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Challenges Hindering Student Learning in General Mathematics at Mary Our Help Technical Institute for Women, Cebu

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Abstract
Mathematics is often perceived as a challenging subject, with Filipino students performing significantly lower in math compared to their global peers. Contributing factors include poor mastery of basic skills, stigma, language barriers, and ineffective learning strategies. To address these challenges, a student-centered approach that incorporates prior knowledge, hands-on learning, and higher-order thinking is essential. Accordingly, this study aimed to enhance the delivery of General Mathematics for Senior High School students at Mary Our Help Technical Institute for Women (Cebu). The study employed a descriptive qualitative research design and utilized interviews with fourteen (14) Grade 11 students and two (2) General Mathematics teachers to gather qualitative data. Purposive sampling was used in selecting the student participants, while total population sampling was employed for the teachers. Thematic analysis was used in analyzing the data gathered from the students and teachers. The findings of this study highlighted the challenges encountered in developing student learning such as weak fundamental math skills, negative attitudes, and instructional issues such as poor time management and ineffective questioning. Despite these challenges, study recommends emphasizing a student-centered approach by: (1) improving teachers' instructional delivery and providing authentic learning experiences to enhance students' fundamental mathematical skills; (2) creating and promoting a positive learning environment to address negative attitudes toward mathematics; and (3) incorporating higher-order thinking questions to facilitate meaningful assessment of student learning.

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Introduction
Philippine education experienced a significant challenge especially in mathematics as it considers underperforming based on international standards. Data shows in the report that 20% of students only met the required competency level in mathematics literacy (Balagtas, 2020; Callaman & Itaas, 2020). In the same manner, 19% of Filipino learners achieved basic proficiency in mathematics based on the 2019 Trends in International Mathematics and Science Study (Ablian & Parangat, 2022). The performance of Filipino learners in mathematics has underlying factors that results to poor results such as having lack of mastery of basic mathematical skills, persistent stigma on mathematics, low level

of literacy (Jaudinez, 2019), and in effective learning strategies (Gafoor & Kurukkan, 2015).

Addressing these challenges requires an approach that is centered on the student, contextualized, and responsive to their needs. Student-centered approaches provide opportunities for students to utilize their prior knowledge and experiences, promoting hands-on learning and the cultivation of higher-order cognitive abilities (Lacia, 2019). In addition, fostering a positive attitude toward mathematics, promoting motivation, and engaging in academic work have shown to contribute to students' success in mathematics (Callaman & Itaas, 2020; Fung et al., 2018).

Rakhmawati et al. (2025) investigated the mastery of elementary school teachers on the mathematical content and pedagogical content knowledge (PCK) in Eastern Indonesia. They examined the relationship between the level of mastery of teachers with students, teaching and curriculum to understand its impact on their delivery of instruction. The study showed that teachers have low level pedagogical content knowledge (PCK) which greatly affect the quality of mathematical instruction. It was recommended to improve the content knowledge of teachers and their pedagogical approaches to address the needs.

The perceived difficulty, lack of student confidence, and perceived relevance were some of the factors identified by Holmes et al. (2025) on the factors that contributed to the decline of student enrollment in mathematics courses. Student interest is significant in establishing engagement for students towards mathematics. However, the study shows that students become less interested during their secondary school years drawing from the data gathered among 183 students in Grades 7-10 in Australia. The call to improve the delivery of instruction is a response to increase student engagement in mathematics. Considering various approaches in delivering instruction is a great help to affect student learning. Berger et al. (2020) examined the attitudes of students towards mathematics and science subjects which having a positive disposition towards both subjects lead to a better performance. It shows that interdisciplinary approach could support students to gain interest with their subjects. A study by Mutia (2025) has shown that learners often struggle in mathematics because of the gaps in prior learning and insufficient mastery of basic competencies.

This study aimed to examine the challenges that hindered the development of student learning in *General Mathematics* subject of senior high school at Mary Our Help Technical Institute for Women (Cebu). The findings were used as bases to provide appropriate recommendations for the enhancement of the delivery of mathematic instruction. This study intended to address the following research question:

What challenges hindered the development of student learning in *General Mathematics* subject of senior high school at Mary Our Help Technical Institute for Women (Cebu) from the lens of:

1.1 Teachers, and

1.2 Students?

Theoretical Review

The analysis of the findings of this study was anchored in the Cognitive Load Theory (CLT) of John Sweller (2024) and the Self-Determination Theory (SDT) of Richard M. Ryan and Edward L. Deci (2024)**.** Cognitive Load Theory explains how instructional

design influences learning by considering the limitations of working memory and the role of long-term memory in knowledge acquisition. The theory emphasizes that effective instructional procedures should optimize cognitive load to facilitate the accumulation of knowledge and the development of expertise (Sweller, 2024). On the other hand, Self-Determination Theory provides a framework for understanding human motivation, personality development, and social behavior. It posits that the satisfaction of the basic psychological needs for autonomy, competence, and relatedness promotes intrinsic motivation, engagement, well-being, and effective functioning (Ryan & Deci, 2022). Together, these theories provide a comprehensive lens for examining both the cognitive and motivational factors that influence the outcomes of the study.

Methodology

Research Design

This research employed a descriptive qualitative research design. Qualitative data were gathered through semi-structured interviews with students and teachers, which allowed participants to freely express their experiences while enabling the researcher to probe and clarify responses for deeper understanding. This approach is particularly appropriate in exploring educational challenges, as semi-structured interviews provide flexibility while maintaining focus on key research questions and producing rich, detailed data (Adeoye-Olatunde & Olenik, 2021). This phase aimed to uncover the challenges affecting student learning and the necessary competencies.

Research Locale

The study was conducted at the Mary Our Help Technical Institute for Women (Cebu), located at Km. 17 Tunghaan, Minglanilla, Cebu. This institution offered a range of educational programs encompassing Senior High School, Technical Vocational Education, and College-level courses. Notably, Mary Our Help Technical Institute for Women is a Catholic Salesian institution, with its origins rooted in the inspirational teachings of St. John Bosco and St. Maria Domenica Mazzarello. This rich heritage reflected the school's commitment to providing holistic education in alignment with Salesian principles.

Participants of the Study

The study involved fourteen (14) Grade 11 students and two (2) General Mathematics teachers. Purposive sampling was used to select Grade 11 student participants who had direct experience with the challenges affecting their learning development. Meanwhile, the two (2) General Mathematics teachers constituted the entire population of teachers handling the subject at *Mary Our Help Technical Institute for Women* and were therefore included in the study.

Research Method

Semi-structured interviews were first conducted with the students to identify the challenges that hindered their learning development in the General Mathematics subject. Similarly, Mathematics teachers were interviewed regarding their experiences to identify the challenges affecting student learning and the essential competencies required. The data gathered from the students' narratives were cross-analyzed with the teachers' narratives to strengthen the validity of the results and findings regarding the challenges that hinder student learning.

Research Instrument

A semi-structured interview guide was used as the research instrument for gathering data on the challenges that hinder student learning in the General Mathematics subject. To ensure the validity of the research instrument, several measures were implemented, including:

Content Validity: In collaboration with a subject matter expert, the researcher conducted a thorough review of the interview guide to ensure its alignment with the intended constructs. The expert meticulously evaluated the interview guide and the criteria developed for assessing instructional materials and found them highly appropriate for the study. With over five years of experience teaching Mathematics, the expert verified that the instrument items accurately measured the intended outcomes.

Face Validity: Before administering the instrument to the students and teachers, the interview guide was reviewed to assess its face validity. This included determining whether the items appeared to measure what they were intended to measure and whether they were appropriate for the target participants.

Trustworthiness*:* To ensure the trustworthiness of the study, credibility was established through cross-analysis of the narratives of students and teachers. Moreover, validation of themes from the participants was conducted to verify the accuracy and consistency of the participants' responses and the researchers' interpretations.

Data Analysis

Thematic analysis was used to analyze the qualitative data gathered from the semi-structured interview. The key themes were identified by carefully analyzing the data gathered which focused on uncovering recurring patterns and categories, providing deeper insights into the challenges affecting student learning and the competencies required.

Ethical Considerations

Several ethical considerations were addressed to ensure the well-being and rights of the participants. These included:

Informed Consent: Participants received informed consent forms, allowing them to review information, ask questions, and voluntarily decide whether to participate. They were assured that their participation or withdrawal would not affect their academic status or their relationship with the school.

Confidentiality: To protect the privacy and confidentiality of participants, all data were anonymized and securely stored. Participants' identities were coded to prevent their responses from being personally identifiable. Only the researcher had access to identifiable data, and any personal information shared during interviews or surveys was kept strictly confidential.

Ethical Approval: The research proposal was submitted to the relevant ethics board or institutional review board for approval. The board reviewed the research plan to ensure it adhered to ethical guidelines and protected participants' rights and welfare.

Results

Challenges that Contributed to the Status of Student Learning from the Lens of Teachers

Student-Related Challenges

This theme highlights the range of challenges that students face, which affect how well they can acquire and apply mathematical concepts. These are the main concerns:

Retention and Application of Knowledge. Students often forget materials learned in previous classes, leading to difficulties in analyzing and understanding new mathematical principles. This challenge of retaining fundamental concepts hinders their ability to build upon prior knowledge and apply it to more advanced topics. In analyzing the qualitative data gathered from teachers, several key insights emerged regarding students' challenges in learning mathematics. One significant finding is the recurring theme of forgetting materials learned in previous classes. Teachers noted that students often struggle to retain fundamental concepts and skills over time, leading to difficulties in building upon prior knowledge and applying it to new mathematical principles. This is evidenced by a teacher who commented that:

> *During individual discussions about challenges in the subject, students honestly shared their experiences. For instance, many mentioned encountering mental blocks, hindering their ability to grasp concepts effectively. Also, a significant portion of the class struggles with poor analytical skills, making problem-solving tasks mostly challenging.* (Teacher A)

Fundamental Mathematical Skill Gaps. Many students have poor fundamental skills in basic math operations, which significantly hinders their progress and comprehension in more complex mathematical areas. These fundamental skill gaps create barriers to overall mathematical ability. This trend is further compounded by students' low ability to learn math, as evidenced by their struggles in analyzing mathematical principles and following class discussions effectively. This struggle is often due to gaps in prior knowledge and insufficient foundational skills. Additionally, teachers highlighted the presence of poor fundamental skills in basic math operations among students, which significantly hinders their progress and comprehension in more advanced mathematical topics. Teacher B commented: *"One major difficulty I've encountered in teaching the subject is that students struggle with basic operations in mathematics. Many of them lack a strong foundation in fundamental mathematical operations, which poses a significant challenge in their learning process."*

Study Habits and Motivation. Poor study habits, such as procrastination and a lack of motivation to practice problem-solving skills, are prevalent among students. These behaviors, often linked to their negative attitudes toward mathematics, further impede their ability to master mathematical concepts. Another prominent theme that emerged from the data is the negative attitude and disinterest of students towards mathematics. A negative attitude and disinterest towards mathematics are common among students. This attitude is characterized by a lack of self-efficacy and confidence in their mathematical abilities, resulting in a reluctance to engage with the subject. Teachers observed that many students exhibit a lack of self-efficacy and confidence in their mathematical abilities, leading to a reluctance to engage with the subject and develop effective study habits. One teacher commented:

> *Several students exhibit low motivation and interest in the subject, with only a few showing sincere interest. Therefore, repeating the lesson numerous times is necessary to ensure comprehension. Among the topics covered, rational functions present the most significant challenge for students.* (Teacher B)

This negative attitude towards math often manifests in poor study habits, such as procrastination and a lack of motivation to practice problem-solving skills regularly. These insights underscore the complex challenges faced by students in learning mathematics and highlight the need for targeted interventions to improve their understanding, retention, and engagement with the subject.

Instructional Challenges

Revealing challenges faced by teachers in delivering comprehensive and effective mathematics education. The key issues identified include:

Limited Time Allocation for the Course. Teachers encounter significant challenges due to insufficient time allotted for General Mathematics. The mathematics curriculum provided by the government recommends conducting classes for the entire semester for 80 hours. However, the school implemented 16 hours of instruction, while the remaining hours are allotted for learning activities and assessments. With less than 80 hours for GM, covering all necessary topics becomes challenging, especially when considering that merely 16 hours were allotted for instruction within the entire semester. This limitation significantly impacts the depth and coverage of instruction, hindering teachers' ability to deliver comprehensive lessons that effectively address students' learning needs. The amount of time available significantly affects the quality and scope of instruction, hindering teachers from providing comprehensive lessons that meet students' learning needs.

Adapting to Different Learning Styles. Teachers struggle to manage the diverse range of learning abilities among students. Many students display passive behavior, lacking curiosity and inquisitiveness in their learning approach. This passive behavior presents a significant challenge in engaging students and fostering active participation in the learning process.

Limitations in Asking Varied and Interesting Questions. Teachers often use questioning techniques that lead to short-term comprehension rather than lasting retention. The lack of varied and engaging questions leads to superficial understanding among students. This superficial understanding fails to translate into deeper learning and long-term retention of mathematical concepts. Instructional challenges are central to the findings, revealing difficulties in various aspects of teaching General Mathematics (GM). One significant challenge as observed by Teacher B was that *"Many students exhibit passive behavior, lacking curiosity and inquisitiveness in their learning approach"*. This passive behavior presents a significant challenge in engaging students and fostering active participation in the learning process. "*Despite appearing attentive during class discussions and affirming their understanding when prompted, students often struggle to retain the lessons over time"*, as highlighted by Teacher A. This brief comprehension indicates a superficial understanding that does not translate into long-term retention. The teacher attributes this event to the questioning techniques employed during

instruction, indicating the need for more effective strategies to promote deeper learning and retention among students.

These instructional challenges underscore the complexities inherent in teaching General Mathematics and the need for targeted interventions to address them effectively. By providing adequate time for instruction and implementing strategies to engage students of diverse learning abilities, educators can enhance the quality of educational experiences and improve student achievement. Additionally, fostering a culture of active participation and promoting deeper understanding through effective questioning techniques are essential steps in overcoming instructional challenges and creating a supportive learning environment conducive to student success.

Teacher Support Challenges

Teacher support challenges emerge as a prominent theme, revealing significant gaps in supervision, mentoring, and professional development opportunities for educators.

Lack of Supervision and Mentoring. New teachers often lack structured development plans and sufficient guidance. The absence of mentorship significantly impacts their ability to navigate their roles effectively and grow professionally. Without proper supervision and mentorship, new teachers struggle to adapt to their responsibilities, which can lead to decreased effectiveness in the classroom and hinder their professional growth. Teacher support challenges emerge as a prominent theme in the qualitative data, revealing significant gaps in supervision, mentorship, and professional development opportunities for educators. Teachers express a clear recognition of the need to enhance their teaching skills and seek opportunities for professional growth. For instance, Teacher B acknowledges their limited teaching skills and actively seeks opportunities to develop relevant strategies for effective instruction: *"I recognize the need to further develop my teaching skills, particularly in identifying relevant strategies for effective instruction. As someone who is not a graduate in education, I acknowledge my limited teaching skills and seek opportunities to enhance them."*

Insufficient Professional Development Opportunities. Teachers express a strong need for professional growth and enhancement of their teaching skills. Teachers acknowledge their limited teaching skills and actively seek opportunities to develop effective instructional strategies. The deficiencies in training on effective teaching methods and strategies limit teachers' ability to improve their instructional practices. Insufficient professional development opportunities leave teachers feeling unprepared and unsupported, ultimately affecting the quality of education they provide to their students. Furthermore, Teacher A highlights the challenges faced by new teachers in the school setting, particularly regarding inadequate training and mentoring support. The absence of structured development plans and insufficient guidance for new teachers significantly impact their ability to navigate their roles effectively. This is evident in Teacher A's experience: *"I've encountered difficulties in the school setting primarily due to a lack of proper training upon my arrival. While there may have been some training sessions, they lacked structured development plans for teachers."* The mentoring support has also been inadequate. *"As a new teacher, I found myself assigned tasks without*

sufficient guidance or support, which was particularly challenging given that this was my first teaching experience."

These narratives underscore the importance of addressing teacher support challenges to enhance teaching effectiveness and improve student learning outcomes. Providing adequate supervision, mentorship, and professional development opportunities for educators is crucial for promoting an empathetic learning environment beneficial to teacher growth and student success. By prioritizing teacher support initiatives, educational institutions can empower teachers to effectively attend to the diverse needs of their students and create enriching learning experiences.

Administrative Challenges

Administrative challenges emerge as a significant theme, highlighting challenges related to communication gaps and insufficient time for math instruction.

Communication Gap. Teachers expressed concerns regarding ineffective communication with the school administrators, particularly regarding timely feedback on teaching practices and other important matters. This communication gap limits teachers' ability to receive constructive feedback necessary for improving their instructional methods.

Insufficient time for math instruction. Teachers utilized only 16 hours of the subject's 80-hour timeframe, highlighting the significant issue of inadequate time allocation. Insufficient instructional time prevents teachers from covering all necessary topics thoroughly, resulting in gaps in students' knowledge and understanding. It also limits the opportunity for teachers to use multiple method of instruction and accommodate to different learning types.

Administrative limitations arise as a significant theme, highlighting challenges related to communication gaps and insufficient time for math instruction. This is exemplified by Teacher A's statement: *"Communication within the Senior High School department regarding important matters, particularly regarding communication, is challenging. There seems to be a lack of communication from the department head, which contributes to limited support in classroom instruction."* Additionally, inadequate time allocation for instruction, as evidenced by Teacher B's comment, further increases the challenges faced by teachers, hindering their ability to comprehensively cover essential topics:

> *The time allocated to prepare for the General Mathematics (GM) subject is insufficient. With less than 80 hours allocated for the GM subject, it becomes challenging to cover all the necessary topics. In fact, only 16 hours were allotted for GM, which significantly limits the depth and coverage of instruction.*

These administrative limitations intersect with other identified challenges, such as instructional problems and teacher support challenges, to create barriers to effective teaching and learning. For instance, inadequate time management directly impacts teachers' ability to develop comprehensive learning plans and provide varied learning tasks to address diverse student needs. Furthermore, communication gaps between school administrators and teaching staff may contribute to a lack of support and supervision for teachers, exacerbating feelings of uncertainty and discouragement regarding teaching effectiveness, as expressed by Teacher A. The interconnected nature

of these challenges underscores the importance of addressing administrative limitations alongside other identified issues to foster an environment conducive to student learning and competency acquisition in General Mathematics.

Challenges that Contributed to the Status of Student Learning from the Lens of Students

Teaching Methods and Instructional Support

Teaching methods and instructional support highlights the significant challenges related to instructional assistance and teaching methods, emphasizing the importance of various and engaging instructional strategies to enhance student learning and comprehension.

Unclear Explanations and Lack of Drill Work. There is a significant gap in instructional support, as students often do not receive the additional activities needed to practice and understand difficult concepts. This lack of drill work leads to gaps in comprehension and diminishes student confidence.

Repetitive Teaching Approaches. Students prefer interactive teaching methods, such as demonstrations on the board, over passive learning from screens or modules. This preference indicates the importance of engaging and varied teaching techniques that promote active learning and deeper understanding. Relying on repetitive and passive methods can result in disengagement and limited understanding.

Insufficient visual aids. Relying on screen-based lectures can make it difficult for students to understand topics, highlighting the need for varied instructional approaches that cater to different learning preferences and pacing. The use of visual aids and various methods of instruction can significantly improve comprehension and accommodate diverse learning styles.

According to student feedback, teachers often provide unclear explanations, insufficient drill work, repetitive teaching methods, and limited use of visual aids. Student A expressed dissatisfaction when the teacher could not provide additional exercises to practice unclear concepts: *"I didn't feel like I learned enough because the teacher didn't give us enough practice problems. I had a hard time understanding the stuff we were learning."* This highlights a gap in instructional support, where students require supplementary materials for better comprehension. Student B expressed preference for interactive teaching methods, such as demonstrations on the board, over passive learning from screens or modules. *"I like it when the teacher writes on the board or shows us how to solve problems. It's easier to understand than just looking at a screen or doing worksheets."* This preference underscores the importance of engaging teaching techniques that facilitate active learning and deeper understanding. Similarly, Student C articulated difficulties in understanding topics when the teacher solely relies on screen-based lectures: *"It's hard to learn when the teacher only uses the screen. I need the teacher to use different things, like books or other tools, so I can learn at my own speed."* This indicates a need for varied instructional approaches to accommodate diverse learning preferences and pacing.

Cognitive Challenges

Cognitive challenges address the cognitive difficulties students face in understanding and retaining mathematical concepts, as well as the strategies they use to overcome these challenges.

Understanding Mathematical Concepts. Students often struggle to comprehend mathematical topics during class. To compensate, they invest extra time in reviewing the material at home, highlighting the importance of self-directed learning. This proactive approach is crucial for overcoming cognitive challenges and reinforces the idea that mastering mathematical concepts often requires additional effort outside the classroom.

Understanding Questions and Retaining Information. Students struggle to remember mathematical formulas, leading to errors in problem-solving tasks. This underscores the significance of rote memorization in mathematics and the need for effective memory strategies. Improved memorization techniques, such as mnemonic devices and repetitive practice, are essential for helping students retain and accurately apply essential mathematical information.

Students face cognitive challenges in mathematics education, including difficulties in understanding mathematical concepts, understanding questions, and retaining information. This is exemplified by Student D's statement: *"I have trouble understanding things in class, so I spend extra time at home studying."* Student D struggles to comprehend topics during class but compensates by investing extra time in reviewing the material at home. For Student E's narratives that *"I forget formulas a lot, and that's why I make mistakes when I do math",* she acknowledges a weakness in remembering formulas, leading to errors when applying them to problem-solving tasks. This sentiment underscores the significance of rote memorization in mathematics and the need for effective memory strategies to enhance learning outcomes.

These cognitive challenges pose significant barriers to student achievement in mathematics and can impact academic performance and self-confidence. Students may feel frustrated or discouraged when they struggle to grasp concepts or retain information, leading to negative attitudes towards the subject. However, the examples provided by Students D and E demonstrate resilience and determination in overcoming cognitive obstacles through self-directed learning and targeted practice. By acknowledging their weaknesses and implementing strategies to address them, students can enhance their cognitive abilities and improve their overall performance in mathematics.

Affective Challenges

Affective Challenges addresses the significant emotional and psychological challenges that students face, impacting their ability to learn and perform in mathematics. Students encounter various affective challenges in mathematics education, including excessive stress, negative attitudes, and feelings of timidity and worry.

Excessive Stress. Students experience considerable stress and anxiety related to mathematics assessments. This emotional pressure not only affects their test performance but also contributes to a persistent fear of the subject. Despite their diligent efforts, students often struggle to overcome these affective barriers, which can

have a long-lasting impact on their learning experience. Student F articulates the experience of feeling troubled and anxious during exams due to time pressure, highlighting the psychological impact of challenging examinations on student well-being: *"I get nervous and worried during tests because I don't have enough time. It's stressful trying to finish everything."* Similarly, Student G expresses concern about performance on mathematics tests and experiences nervousness during examinations: *"I get really scared before math tests. I'm always worried about doing badly."* This reflects the emotional impact of academic pressure on students. Therefore, strategies to reduce test anxiety and improve time management during exams are essential for enhancing student well-being and academic outcomes.

Negative Attitudes. Students often exhibit a fear of variables and a lack of interest in mathematics, compounded by external distractions. These negative attitudes significantly decrease motivation and engagement, ultimately affecting academic achievement. It is crucial to address these attitudes to foster a more positive and motivated approach to learning mathematics. The psychological impact of challenging examinations is evident in students who feel troubled and anxious during exams due to time pressure. This fear can affect their cognitive functioning, resulting in decreased performance and fostering negative attitudes toward mathematics. Moreover, affective challenges such as fear (Student H: I'm *scared of working with letters in math. It makes everything harder."*), lack of interest exacerbated by distractions (Student I: *"I lose interest easily, especially when there's a lot of noise. I can't pay attention in math class."*), and strong dislike for the subject (Student J: *"I hate math. It's my least favorite subject."*) contribute to negative attitudes towards mathematics. These sentiments can significantly influence student motivation, engagement, and ultimately, academic achievement. Additionally, Student K acknowledges persistent challenges in mathematics despite diligent study efforts: *"I work hard at math, but I still have trouble. It feels like I can't get better, no matter how much I try,"* indicating the enduring nature of affective barriers to learning.

Addressing affective challenges is crucial for promoting positive learning experiences and fostering student success in mathematics. Educators must provide supportive learning environments, implement strategies to alleviate stress and anxiety, and cultivate intrinsic motivation to enhance student engagement and achievement in the subject. By recognizing and addressing affective barriers, educators can empower students to develop a positive mindset towards mathematics and unlock their full potential in the classroom.

Classroom Environmental Distractions

Classroom environmental distractions addresses the significant influence of classroom environmental factors on student concentration and learning outcomes.

Undesirable Seating Arrangement in the Classroom. Students have difficulty learning when seated near windows because glare from sunlight interferes with viewing presentations and diminishes focus during lectures. This highlights the need for optimizing physical learning environments to minimize distractions and create conducive spaces for student concentration and engagement. Ensuring that all students have clear visibility of instructional materials is essential for maintaining their attention and enhancing their learning experience. Classroom environment challenges, including

undesirable seating arrangements and noisy classmates, impact students' ability to engage effectively in learning. Student L articulates the difficulty of learning when seated near a window due to glare from sunlight: *"It's hard to concentrate in class when I'm near the window. The sun is too bright, and it's hard to see what the teacher is showing. I can't focus."* This highlights the importance of optimizing physical learning environments to minimize distractions and create conducive spaces for student concentration and engagement.

Noisy Classmates. The students say that noise from classmates disrupts their focus on learning, illustrating the negative effects of environmental distractions on student concentration and comprehension. Excessive noise in the classroom hinders students' ability to process information, participate in discussions, and retain content. Managing classroom noise levels and fostering a quieter learning environment are crucial for improving student focus and academic performance. Furthermore, Student N describes how noise from classmates disrupts their focus on learning, underscoring the negative effects of environmental distractions on student concentration and comprehension. *"My classmates are too loud, and it's hard to listen to the teacher. The noise bothers me, and I can't follow the lesson."* In a classroom setting, excessive noise can impede students' ability to process information, participate in discussions, and retain content, ultimately hindering learning outcomes.

To address classroom environment challenges, educators must proactively assess and modify physical learning spaces to enhance student comfort and minimize distractions. Implementing strategies, such as flexible seating arrangements, noise-reducing measures, and effective classroom management techniques can create environments conducive to student engagement and learning. By prioritizing optimal learning environments, educators can support students in maximizing their academic potential and achieving success in mathematics education.

Group Work Challenges

Group work challenges highlights the various difficulties students face during group work, focusing on fairness in grading, understanding tasks, and the lack of initiative among group members.

Fairness in Grading. Students express dissatisfaction with the fairness of grading in group activities, noting that despite making significant contributions, they received the same score as their groupmates. This highlights the need for reasonable assessment practices that recognize and reward individual contributions, which is essential for maintaining motivation and engagement in collaborative tasks. Group work challenges, as highlighted by Student M: *"I worked hard on the group project, but everyone got the same grade, even though some people didn't do much. That's not fair, and it makes me feel sad."* The student expresses dissatisfaction with the fairness of grading in group activities, noting that despite her significant contributions, she received the same score as their groupmates. This experience underscores the importance of reasonable assessment practices for promoting motivation and engagement among students during collaborative tasks.

Understanding the Task and Processing Information. Students face challenges in understanding tasks and processing information within group settings. These difficulties can impede effective participation and contribution. Clear instructions and

support for understanding tasks are necessary to facilitate successful collaboration and ensure all group members can contribute effectively. The frustration with group members' avoidance of tasks and lack of initiative indicates a breakdown in communication and collaboration. This lack of engagement can significantly hinder teamwork and task completion. Encouraging accountability and active participation is vital for the success of group activities. Furthermore, Student M articulates challenges related to understanding tasks and processing information within the group setting. *"It's annoying when we don't understand the tasks or when other people in our group don't help. I feel like I'm doing all the work by myself."* These challenges underscore the importance of fostering clear communication, shared responsibility, and accountability within group dynamics to enhance collaborative learning experiences.

To address group work challenges, educators should implement strategies to promote fairness in grading, clarify task expectations, and cultivate a collaborative mindset among students. Emphasizing the importance of equitable participation, effective communication, and shared responsibility within groups can empower students to actively engage in collaborative tasks, contribute meaningfully to group discussions, and develop essential teamwork skills. By fostering a supportive and inclusive group work environment, educators can enhance student learning outcomes and promote positive social interactions in the classroom.

Discussion

From the results obtained, it was realized that teachers as well as students face major issues that make teaching and learning of General Mathematics more challenging. Issues raised by the teachers are lack of prior basic knowledge, insufficient time of instruction and insufficient professional development, whereas issues raised by students are insufficient instruction, inability to understand the mathematics lesson, disturbance in classroom, lack of interest and the problem of doing work in groups. This implies that issues hindering learning of mathematics are related to both instruction and the learner, requiring multi-pronged interventions at multiple levels.

The results are in agreement with Rakhmawati et al. (2025) that lack of prerequisite knowledge is one of the biggest problems that affect understanding of higher-level concepts in mathematics. Also, Holmes et al. (2025) agree that teacher training, professional development, and adequate teaching time are important for successful teaching in mathematics for diverse learners. Difficulties with class engagement and learning in the classroom is also agreed with Berger et al. (2020) who state that a learner’s academic achievement is influenced not only by his own cognitions but also by classroom environments, teaching practices, and social interactions.

Relevant learning theories can be used to explain these results. Cognitive load theory can be used to explain students' difficulties to understand mathematics lessons and poor retention of mathematical information, as learning cannot be effective when a learner's cognitive resources become overwhelmed by complex information, confusing instruction, or a stimulating environment. Disturbance in the classroom due to noisy students, confusing instructions and lack of prerequisite skills may increase the students' cognitive load and may cause problems in processing the instructions and mathematical information. Teachers' perception on the lack of basic knowledge can be attributed to disrupted learning (due to COVID-19) and inadequate prerequisite instruction.

Students' lack of interest and disengagement may be explained by self-determination theory (SDT). If a student cannot understand lessons, is given confusing instructions, and experiences multiple failures in learning math, then a student's sense of competence would decrease, resulting in lower levels of motivation and participation. Furthermore, a negative classroom and group experiences may reduce a student's sense of relatedness in a classroom.

Teachers' challenges demonstrate that effective teaching is also dependent on an institutional level. Lack of professional development and guidance can limit teachers' ability to introduce new instructional practices and adequately support students with varied learning needs. Professional learning and ongoing training is key to effective instruction for student learning gains (Holmes et al., 2025).

With regard to these issues, schools ought to offer consistent professional development and mentoring to teachers, and increased support from school administrators. At the classroom level, differentiated instructional practices, clear and systematic learning tasks, and ways to reduce unessential cognitive loads are all likely beneficial. For students, instructional strategies should aim to address prerequisite math deficiencies, enhance motivation and engagement, and create a supportive and encouraging learning environment.

Although this study has provided some valuable insights into teachers' and students' issues in teaching and learning General Mathematics, there are certain limitations to this study. First, the participants of this study were a relatively small sample, from one school and can therefore not be generalizable to other institutions. Second, this study was based on interviews where students and teachers expressed their opinions and perceived problems on teaching and learning math lessons, which can influence the credibility of their responses due to possible response bias. Third, this study focused only on the experiences of teachers and students in one school, not on learners and educators in different educational backgrounds. Future research should consider using larger samples with different schools and add different types of data collection methods to get more insights into issues of teaching and learning mathematics.

Conclusion

This study found that there are a variety of teacher- and student-related factors that contributed to problems in the teaching and learning of General Mathematics. The student-related factors include problems with lack of understanding, unclear instruction, motivation / engagement, and classroom distractions; while teacher-related factors included lack of mastery in foundational mathematics, time constraints, and opportunities for professional development. When teaching and learning occur in an educational setting where there is sufficient support for students and teachers to meet their needs both cognitively and motivationally, students can more effectively learn mathematics in a supported environment where their basic knowledge is solid and they are provided clear instruction. In order for teachers and students to succeed, it requires that the school be a supportive environment that addresses their needs. With these challenges and implications for teaching and learning identified, interventions need to be developed to address instructional quality, teacher skills, support systems, and

institutional practices; the results of this study help guide development of those interventions.

Recommendations

As a result, this study would like to enhance the delivery of instruction of General Mathematics subject by recommending the following:

- Develop and implement high-quality instructional materials with clear, attainable learning objectives, dynamic content, and well-designed assessments that assure curriculum alignment and support students' different learning needs.
- Provide teachers with regular training opportunities to help them improve their teaching practices and student engagement.
- Foster an environment of open communication between teachers and administrators and make mentoring and support available to new teachers. This would allow for smoother transitions and further improvement in educational quality.
- Ensure adequate scheduling so that teachers may deliver thorough instruction that covers all critical learning competencies.
- Focus on enhancing students' abilities to handle mathematical challenges by providing a variety of interesting activities that foster confidence in understanding and applying complex concepts.
- Provide constant feedback on student performance to assist them in realizing their development, as well as counselling or assistance for those experiencing cognitive or emotional difficulties in the subject.

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