

STUDENTS' COPING STRATEGIES IN DEALING WITH MATHEMATICS-RELATED CHALLENGES

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ABSTRACT

This study explored the coping strategies of students in dealing with mathematics-related challenges. It aimed to identify the difficulties students encounter in mathematics, examine the strategies they use to cope, and determine the factors influencing these coping mechanisms. The study utilized a qualitative research design and gathered data through semi-structured interviews with selected students. The data were analyzed using thematic analysis to identify recurring patterns and themes. Findings revealed that students commonly experience math anxiety, difficulty in understanding concepts, pressure when answering questions, and lack of confidence in problem-solving. Three major coping strategies emerged: growth mindset, effective study strategies and approaches, and support and collaboration. Students managed their challenges through positive thinking, self-calming techniques, focused study habits, consistent practice, and seeking assistance from peers and family members. The study concludes that supportive learning environments and positive coping strategies improve students' confidence and mathematics performance. Teachers and parents are encouraged to foster supportive academic environments.

Keyword: academic performance, coping strategies, mathematics education, Mathematics-related challenges,

1. INTRODUCTION

Mathematics has long been recognized as a foundational academic discipline and a major determinant of students' academic success in the Philippine basic education system. The Department of Education (DepEd) continually emphasizes mathematics proficiency as a core competency that enables learners to engage in critical thinking, scientific reasoning, and real-world decision-making. Despite its importance, many Filipino students struggle with learning mathematics due to complex concepts, negative attitudes toward the subject, and persistent mathematics anxiety. Findings from Philippine basic education assessments suggest that a significant number of learners exhibit low achievement and affective barriers in mathematics, which can impede their engagement and confidence in the classroom (DepEd, 2022).

In educational psychology, coping strategies are conceptualized as the cognitive, emotional, and behavioral efforts individuals use to manage stressors that exceed their perceived ability to respond effectively. The transactional model of

stress and coping posits that individuals appraise challenging situations and adopt coping responses that influence their emotional and academic outcomes (Lazarus & Folkman, 1984; Wemegah & Abubakari, 2021). In the context of mathematics education, adaptive coping strategies—such as active problem-solving, help-seeking, and cognitive restructuring—have been associated with greater academic resilience, improved self-efficacy, and reduced anxiety. By contrast, maladaptive strategies, including avoidance and disengagement, often exacerbate mathematics anxiety and hinder academic progress (Barroso et al., 2021).

Research on Filipino learners' mathematics experiences highlights that coping mechanisms are shaped not only by individual beliefs but also by cultural and instructional contexts. Studies with learners in the Philippines indicate that support from teachers, peer collaboration, and learning environments that encourage mastery approaches can influence how students manage difficulties in mathematics (Cruz & Valenzuela, 2020; dela Cruz & Tan, 2021). However, most of these studies have primarily utilized quantitative

designs, which limit insight into how students personally understand and enact their coping strategies in real classroom settings.

This qualitative study aims to explore the coping strategies Filipino students use when confronted with mathematics-related challenges. By examining learners' lived experiences, perceptions, and sense-making processes, this research seeks to provide an in-depth understanding of the types of coping strategies employed, the factors that support or hinder these strategies, and their implications for teaching and learning. Insights from this study may inform instructional practices that strengthen students' mathematical resilience and foster more supportive learning environments within Philippine classrooms.

2. STATEMENT OF THE PROBLEM

The study explored coping strategies of Junior High School Students in Dealing with Mathematics-Related Challenges at San Isidro College of Malaybalay Bukidnon, Inc. for SY 2023–2024. Specifically, it sought to answer the questions

1. How do students describe their experiences with mathematics-related challenges?
2. What coping strategies do students employ to manage these challenges?

3. METHODOLOGY

3.1. Research design

This study employed a descriptive phenomenological research design to gain an in-depth understanding of the lived experiences of Junior High School (JHS) students in coping with mathematics-related challenges. Descriptive phenomenology focuses on describing experiences as expressed by participants in order to capture the essence of a phenomenon without imposing external interpretations (Lester, 1999).

The study utilized Colaizzi's (1978) method of data analysis, as discussed by Praveena and Sasikumar (2022), which is widely used in phenomenological research. To ensure credibility and minimize researcher bias, the researchers practiced bracketing by consciously setting aside personal assumptions and preconceptions during

data collection and analysis (Delve, Ho, & Limpaecher, 2022).

3.2. Research locale

The study was conducted at San Isidro College, a private Catholic educational institution located in Malaybalay City, Bukidnon, Philippines, during the fourth quarter of School Year 2023–2024. The selected setting was a Grade 9 mathematics class consisting of approximately 40 students.

3.3. Respondents of the study

The respondents were ten (10) Grade 9 students enrolled in the selected mathematics class. A purposive sampling technique was used to select students who could provide rich and meaningful descriptions of their coping strategies when facing mathematics-related challenges.

To ensure variation in experiences, all students completed a self-administered Mathematics Anxiety Questionnaire. Based on the screening results, four (4) students exhibited high mathematics anxiety, three (3) students exhibited moderate mathematics anxiety, and three (3) students exhibited low mathematics anxiety.

Initially, twelve (12) students were invited using stratified selection based on anxiety levels; however, two declined participation, resulting in a final sample of ten participants. Although anxiety levels were considered to ensure diverse perspectives, the primary focus of the study was on coping strategies rather than comparative anxiety analysis. To protect confidentiality, participants were assigned pseudonyms.

3.4. Research instruments

Data were collected primarily through semi-structured interviews, which allowed participants to describe their experiences, emotions, and coping strategies in their own words. The Mathematics Anxiety Questionnaire was used solely as a screening tool to ensure diversity in anxiety levels. It was not used for statistical analysis but served as supporting contextual data.

3.5. Data gathering procedure

Prior to data collection, the researchers formally introduced the study to potential participants and explained its purpose, procedures, and ethical safeguards. Participation was voluntary, and

students were informed that they could withdraw at any time without penalty.

Parental or guardian consent was secured in addition in the reason that the respondents are minors. Informed consent forms outlined the nature of the study, data usage, confidentiality measures, and respondents' rights.

Before conducting interviews, the researchers explained the interview process, estimated duration, and types of questions to be asked. Participants were encouraged to respond honestly and were reminded that they could decline to answer any question that made them uncomfortable.

3.6. Data analysis

Data were analyzed using Colaizzi's (1978) seven-step phenomenological method.

Step 1 involved familiarization through repeated reading of transcripts to obtain a holistic understanding of participants' experiences.

Step 2 required extracting significant statements directly related to mathematics-related challenges and coping strategies.

Step 3 involved formulating meanings from each significant statement within the participant's context.

Step 4 involved clustering themes by grouping related meanings and identifying common patterns.

Step 5 required developing an exhaustive description integrating all themes.

Step 6 involved producing the fundamental structure capturing the essence of the phenomenon.

Step 7 involved returning to participants for validation (member checking) to ensure credibility and trustworthiness.

3.7. Ethical considerations

Ethical standards were strictly observed throughout the study. Participation was voluntary, and confidentiality was maintained through the use of pseudonyms.

Parental consent and student assent were obtained prior to participation. Participants were informed of their right to withdraw at any time

without penalty. All collected data were handled securely and used solely for academic purposes.

4.RESULTS AND DISCUSSIONS

4.1. Mathematics-Related Challenges Experienced by Students

Result

The findings of the study revealed that students commonly experience various mathematics-related challenges that affect their academic performance and emotional well-being. These challenges include math anxiety, difficulty in understanding mathematical concepts, pressure when answering questions, distractions while studying, and lack of confidence in solving mathematical problems.

Many participants expressed feelings of nervousness and panic when confronted with math-related tasks. For instance, Participant 6 shared that he tries not to panic when answering questions, indicating the presence of anxiety during class participation. Similarly, Participant 8 mentioned the need to calm down before solving problems, which suggests that emotional regulation is necessary before engaging with mathematical tasks. Participant 9 also expressed worries when encountering difficult problems, highlighting the emotional strain associated with complex mathematical content.

In addition to emotional challenges, students reported cognitive difficulties in understanding mathematical concepts. Some participants described mathematics as complicated and requiring more time and effort compared to other subjects. Participant 1 admitted delaying studying mathematics because it is challenging and time-consuming. This delay may reflect avoidance behavior linked to perceived difficulty and fear of failure.

The findings also showed that students experience pressure when required to answer questions in class. This pressure often contributes to self-doubt and reduced confidence. When students are unsure about their answers, they become hesitant to participate, which may limit their opportunities for active learning and improvement.

Furthermore, distractions while studying were identified as another challenge. Although some students attempt to remain focused, environmental and internal distractions can

interfere with their concentration. This difficulty in maintaining focus may further hinder their ability to fully understand mathematical lessons.

Overall, the results demonstrate that mathematics-related challenges are both emotional and cognitive in nature. Students struggle not only with understanding the subject matter but also with managing anxiety, pressure, and self-confidence issues.

Discussion

The findings indicate that students' difficulties in mathematics are not limited to academic complexity alone but are strongly shaped by emotional experiences such as anxiety, panic, and worry. When students associate mathematics with fear or stress, this emotional response may affect how they process information, engage in classroom tasks, and respond during assessments or recitations. In this sense, mathematics-related challenges become layered: students are required to solve problems while simultaneously managing their emotions, which can reduce their ability to concentrate and reason effectively.

The reported anxiety and pressure during classroom participation suggest that performance situations (such as being asked to answer questions) can heighten fear of failure and contribute to hesitation. This hesitation may limit student participation, which is important for learning because active engagement is often needed to clarify misunderstandings and strengthen conceptual knowledge. In addition, the presence of low confidence may reinforce a cycle where students avoid participating, which then reduces practice opportunities, and consequently weakens mastery and further lowers confidence.

The finding that some students delay studying mathematics indicates that perceived difficulty influences motivation and engagement. When mathematics is viewed as time-consuming and complex, students may adopt avoidance patterns as a response to anticipated frustration or failure. However, avoidance may lead to learning gaps that accumulate over time and make mathematics appear even more difficult. Similarly, distractions during study time, whether environmental or internal, may interfere with sustained attention, which is necessary for understanding step-by-step processes and building problem-solving skills.

These findings reflect the idea that mathematics learning requires both cognitive readiness and emotional resilience. Students need not only content understanding but also supportive learning conditions that reduce fear, encourage persistence, and gradually rebuild confidence. As noted in Adams (2009), math anxiety can serve as a significant barrier to learning, and addressing emotional challenges is essential in supporting student achievement.

4.2. Students' Coping Strategies in Dealing with Mathematics-Related Challenges

Result

The study revealed several coping strategies used by students to manage difficulties in mathematics. These strategies include **Growth Mindset, Effective Study Strategies and Approaches, and Support and Collaboration.**

Theme 1: Growth Mindset

The theme "Growth Mindset" highlights students' different approaches to alleviate their anxiety and enhance their confidence levels. These approaches include seeking assistance from peers, family members, or teachers to clarify math concepts and deepen their understanding of mathematical principles. Additionally, students cultivate a positive mindset by addressing negative thoughts and reframing them into more constructive perspectives. This process helps them develop resilience and self-assurance when facing mathematical challenges. By employing these strategies, students can navigate their math anxiety, gradually strengthen their confidence, and adopt a more positive outlook on their mathematical abilities. Ultimately, these efforts create an environment conducive to effective learning and academic success.

The following statements from the participants support this theme: "My technique to overcome my math anxiety is memorizing formulas." – Participant 1

"Just go with the flow, sir. I finish it anyway, then just calm myself down, especially so as not to panic when asking questions like that. And just think straight, sir," – Participant 6

"..., I calm myself before working..." – Participant 8

"I'll just think positive thoughts to overcome my worries." – Participant 9

"To manage my anxiety, I calm down, sir. I take deep breaths, intense ones. There are times when I play as well." "...For me, sir, it's like this: if you really put your mind to it, you can overcome it." – Participant 10

Each participant has their own strategies in coping with difficulties in learning mathematics. Participant 1 mentioned formula memorization. Participant 6 emphasized staying calm and not panicking, especially when answering questions. Participant 8 mentioned that it is important to stay calm before doing math problems. Participant 9 expressed the importance of staying positive when encountering difficult problems to overcome worries. Participant 10 highlighted calming down, taking deep breaths, and keeping a positive mindset. In summary, these strategies involve a combination of memorization, self-calming techniques, positive thinking, and a focused mindset to overcome challenges in learning mathematics.

The result is anchored on the study of Adams (2009). Teachers and parents need to collaborate to support children in overcoming math anxiety. It is crucial to communicate the importance of maintaining a positive, relevant, and practical approach to math instruction. Teachers should create a safe and supportive classroom environment where students feel encouraged to learn math. Parents can help their children build confidence in mathematics by applying it to everyday real-life situations. Positive attitude towards learning mathematics can be achieved with the help of teachers and parents working together to create a conducive learning environment. By working together, teachers and parents can create an environment that helps children overcome mathematics anxiety and develop a positive attitude toward mathematics.

Theme 2: Effective Study Strategies and Approaches

The theme "Effective Study Strategies and Approaches" focuses on the different methods used by the students to enhance their learning experience and improve academic performance. In this theme, students highlighted the importance of applying focused attention, taking down notes, and reviewing their materials regularly to improve their study habits. They emphasize the

importance of studying one subject at a time to avoid distractions and to have a deeper understanding of the content being studied. In addition, students highlighted the value of actively engaging in problem-solving activities and practicing to enhance their skills and gain mastery of the concepts. By implementing these study strategies and approaches, students prioritize unlocking their full learning potential, enhancing comprehension of the subject matter, and achieving academic success.

The following statements from the participants support this theme: "I approach subjects differently. I often delay studying math because it's a bit difficult and requires more time investment." "My strategy is to listen to the teacher and then take notes on how to get the answer." – Participant 1 "Sir, I try to solve math problems to practice more..." "Sometimes, sir, I write it down on paper, but sometimes I also need to use the calculator on my phone to get it right." "I'm more focused, sir, like, I don't get easily distracted. Even if there's a lot of noise, sir, I just concentrate on solving. "I don't let distractions affect me, sir. I really listen carefully and answer the subject correctly. I don't entertain other thoughts, instead, I focus positively and stay on track." – Participant 5

"I spend my free time practicing problems because some have similar solutions." "I learn differently because I remember better when I hear things." – Participant 8

"When it gets difficult in math, just remember the formula." – Participant 10

Participants shared their strategies for approaching and studying math. Participant 1 mentioned delaying math study due to perceived difficulty and time requirements and emphasized listening to the teacher and taking notes. Participant 5 highlighted staying focused, practicing more, and disregarding distractions while maintaining positive thinking. Participant 8 mentioned practicing similar problems during free time and preferring auditory learning. Participant 10 suggested relying on formula memorization when problems become difficult. The strategies mentioned involve taking notes, practicing problem-solving, staying focused, utilizing auditory learning, and relying on formula recall to approach and excel in math.

The result is anchored on Cardino et al. (2020). To improve academic performance of high school students in mathematics, teachers must go beyond traditional teaching methods. Teachers must establish a strong connection and bridge the gap between themselves and their students. By understanding student diversity and learning styles, teachers can design strategies that cater to students' needs. These approaches help students grasp mathematical concepts efficiently and achieve better academic performance. By establishing a conducive learning environment, teachers can motivate students to develop interest in learning mathematics even if there is difficulty in the subject at the beginning.

Theme 3: Support and Collaboration

The theme "Support and Collaboration" emphasizes the way students support and help each other to gain academic success. This theme highlighted the active cooperation of students with their classmates to overcome challenges experienced in learning mathematics and to understand lessons better. They also asked support from their family, used online tutorials and other resources to support learning processes. Moreover, students understand how essential support systems like academic assistance programs are in supporting their education. By asking help from others, students aim to clarify uncertainties and improve understanding of complex topics. Ultimately, this creates a supportive environment for learning and helps students grow personally and academically.

The following statements from the participants support this theme: "When I find it difficult, I just watch tutorials online and ask my older brother for help." – Participant 4

"...when I use calculators, I usually get it right..." – Participant 5

"And my strategy, sir, is to seek help from others, and to participate in group activities, you know. I just trust my groupmates and participate." – Participant 6

"I talk to my friends, sir, and I tend to just come up with my solution that I think is correct but turns out to be wrong." – Participant 7

"Sometimes, I also ask for help from my father." – Participant 8

"I ask for help, sir. Sometimes from classmates, like asking them how to do it. Once I understand, then I solve it myself." – Participant 10

Participants shared their techniques in asking help and support in their academic endeavors. Participant 4 watches online tutorials and asks assistance from an older brother. Participant 5 expressed the importance of using calculators to check accuracy. Participant 6 emphasized asking help from others and participating in collaborative activities by trusting groupmates. Participant 7 stated that discussing with peers is important but acknowledged caution about relying solely on their own solutions. Participant 8 added asking help from their father when experiencing difficulties. Participant 10 emphasized asking guidance from classmates, understanding the step-by-step solution, and then solving independently.

The study conducted by Cardino and Ortega (2020) provides insights into factors influencing academic performance. The study revealed that independent learning styles had a significant positive effect on student outcomes including collaborative learning, inductive and deductive approach, and integrative approaches. These findings suggest that practicing independent learning skills using different instructional methods may contribute to enhancement of student performance. By understanding varied learning styles and teaching strategies, educators can structure learning environments and tailor practices to support student success.

The findings show that students do not rely on a single coping mechanism; instead, they use a combination of personal and social strategies that help them manage stress and continue learning. The "Growth Mindset" theme indicates that students attempt to regain control over their emotions by calming themselves, thinking positively, and reframing negative thoughts. These strategies reflect students' effort to reduce anxiety so they can function during problem solving and classroom participation. The presence of formula memorization in this theme also suggests that students seek stability and confidence by relying on familiar procedures, especially when anxiety is high or when they feel uncertain.

The "Effective Study Strategies and Approaches" theme demonstrates that students understand the importance of active engagement for

improvement. Listening carefully, note-taking, reviewing, and consistent practice suggest intentional learning behaviors that aim to strengthen mastery. Focus and distraction management appear important because mathematics often requires sustained attention, and students who can maintain concentration may be more capable of completing multi-step solutions. In addition, the use of auditory learning preferences indicates that students adopt strategies aligned with how they best retain information, which may increase comprehension and reduce frustration.

The “Support and Collaboration” theme highlights the importance of external resources and relationships in coping with mathematics-related challenges. Students’ reliance on peers, family, online tutorials, and calculators suggests that learning mathematics is supported by social and technological tools. Seeking help also shows that students recognize their limitations and take action to clarify misunderstandings rather than remaining stuck. This social dimension of coping strengthens confidence because assistance provides reassurance and confirms correct procedures. Moreover, learning support systems may encourage students to persist, especially when mathematics feels overwhelming.

Overall, the coping strategies identified reflect two key functions: (1) managing emotions to reduce anxiety and restore confidence, and (2) improving competence through practice, focused study, and support. These findings imply that interventions should not only improve students’ skills but also strengthen emotional support, reassurance, and learning opportunities that allow students to ask questions without fear. The anchored studies (Adams, 2009; Cardino et al., 2020; Cardino & Ortega, 2020) support the idea that supportive environments and appropriate strategies influence students’ engagement and performance in mathematics.

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This study explored the coping strategies of students in dealing with mathematics-related challenges. The findings revealed that students commonly experience math anxiety, difficulty in understanding mathematical concepts, pressure when answering questions, distractions during study time, and lack of confidence in solving

problems. These challenges significantly affect their motivation, engagement, and overall performance in mathematics.

Despite these difficulties, students demonstrated various coping strategies to manage their challenges. The study identified three major themes: Growth Mindset, Effective Study Strategies and Approaches, and Support and Collaboration. Students practiced self-calming techniques, positive thinking, and formula memorization to reduce anxiety and build confidence. They also applied effective study habits such as focused attention, note-taking, consistent practice, and active engagement in problem-solving activities to improve their understanding of mathematical concepts.

Moreover, the findings highlighted the importance of support systems in shaping students’ coping mechanisms. Peer collaboration, family assistance, online tutorials, calculators, and academic support programs played a significant role in helping students clarify difficulties and strengthen their learning. The presence of a supportive learning environment contributed to both their academic development and personal growth.

Overall, the study concludes that while mathematics presents emotional and cognitive challenges to students, the use of positive coping strategies and strong support systems enables them to manage these difficulties effectively. Promoting a growth mindset, encouraging effective study habits, and fostering collaborative support among teachers, parents, and peers are essential in helping students overcome mathematics-related challenges and achieve academic success.

5.2. Recommendations

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

For Teachers. Teachers should create a safe, supportive, and encouraging classroom environment that reduces math anxiety and builds students’ confidence. They may integrate strategies that promote a growth mindset, such as encouraging positive self-talk, emphasizing effort over mistakes, and providing constructive feedback.

Teachers are also encouraged to use varied instructional strategies that cater to different

learning styles, including collaborative learning, problem-based activities, and step-by-step demonstrations. Providing opportunities for guided practice and regular feedback can help students strengthen their understanding and mastery of mathematical concepts.

For Students. Students are encouraged to practice self-regulation strategies such as calming techniques, positive thinking, and focused attention when facing mathematics-related challenges. Developing consistent study habits—such as taking notes, practicing regularly, reviewing lessons, and managing distractions—can improve academic performance. Students should also be open to seeking help from peers, teachers, family members, or academic support programs whenever they encounter difficulties.

For Parents. Parents should actively support their children's mathematics learning by providing encouragement, assisting with assignments when possible, and relating mathematics to real-life situations. Creating a positive home environment that values learning can help reduce anxiety and build confidence in mathematics.

For School Administrators. Schools may strengthen academic assistance programs such as tutoring services, peer mentoring, and remedial classes to support students who experience math difficulties. Workshops or seminars on managing math anxiety and developing effective study strategies may also be beneficial.

For Future Researchers. Future studies may explore coping strategies using a larger sample size or different grade levels to validate and expand the findings of this study. Researchers may also examine the relationship between coping strategies and academic performance in mathematics through quantitative or mixed-method approaches.

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Bionote

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