as intimidating because of its abstract concepts and demand for analytical thinking. However, their stories did not end in discouragement.

Through teacher guidance, peer collaboration, family support, supplemental resources, and repeated practice, they gradually developed confidence and a more positive view of the subject. Since General Mathematics is shaped not only by cognitive and emotional factors, but also by the broader Philippine cultural and educational context. In the Philippines, learners often move across several languages in daily life, including the home language, Filipino, English, and the language of classroom instruction. Since mathematical terms, word problems, and explanations are commonly presented in English, learners may experience added difficulty when they understand the mathematical idea but struggle with the language used to express it. This is especially important in General Mathematics, where topics such as functions, rational functions, logarithms, and financial mathematics require both conceptual reasoning and language comprehension.

The thematic discussions further suggest that mathematical difficulty is best understood as a multidimensional experience. Learners struggle not only because topics are complex, but also because they feel anxious, pressured, unsupported, or afraid of making mistakes. At the same time, the findings show that these barriers can be addressed through step-by-step instruction, constructive feedback, emotionally safe participation, collaborative learning, and opportunities for learners to evaluate and correct their own errors.

Socioeconomic conditions also shape learners' mathematical journeys. The findings show that support from family, internet access, YouTube tutorials, modules, and activity sheets helped the participants cope with difficult lessons. However, not all learners have equal access to these resources. Learners from low-income households may have limited internet load, fewer learning materials, less study space, or family responsibilities that reduce time for practice. These conditions can make mathematical difficulty appear as lack of ability when, in reality, it may be connected to unequal learning opportunities

Cultural attitudes toward mathematics further influence learners' confidence. In many Filipino learning contexts, mathematics is often viewed as a difficult subject meant only for "bright" learners. This belief can create fear before learners even engage with the lesson. When mistakes are treated as embarrassing, learners become hesitant to participate. However, the participants' stories show that this attitude can change when teachers normalize mistakes, give positive feedback, and connect mathematics to real-life situations such as business, budgeting, interest, and decision-making. This supports the study's central finding that learners move from fear to confidence when instruction is supportive, contextualized, and emotionally safe.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of the findings, conclusions drawn from the results of the study, and recommendations based on the experiences shared by the participant. The summary highlights the major themes and significant findings regarding the learner's challenges, emotional experiences, coping mechanisms, and changes in attitude toward General Mathematics. The conclusions were formulated based on the analysis of the participant's responses, while the recommendations aim to provide possible strategies and interventions that may help improve mathematics learning and support struggling learners.

SUMMARY OF FINDINGS

The study revealed that the academic journey of learners experiencing difficulty in General Mathematics is multidimensional. Their struggles were shaped by complex mathematical concepts, fast-paced instruction, fear of mistakes, low scores, and mathematics anxiety. At the same time, their narratives showed persistence, help-seeking, and gradual improvement.

Across the two narratives, seven major themes emerged: General Mathematics as challenging yet achievable; emotional struggles and mathematics anxiety; complex mathematical concepts as learning barriers; supportive teaching practices; support systems that foster confidence; persistence and self-regulated learning; and changing perceptions from fear to confidence. These findings confirm that the learners' difficulty was not caused by a single factor, but by the interaction of instructional, emotional, social, linguistic, and socioeconomic influences.

The central synthesis of the study is that struggling learners do not simply need more exercises; they need scaffolded instruction, patient guidance, emotional reassurance, peer and family support, and opportunities to

experience success. Their academic journey shows that confidence in mathematics develops when learners are allowed to ask questions, make mistakes, receive feedback, and connect lessons to real life.

Conclusions

Based on the findings, the study concludes that learners' difficulty in General Mathematics is both academic and emotional. The participants struggled with abstract topics such as functions and problem-solving, but their struggles were intensified by nervousness, fear of public mistakes, and low confidence.

The study also concludes that supportive teaching practices play a transformative role in mathematics learning. Step-by-step explanations, examples before independent work, constructive feedback, collaborative activities, and positive teacher encouragement helped learners understand lessons and rebuild confidence.

Moreover, the study concludes that mathematics learning is socially and culturally shaped. Teachers, peers, family members, and online resources helped learners cope with difficulty. Philippine factors such as multilingual instruction, socioeconomic differences, and cultural beliefs about mathematics also influenced how learners experienced the subject.

Finally, the study concludes that learners can move from fear to confidence when they are given proper support, sufficient practice, and meaningful opportunities to connect mathematics with everyday life.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are offered:

1. Mathematics teachers should use scaffolded and step-by-step instruction, especially when teaching abstract topics such as functions, rational functions, logarithms, and financial mathematics. Lessons should begin with concrete examples, visual representations, guided practice, and gradual movement toward independent problem-solving.

2. Teachers should create emotionally safe classrooms where mistakes are treated as part of learning. Learners should be encouraged to explain their thinking, revise wrong answers, and participate without fear of embarrassment.
3. Multilingual support should also be used strategically. Teachers may allow learners to discuss mathematical ideas in Filipino or their mother tongue before translating these ideas into formal mathematical language. This can reduce language barriers and improve conceptual understanding.
4. Schools should provide remediation, peer tutoring, activity sheets, and accessible learning materials for learners who need additional practice. Since not all learners have stable internet access, printed modules and school-based support sessions remain important.
5. Parents and guardians should also be involved by encouraging learners, monitoring assignments, and supporting regular study habits at home. Even simple moral support can strengthen learners' confidence and persistence.
6. Future studies may include more participants from different schools, strands, and socioeconomic backgrounds to develop a wider understanding of learners' experiences in General Mathematics. Researchers may also compare the experiences of learners from urban, rural, and last-mile schools.
7. Further research may examine how multilingual instruction affects mathematics understanding, confidence, and classroom participation. Studies may also explore how mother tongue, Filipino, and English are used by learners when solving mathematical problems.
8. Future researchers may also investigate the role of family income, internet access, parental support, and availability of learning materials in shaping mathematics performance. Finally, mixed-methods studies may be conducted to connect learners' narratives with achievement scores, anxiety levels, and classroom observation data.

Declaration of Generative AI and AI-assisted Technology in Writing Process

The author utilizes Chatgpt 5.0 and Grammarly solely to improve the manuscript's language and readability. All AI-assisted outputs were independently reviewed and edited by the author, who exercise full intellectual control and assumes complete responsibility for the accuracy and content of the article.

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