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GAUGING STUDENTS' MATHEMATICAL LIVED LEARNING EXPERIENCES

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Abstract

This study explores students' lived experiences in mathematical learning environments, aiming to understand how these experiences shape their attitudes, comprehension, and overall success in mathematics. Through a qualitative approach, we engaged with students from diverse backgrounds to gather in-depth insights into their personal encounters with mathematical concepts, instructional methods and classroom dynamics. The findings reveal a complex interplay between students' emotions, cognitive processes, and social interactions that significantly influence their learning trajectories. By analyzing these lived experiences, the study provides valuable perspectives for educators to enhance instructional strategies and create more inclusive, supportive mathematical learning environments. This research also contributes to the broader discourse on improving mathematics education by emphasizing the importance of understanding students' personal experiences as central to fostering deeper engagement and achievement in mathematics.

Keywords: students' mathematical lived-experiences, classroom dynamics, diverse backgrounds

Introduction

Mathematics is a fundamental subject that forms the cornerstone of many academic disciplines and professional fields. Despite its importance, many students face persistent challenges in learning mathematics, which can affect their overall academic performance and future career opportunities, (Doe, John & Jane Smith, 2020). Meanwhile, students have explanations regarding their mathematical learning experiences and this is crucial for designing effective instruction to enhance their learning outcomes. Indeed, students unquestionably face difficulties in learning mathematics along with different concepts and learning competencies.

The mathematics assessment report from the Trends in International Mathematics and Science Study (TIMSS 2019) revealed that the Philippines ranked last among 58 participating countries in mathematics (Bernardo, J. 2020). Thus, the country is lagging behind in terms of learner's proficiency in mathematics in general compared to the rest of the word. Further emphasizing this issue, the Program for International Student Assessment (PISA) 2018 results showed the Philippines ranked 76th out of 78 countries in mathematics. These low rankings in both TIMSS and PISA highlight the poor state of mathematics education in the Philippines. The consistently low performance of Filipino students in these international assessments indicates

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widespread struggles in learning mathematics, signaling a critical need for educational interventions.

There are several underlying reasons why students encounter difficulties with mathematics in school. One factor is cultural differences, students from different linguistic backgrounds face additional challenged in learning mathematical language (Newell et al., 2015). Additionally, factors such as socioeconomic status, teacher quality and the rapid advancement of technology presents both opportunities and challenges in mathematics learning. These factors combined create a complex web of challenges that make it difficult for many students to succeed in mathematics, highlighting the need for targeted interventions to address these multifaceted issues (Garet, 2008) .

At the tertiary level, many students face significant difficulties in learning mathematics, struggling with various topics presented to them. As a result, learning mathematics continues to be a major challenge for students at the start of the 21st century. Therefore, it is crucial to explore learners' experiences, as their knowledge, skills, and understanding of the subject are essential for mastering higher-level mathematics in tertiary education (Good et al., 2010).

Recent studies highlighted several key factors that impact mathematical learning including gender differences, teachers' quality or preparedness to teach mathematics, financial and support program, parental involvement and geographical locations of students. For instance, articulated by Ashcraft (2007) emphasizes that female are more likely to experience math anxiety which contributes to the gender gap in mathematics achievement. Similarly, the work of White (2021) underscores the significant role of the quality of teacher teaching mathematics in students learning.

While various intervention programs have been proposed and implemented to address students' difficulties in mathematics, there is limited research on the development of tailored intervention programs based on a thorough understanding of students' specific learning experiences. The absence of such context-specific intervention programs underscores the need for a detailed investigation into the mathematical learning experiences of students at Apayao State College.

Statement of the Problem

This study aimed to gain a comprehensive understanding of the students' mathematical learning experiences and the predictors of students' performance in mathematics which could be a basis in proposing an intervention program.

Specifically, it seeks to answer the following questions:

1. What are the lived-experiences of students in learning mathematics?

Review of Literature

Experiences in Learning Mathematics

Understanding students' experiences in learning mathematics is significant in the educational process. Numerous studies have explored the perceptions, attitudes, and challenges associated with mathematics learning. Boaler (2016) emphasizes the socio-constructivist approach, which recognizes the importance of students' engagement, motivation, and conceptual understanding of mathematics. However, there is a research gap

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in understanding the specific learning experiences of students. Further investigation is needed to explore the unique challenges and experiences faced by students, considering their distinct educational context, expectations, and aspirations. Additionally, research should delve into the role of cultural and gender factors in shaping students' experiences and attitudes towards mathematics, as this can further inform instructional practices and intervention program (Martin, 2000; Steele, 1997).

Researcher have explored various factors influencing students' experiences in mathematics classrooms. For instance, Civil et al (2013) examined the mathematical identities and achievements of African American students. The study highlighted the influence of cultural backgrounds, experiences of racism, and perceptions of mathematics as a culturally neutral subject on students' engagement and achievement in mathematics. By considering the influence of cultural factors on students' experiences, researchers can gain deeper insights into the factors that shape students' attitudes, engagement, and achievement in mathematics.

To expand the understanding of lived experiences, future research could also explore the experiences of students from diverse cultural backgrounds in mathematics classrooms. By examining the experiences of Bachelor of Secondary Education students, researcher can investigate how cultural factors influence their perceptions and attitudes towards mathematics. This research can inform instructional practices and interventions that are culturally responsive and inclusive.

In addition to qualitative studies, quantitative research can contribute to understanding students' experiences in learning mathematics. For instance, studies have examined the relationship between students' self-beliefs, engagement, and achievement in mathematics (Wang & Ertl, 2019). Such research can provide insights into the factors that predict students' motivation, engagement, and achievement in mathematics. Overall, conducting comprehensive studies that explore the lived experiences of Bachelor of Secondary Education students in mathematics learning can provide valuable insights into the factors that influence their motivation, engagement, and conceptual understanding. By considering cultural factors, researchers can develop instructional practices and interventions that are responsive to students' diverse backgrounds, ultimately enhancing their mathematics learning experiences and outcomes.

Research Methodology

The study employed qualitative approach first and then the quantitative aspect. For the qualitative data collection, interviews were conducted among the students to generate data about the learning experiences of students and the predictors of their academic performance in mathematics.

The respondents of the study were the second-year education students at Apayao State College, who are officially enrolled during the academic year 2023 - 2024. To gather qualitative data, 10 students were interviewed and criterion purposive sampling was used to identify these students in which they are able to provide adequate and relevant responses. The criteria include the following: Students who are who are enrolled in Mathematics in the Modern World during the first semester of academic year 2022-2023; Students whose grades in Mathematics in the Modern

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World was below . A semi - structured interview questions was used to gather data on the learning experiences of students . In gathering the necessary information, first, the researcher developed a semi - structured interview questions and was subjected for content validation by experts. Second, the researcher sought the permission of the Campus Academic Dean of Apayao State College - Luna Campus and the respondents through a letter. An orientation among the respondents was conducted to discuss the purpose of the study and on how they go about the interview. After which, conduct of interview took place. A thorough analysis using thematic approach of the data collected through interviews was undertaken to generate the basis for the development of survey questionnaire for quantitative data. To address the research questions and to analyze the data that are collected, the researcher used both qualitative and quantitative analysis. For the qualitative data, the researcher transcribed and used thematic analysis in analyzing the results from the interviews to identify the learning experiences of students in mathematics.

Discussion of Findings and Results

Students' Experiences in Learning Mathematics

The experiences of students in learning mathematics are essential in deciding the outcome of any educational endeavor, and it is undeniable that when bad experiences are encountered in learning, achievement is hindered. Many students view mathematics to be difficult most especially to those with experiences on the subject.

The following indicators under students' experiences in learning mathematics were asked to gather in-depth responses from respondents in the interview.

1. Students' view of mathematics as a course
2. Approaches employed in learning mathematics
3. Challenges encountered in learning mathematics
4. Coping strategies in learning mathematics

1.1. Students' View on Mathematics as a Course

Theme 1. Mathematics as a demanding subject, necessitating concentration, problem-solving abilities, and critical thinking skills.

Mathematics is a fundamental subject that forms the cornerstone of many academic disciplines and professional fields. Despite its importance, students regard mathematics as difficult and confusing brought by the complicated concepts, particularly using formula and equation that needs understanding. Moreover, it entails problem solving and critical thinking.

In connection with these, four of the participants emphasized the difficulty and complicatedness of mathematics as a subject as manifested in their utterances:

> *Mahirap to dahil sa komplikadong konsepto at paggamit ng formula at Equations na kailangan intindihin mo talaga.*
> *(It's difficult because of the complicated concepts and the use of formulas and equations that you really need to understand.) [P5]*

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The subject is difficult for me, but as I began to concentrate on it, I experienced some alleviation of its complexity. [S10]

I cannot easily find the answer especially for word problems. [P3]
So, I view it in general as a hard or confusing subject [P1]

The said finding is akin to the point articulated by Charalambides et al. (2023), citing that Mathematics is renowned for its reputation as a subject that is inherently difficult and perplexing. Students often find themselves confronted with numerous of abstract concepts and confusing equations, leading to feelings of frustration and incomprehension. The intricacies of mathematical concepts can seem insurmountable, requiring a determined effort to unravel their complexities (Charalambides et al. 2023).

Theme 2. Mathematics as a catalyst for personal growth and practical application.

Mathematics, far from being a mere academic pursuit, it serves as a tool for personal growth and equips individuals with numerous practical applications to navigate everyday living situation such as budgeting and decision making.

With this, two participants highlighted the usefulness of mathematics in their life.

Ang pag – aaral ng math ay isang nagpapayaman ng karanasan na nagpapahusay sa critical thinking ng isang tao.
(The study of mathematics enriches experiences and enhances an individual's critical thinking skills.) [P7]

Nakita ko po na ang Math ay marami kang panggagamitan sa buhay
. *(I have observed that Mathematics has numerous applications in life.) [P8]*

Furthermore, when [P8], was probe, he mentioned that

"Naapply and mathematics sa pamamagitan ng pag budget and decision making."

This finding affirms the report Zakariya (2022), by mastering mathematical concepts and honing problem-solving skills, individuals feel empowered to tackle challenges head-on, transcending perceived limitations and unlocking new opportunities for personal and professional growth.

1.2. Approaches Employed in Learning Mathematics

Learning mathematics involves understanding various approaches that cater different learning styles and preferences.

Theme 1. Peer Learning Dynamics

Peer learning is an avenue where students work together in groups to understand concepts, solve problems, and learn from each other's perspectives.

This is manifested by the responses of four participants.

Minsan nagpapaturo po ako sa mga math majors na friends ko.
(I sometimes ask my friends who specialize in Mathematics for help.) [P7]

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I seek the help of my classmates. [P10]

Bale nakipag-group study ako sa mga kaklase ko na medyo magagaling sa klase namin. (So, I joined a group study with some classmates who are quite good in our class.) [P5]

I constantly read books and interact with my classmates. [P3]

The aforementioned finding supports previous studies. Moliner and Alegre (2020) noted that by tapping into the collective knowledge and support of their peers, students create a rich learning environment conducive to deeper comprehension and mastery of mathematical concepts. This collaborative approach fosters an atmosphere of mutual learning and peer mentorship, where individuals contribute diverse perspectives and insights. As students collaborate, discuss, and problem-solve together, they not only consolidate their understanding of mathematical principles but also develop critical thinking skills and analytical abilities (Abdelkarim & Abuiyada, 2016). Furthermore, these interactions cultivate a sense of camaraderie and shared responsibility for academic success, empowering students to take ownership of their learning and thrive in their mathematical pursuits (Zeneli et. al., 2016).

Theme 2. Independent Reading

Students developed their habit of reading independently the lessons assigned by their teachers and also watching videos to have a better understanding of mathematics. Thus, students employ self-directed learning as their strategy in enhancing their achievement in mathematics.

Ang ginawa ko po ay nagbasa ng mga books patungkol sa mga topics na sinasabi samin ng Prof. namin. (What I did was to read books about the topics that our professor mentioned to us.) [P7]

I read books and watch tutorials. [P9]

I read books every day. [P2]

Tinanong ko po ang teacher naming if my reading material po ba na ibibigay samin. Meron naman at nagbigay din ng list of refences.
(I asked our teacher if there would be any reading materials provided to us. There were some, and the teacher also gave us a list of references.) [P8]

Remarkably, by delving into independent reading, the students cultivate essential skills such as self-discipline and time management. They learn to discern reliable sources of information and critically evaluate the relevance and applicability of various learning materials. According Zhu and Wu (2023), this process not only deepens their understanding of mathematical concepts but also hones their ability to think critically and problem-solve independently.

Theme 3. Integrating Digital Resources

Students explore the digital resources in their goal to understand their lessons, especially in the case where the nature of the subject (Mathematics in Modern World) involves topics from different areas, such as in algebra, geometry and statistics. To unlock their difficulty, they search similar problems, watch tutorial videos and enroll websites such as Khan Academy and Byjus. In addition, they learn through power point presentations in the web.

With this, three of the participants describe how they used digital resources in understanding and solving mathematics problems by these responses.

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Sa pagsolve po ng mga problem sets po kailangan mag google ng kaparehas na problem para doon po icompare ang gagawing solusyon.[P8]
(In solving problem sets, it's necessary to search for similar problems online to compare solutions.)

Yes po, dahil mix ang topics ng Mathematics in the Modern World, gumamit po ako Google sites especially the tutorials in Youtube po. [P9]
(Yes, because the topics of Mathematics in the Modern World are mixed, I used Google Sites, especially tutorials on YouTube.)

I also enroll in some free learning websites such as Khan academy and Byjus. I also sometimes download power point online.
(I also sometimes download power point online.) [P4]

Indeed, in embracing the technological advancements of the digital age, the students use a diverse array of digital platforms, applications, and resources to revolutionize their approach to learning mathematics (Drijvers, 2013). Through the incorporation of digital resources, they gain access to a various of interactive and multimedia-rich materials tailored to their individual learning needs. They can explore virtual simulations, interactive tutorials, and dynamic multimedia presentations that offer immersive learning experiences beyond the constraints of traditional textbooks and lectures. This interactive engagement not only captivates students' interest but also facilitates deeper understanding and retention of mathematical concepts through multisensory stimulation (Cevikbas et al., 2023).

1.3. Challenges Encountered in Learning Mathematics

To gain deeper understanding of the participants learning experiences in mathematics, the researcher asks the challenges they encountered and from their responses there are three emerging themes.

Theme 1. Student-related Challenges in Mathematics Learning: Pace, Anxiety, and Time Management

Student related challenges include students' pace in learning which could be fast - paced learners and slow-paced learners. These describes the speed at which a student learns and process information. In connection to this, four participants uttered their difficulty in harmonizing their learning speed to their classmates.

Hirap makasabay sa mga kaklase ko po.
(It's difficult to keep up with my classmates.) [P1]

Ang pinakamalaking hamon ko sa pag – aaral ng Mathematics ay paano ko maovercome ang takot at panghihina ng loob sa mga komplikadong problems at equations.
(My biggest challenge in studying math is how to overcome my fear and lack of confidence in tackling complicated problems and equations.) [P5]

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> *Ang hamon na encounter ko sa mathematics ay mahirap akong makipagsabayan sa subject na ito dahil maraming rason at iba't ibang sitwasyon.*
> *(The challenge I encountered in mathematics is finding it difficult to keep pace with this subject due to various reasons and different situations.) [P6]*

> *I experience getting low in quizzes and activities, even Midterm exam po dahil kulang ako sa time sa pag-aaral.*
> *(I experience getting low scores in quizzes and activities, even in the Midterm exam, because I lack time for studying.) [P8]*

According to Young et al. (2012), numerous studies over the years have demonstrated that anxiety can impact crucial aspects of learning, including attention, memory, and processing speed. Memory, which is essential for mathematical tasks, can be significantly impeded by math anxiety. This is because the brain expends more energy coping with stress than on processing information, leading to a decrease in the active working memory capacity required for participating in mathematical activities (Ashcraft & Kirk, 2001).

As noted by Rambe and Siregar (2022), inadequate time presents a significant hurdle in the pursuit of mastering mathematics. The complexity and depth of mathematical concepts often require ample time for comprehension, practice, and reinforcement. However, the constraints of academic schedules, extracurricular commitments, and personal obligations often leave students with limited time to devote to their mathematical studies. Moreover, the multifaceted nature of mathematics demands sustained effort and repeated practice to internalize abstract theories and problem-solving techniques fully (Gracin & Trupčević, 2022). Without sufficient time for practice and review, students may struggle to solidify their understanding of key concepts and may find themselves ill-prepared for assessments and examinations.

Theme 2. Teacher's Personality and Unconducive Classroom Management

Specifically, students encounter teachers who are very strict, particularly in submission of requirements. Also, they experienced under teachers who cannot go down to the level of their learners and tendency they discuss lessons very fast focusing merely on delivering the lesson without considering the essentiality of the educational principle, that teaching-learning is child-centered. This way, students could hardly cope with the lesson.

This was highlighted by four participants in their responses.

> *I got a teacher who was very strict but good in teaching the topics. I mean strict sa submission ng requirements.*
> *(I had a teacher who was very strict but effective in teaching the topics. I mean strict when it comes to submitting requirements.) [P2]*

> *Mabalis po siya magturo. Parang linelevel niya yung sarili niya samin.*
> *(She teaches quickly. It's like she's on the same level as us.) [P3]*

> *Masyado pa pong mabilis ang pagtuturo ng teacher po.*
> *(The teacher's teaching pace is too fast.) [P7]*

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Teacher-centered po ang discussion po.
(The discussion is teacher-centered.) [P10]

When teachers deliver lessons at a rapid rate, students may struggle to fully grasp complex mathematical concepts and techniques. This accelerated teaching pace often leaves little room for students to absorb and internalize the current lesson before moving on to the next topic. As a result, students may find themselves constantly playing catch-up, feeling overwhelmed by the continuous stream of new information. Moreover, the rapid pace in teaching can aggravate feelings of anxiety and apprehension among students, particularly those who already experience difficulty with the subject. As they struggle to keep pace with the instructor, students may become discouraged and disengaged, leading to a further decline in their mathematical proficiency and confidence (Farrell & McDougall, 2008).

Additionally, the participants confront the limitations of traditional instructional strategies employed in the classroom, which may prioritize teacher-centered approach, passive learning, and repetitive practice over active engagement, critical thinking, and problem-solving skills development. According to Stephan (2020), the emphasis on the teacher as the primary source of knowledge can create a dependence on external authority, rather than fostering students' confidence in their own mathematical abilities. This can lead to a lack of motivation and engagement, as students may feel disconnected from the subject matter and perceive mathematics as something inaccessible or irrelevant to their lives.

Theme 3. Resource Constraints

Students has experience lack of references such as books in their home and because of geographical location of their home internet connectivity are poor, this cause them limited time to access online resources.

These was experienced by one student as manifested in the response.

In school, books available are limited'.[P4].
In our home, I do not have a collection of math books[p4]
Pag nasa bahay na ako mahirap ang access sa internet kaya limited time lang din an paggamit ko ng video toturial.[P7].
(When I was home internet connection is poor, so I cannot use video tutorial)

The lack of resources may intensify existing disparities in educational opportunities, disproportionately affecting students from marginalized backgrounds and underserved communities. Additionally, limited resources can hinder the implementation of hands-on activities, real-world applications, and interactive learning experiences, which are crucial for fostering deep comprehension and problem-solving skills in mathematics (Gafoor & Kurukkan, 2015).

Theme 4. Environmental Distractions

One cause of noise is overcrowding of students in the corridor and on – going constructions around or within the school vicinity. In connection to this, some participants emphasized the existence of noise in the learning place.

The environment is too noisy ,,,, maraming tambay na estudyante sa lobby [P10]
... because of the on – going construction po of buildings, the surroundings was so maingay [P3]

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These environmental distractions impede students' focus, concentration, and cognitive engagement, hindering their ability to absorb and retain mathematical concepts effectively. Creating conducive learning environments free from disruptive stimuli is essential in mitigating environmental distractions in mathematics education. Additionally, equipping students with mindfulness techniques, metacognitive strategies, and effective study habits can empower them to navigate distractions more effectively and optimize their learning outcomes in mathematics (Zhang & Navejar, 2018).

Theme 5. Information Overload and Retention Struggles

When listening to lectures is tiresome when the mind is full and it hampers understanding of the lesson. As a result, retention of information is poor. Thus, when the brain is overwhelmed, it's harder to transfer information from short-term to long-term memory causing retention problems.

This situation was experienced by participants as evidenced by these responses:

> *I say Ma'am that I cannot understand the lesson on class because of tiredness. Siyempre po Ma'am kapag pagod na ako, nakikinig ako pero after the session wala ako matandaan dahil puno na ang utak ko Ma'am. But after naman na makarest ako maam pagdating sa bahay, I go back with the lesson po.*
> *(I cannot understand the lesson in class because of tiredness. Of course, Ma'am, when I'm tired, I listen but after the session, I don't remember anything because my mind is already full. But after I rest at home, I go back to the lesson.) [P2]*
>
> *Nakakapagod ang math subject kasi po, it needed a lot of time to construct solutions or to find solution [P5]*
>
> *Ma'am alam mo po ung feeling na kahit i-recall mo sana hindi mo maiisip talaga. Parang nakinig ka naman pero hindi mo marecall, un po sakin ang "having nothing retained" na moments Ma'am.*
> *(Ma'am, you know the feeling that even if you try to recall, you just can't seem to remember. It's like you were listening, but you can't recall anything. That's what "having nothing retained" moments feel like to me, Ma'am.) [P1]*

These statements are similar to the findings of the study by Gafoor & Kurukkan (2015) that one of the factors that make mathematics difficult for students to learn is difficulty in understanding mathematics concepts aside from difficulty in remembering the content learned in the previous classes, rapid forgetting of the learned material and the difficulty in understanding mathematics concepts.

Theme 5. Influence of Prior Educational Experiences

In particular, the appropriateness of the track obtained in senior high school education has something to do with the performance of learners in their chosen career or field of specialization. Wherein, students can enroll in any course or degree program according to their choice regardless of the track they have finished in high school. That's why those who finished STEM (Science, Technology, Engineering and Mathematics) tract are more likely to perform better in mathematics.

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On the other hand, students who did not finished STEM are not likely to perform better in mathematics.

Past experiences, both positive and negative, can influence a student's motivation and attitude towards learning. Prior educational experiences significantly shape a learner's approach to learning, their learning styles, and overall academic performance.

Moreover, a pattern of interest in mathematics is rooted from what the learners have experienced from their initial learning in grade school until reaching college. Likewise, their being disinterested in Mathematics has brought from elementary to high school and then to college experiences.

This is evident on the following participants' narratives:

> *Ma'am, ang isang rason na nakita ko is that iba-iba kami ng tracks na pinanggalingan noong Senior High School. Ang mga galing sa STEM ay magagaling talaga, kaya may contribution din po to.*
> *(Ma'am, one reason I see is that we come from different tracks in Senior High School. Those who came from the STEM track are really good, so that contributes to it as well.) [P5]*
>
> *Actually Ma'am, depende po sa teacher ko. Even when I was in the elementary, high school and now in college, I have the same feelings po of disinterest. (Actually Ma'am, it depends on my teacher. Even when I was in elementary, high school, and now in college, I have the same feelings of disinterest.)* [P6]

These statements is similar to the findings of (Bangayan-Manera, 2019), students often lack the essential skills and knowledge necessary to grasp more advanced mathematical concepts, leads to a struggle in keeping up with the curriculum. Also, students who have encountered uninspiring or ineffective teaching methods, or who have had negative interactions with their mathematics teachers can result in a lack of confidence in their mathematical abilities and a general sense of anxiety or frustration towards learning mathematics (Doabler, 2015).

1.4 Coping Strategies in Learning Mathematics

Theme 1: Intensified Engagement and Persistence

After the participants discloses their challenges in learning mathematics, the researcher asked about their coping strategies.

Intensified engagement in learning refers to a deep and active involvement in the learning process. Being goal-driven, students are persistent in learning mathematics despite the challenges they faced along the way.

Students set a clear learning goals and develop strategies to achieve them. This kind of students are deeply engaged in learning are more likely to persist in their efforts to learn. Notably, the participants disclosed that being visual learners, learning by doing, practiced diligence and perseverance and having determination are among their coping strategies in learning mathematics. Moreover, the power of listening during discussions and allotting more time for mathematics lessons are also gateways to better learning opportunities.

With this connection, the participants attitude has been described by the articulated responses of [P1], [P2], [P3], [P4], [P5], and [P6] respectively.

> *I always keep my eyes in all the things being written by my teacher on the board.* [P1]

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I did read books every day and tried doing some of the problems with solution until I was able to do one problem at my own and it was satisfying. [P2]
I practiced regularly by doing some math activities from the internet with solution. [P3]
I always exert effort on doing my activities. And to comprehend, I also read textbooks. [P4]
Ginamit ko ang sipag at tiyaga at determinansyon sa pag– aaral.
(I used diligence, perseverance, and determination in studying.) [P5]

Dahil siguro sa patience ko in doing all the requirements and submit them on time.
(Perhaps it's because of my patience in doing all the requirements and submitting them on time.) [P6]

Para sa akin, nalagpasan ko ang mga challenges na ito sa pamamagitan ng pakikinig nang mabuti kahit konti lang ang nakukuha ko sa mga quizzes.
(For me, I have overcome these challenges by listening attentively even if I only get a few points on the quizzes.) [P6]

Ang ginawa ko po talaga ay nagbigay ako ng mas maraming oras sa Math subject ko, kahit minsan mahirap parin maintidihan, sige parin po ako.
(What I really did was to dedicate more time to my Mathematics subject, even though sometimes it's still difficult to understand, I persisted.) [P7]

Being a mother and a student at the same time, it was already a struggle po. Ang ginagawa ko na lang po minsan is gumising nang maaga para makapagbasa ng konti at makagawa ng mga assignments.
(Being a mother and a student at the same time, it was already a struggle. Sometimes, what I do is wake up early to read a bit and complete assignments.) [P8]

This theme highlights the positive attitude of students towards their mathematical education, emphasizing their resilience and determination to overcome obstacles and achieve academic success in the subject. This finding is similar to the study of Andres (2016) citing that actively engaging with mathematical concepts and persistently practicing problems leads to a deeper understanding of the subject matter. By immersing themselves in the material, students can grasp complex ideas more effectively and develop stronger problem-solving skills. Also, a persistent and engaged approach helps students develop resilience in the face of difficulties. They learn to persevere through challenges, seek assistance when needed, and view mistakes as opportunities for learning and growth rather than failures.

Theme 2. Teacher and Student-Peer Consultation

Seeking support and assistance from teachers and peers were among the strategies made by the respondent 5 at times when he is unable to understand well his/her lessons in mathematics.

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Teacher support may be in the form of teacher-consultation specifically about the academic undertaking is indeed, one of the mandates of a teacher in his/her teaching career. This support could be encouragement, tutoring, sharing resources or knowledge that help them understand and apply academic concepts (Andres, 2019).

With this, two participants emphasized the help of their peers and teachers in learning some mathematics concepts as proved by their utterances.

> *Nagtatanong din ako sa mga guro at kasamahan sa klase kapag may hindi ako maintindihan. [P5]*
> *(I also ask teachers and classmates when there's something I don't understand.)*
>
> *I asked help from my peers.* [P9]

According to Zeneli et al. (2016), social and academic support includes both formal support structures within educational institutions, such as tutoring programs and office hours, as well as informal support from classmates, study groups, and online communities. It fosters collaboration, communication, and a sense of belonging, empowering students to overcome obstacles and succeed in their mathematical studies.

Theme 3. Diverse Learning Resource

With the advent of sustainably-advanced technology, most of the students are digital learner. They are akin to read lessons in e-books and watching videos as their source of learning. Also, doing activities in mathematics sourced out from the open source. There seem to be a revolutionary era, from pure print materials to digital learning resources.

In this connection, three participants emphasized the used of digital resources and spiritual belief as adaptive source that help them in learning mathematics.

> *I download e-books and YouTube tutorials po*. [P10]
> *I do some math activities from the internet with solution.* [P3]
> *About my mathematics anxiety I get involve to some religious organization n the school po. [P3]*

Similarly, in the study of Corry et al. (2015), it noted that spiritual beliefs and practices can provide individuals with a sense of comfort, hope, and inner peace, helping them cope with stress and anxiety associated with mathematical difficulties. This emotional support can create a conducive environment for learning, enabling students to approach mathematical challenges with a calmer and more positive mindset. Belief in a higher power or a greater purpose can provide individuals with the strength and determination to persist in their studies, even when faced with setbacks or failures.

Likewise, by engaging with digital tools, the participants benefit from the flexibility, interactivity, and accessibility they offer, enabling them to explore mathematical concepts in dynamic and innovative ways. According to Abana (2021), any digital resources offer immediate feedback on students' progress and performance, allowing for timely correction and reinforcement. Through interactive exercises and quizzes, students receive instant feedback on their answers, helping them identify areas of strength and areas needing improvement (Andres, 2022).

Conclusions

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This study concludes that understanding students' experiences is necessary to address some problems in their journey of learning mathematics. Students who have inadequate prior knowledge leading to weak foundation of mathematics learning tends to find difficulty in learning the subject. Similarly, having access to a variety of learning resources and a conducive learning environment positively contributes to students' performance in learning mathematics.

Recommendations

Based on the findings of the study, several recommendations can be made to enhance students' mathematical learning outcomes:

1. Create individualized learning plans that consider each student's strengths, weaknesses, and preferred learning styles. These plans should incorporate targeted strategies to intensify engagement and persistence, ensuring that students are motivated and committed to mastering mathematical concepts.
2. Strengthen the support network for students by encouraging collaborative learning environments, peer tutoring programs, and mentorship opportunities. Facilitate regular interaction between students, teachers, and family members to provide emotional and academic support.

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