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STRAND MATTERS IN THRIVING: EXPLORING THE LIVED EXPERIENCES OF NON-STEM STUDENTS IN MATHEMATICS PROGRAM

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Abstract:
This study explored the lived experiences of non-STEM students enrolled in the Bachelor of Secondary Education (BSEd) major in mathematics program at a private university in Davao City. With the increasing number of non-STEM graduates entering mathematics education, this research sought to understand how their academic backgrounds shape their challenges, coping mechanisms, and insights throughout the program. Guided by a transcendental phenomenological design, the study gathered data from 14 participants through in-depth interviews and a focus group discussion. Colaizzi's method was used to analyze the data, allowing the researcher to extract significant statements, formulate meanings, and develop themes that reflect the essence of the participants' experiences. Trustworthiness was ensured through credibility checks, member validation, and adherence to ethical principles throughout the research process. The findings revealed three major challenges experienced by non-STEM students: limited or missing background in mathematics, difficulty adjusting to college-level mathematics, and constant comparison with STEM peers. These challenges contributed to feelings of anxiety, inadequacy, and academic pressure. Despite these struggles, participants employed various coping strategies such as self-directed learning, motivation and mindset building, and emotional regulation to persist in the program. Their reflections also highlighted two key insights: the value of self-growth and the importance of bridging learning gaps within the curriculum. Participants described the program as transformative, noting improvements in discipline, perseverance, and confidence.

Keywords: lived experiences, non-STEM students, mathematics program, phenomenology, Davao City

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1. Introduction

The field of teacher education, particularly in mathematics, plays a vital role in shaping future educators who will influence generations of learners. Mathematics is often seen as one of the most challenging disciplines in higher education (Chand *et al.*, 2021). The study of Li and Schoenfeld (2019) highlighted that mathematics education forms a foundational basis, cultivating the critical thinking and analytical abilities vital to success in STEM fields.

In the Philippines, students enter the Bachelor of Secondary Education major in Mathematics (BSEd Math) with different senior high school strands, such as STEM (Science, Technology, Engineering, and Mathematics) and non-STEM tracks. In the study of Banot *et al.* (2025), they revealed that 72.5% of freshmen BSEd Math students are non-STEM graduates. The growing diversity on student's backgrounds provides an opportunity to explore further research. Mathematical skills among college students are influenced by various factors, including their senior high school strands (Santelices *et al.*, 2024). Hence, academic strands affect students' mathematical performance and attitude. Most research has focused on STEM graduates' competencies, readiness, and academic performances in mathematics programs (Cañeda *et al.*, 2024), leaving limited attention to those from non-STEM strands. The dominant focus was on the preparedness and academic confidence of STEM graduates. While quantitative studies have examined the performance of non-STEM students in mathematics programs (Tanquilan & Lomibao, 2025), there is still little exploration of the lived experiences of non-STEM students who are building their identities as future mathematics teachers.

Additionally, the statistical trends on the comparison of STEM and non-STEM graduates were focused (Molina, 2019) rather than the lived experiences behind those trends. This signals a critical research gap on how non-STEM students respond to their challenges in a STEM-related course. This creates a gap in understanding how non-STEM students cope and thrive in a program often assumed to be tailored to STEM graduates. The paucity of this research paves the way for the urgent need to address the gap.

This study explored the lived experiences of non-STEM students enrolled in the BSEd Mathematics program. Using a qualitative approach, the research sought to uncover how students' background shapes their struggles, coping strategies, and ways of thriving in the mathematics program. More than identifying difficulties, the study highlighted resilience, persistence, and motivation as essential factors in succeeding despite the odds. This study contributed to a deeper understanding of equity in teacher education and provided insights that may guide program support and policies for diverse student backgrounds.

2. Literature Review

The transition from senior high school to tertiary education presents challenges in mathematical readiness. Many non-STEM graduates choose to pursue mathematics teaching despite possible gaps in their preparation (Dita & Velasco, 2025). When non-STEM students pursue mathematics at the tertiary level, they often do so without the same foundational coursework or exposure as their STEM peers (Molina, 2019). This disparity can lead to feelings of inadequacy, academic pressure, and even isolation in mathematics classrooms.

Students from science-focused tracks really demonstrate higher confidence and achievement in mathematics. However, non-STEM BSED Math students struggle in higher-level mathematics courses like Calculus (Banot *et al.*, 2025). The study of Capanzana (2021) found that non-STEM graduates encountered learning difficulties such as problem solving. This highlights the need to have prior academic exposure to mathematics courses.

A significant body of literature indicates that non-STEM students often face considerable struggles stemming from a lack of prerequisite mathematical knowledge (Guzman *et al.*, 2022). This difference in foundational preparedness directly impacts their initial performance and academic confidence in university-level mathematics courses (Arambulo & Lim, 2023). The study of Albores and Bacalla (2022) revealed that the transition from strand-specific high school curricula to collegiate mathematics programs presents distinct challenges for students who did not specialize in STEM.

One of the most significant barriers for non-STEM students in mathematics is the prevalence of mathematics anxiety and diminished self-efficacy. Research consistently shows an inverse relationship between mathematics self-efficacy and anxiety, with non-STEM majors often exhibiting higher levels of apprehension toward the subject (Devine *et al.*, 2018; Leppma & Darrah, 2022). This anxiety can manifest as feelings of tension and worry, leading to cognitive avoidance and reduced persistence in challenging mathematical tasks. Further, Luttenberger *et al.* (2018) concluded that negative past experiences and a perception that mathematical ability is innate often contribute to a lowered sense of competence.

The development of a positive mathematical identity is crucial for student thriving. Mathematical identity, defined as an individual's view of themselves in relation to mathematics based on their experiences and perceptions, is a strong predictor of persistence and success (Bishop, 2012; Cribbs *et al.*, 2012). Non-STEM students may struggle to see themselves as math people, which discourages active engagement and contribution in the classroom (Cobb & Hodge, 2011). Creating a supportive and inclusive environment where students' ideas are valued and mathematics is essential for affirming and developing their evolving mathematical self-concept (Gresalfi & Hand, 2020).

3. Material and Methods

3.1 Research Design

This study employed a qualitative approach, specifically using a transcendental phenomenological design, to explore the future lived experiences of students enrolled in a mathematics program. A phenomenological design was deemed appropriate since the aim was to understand the essence of participants' experiences concerning a particular phenomenon (Creswell & Poth, 2018). Through this design, the research provided an in-depth examination of how students experience and manage challenges in their mathematics classes, offering valuable insights into their emotional responses and the anticipated impact on their learning process.

The ontological stance of transcendental phenomenology posits that reality is constructed through individual consciousness and lived experience. Thus, reality is not singular or objective but is instead multiple and perceived uniquely by each person (Creswell & Poth, 2018). From an epistemological standpoint, knowledge is acquired through a first-person account of experience, emphasizing subjectivity and introspection. The researcher aimed to understand participants' experiences without injecting personal interpretations or biases, highlighting the emphasis on bracketing to suspend prior knowledge and focus on participant meanings (Moustakas, 1994).

3.2 Participants

The participants of the study were non-STEM students currently enrolled in the BSEd-Mathematics program of a private university in Davao City. The participants would be at least in their second year of study to ensure they have experienced a range of mathematics subjects and completed at least one academic year in the program. Exclusion criteria would be students who shifted to the program from STEM and students who have not yet completed at least one full academic year in the BSEd-Mathematics program. Purposive sampling was utilized, which allows for the selection of information-rich cases that meet predetermined characteristics (Patton, 2015). Given the phenomenological nature of the study, a sample size of 14 participants is considered sufficient, as recommended by Creswell (2013) and Moustakas (1994), who suggest that smaller, focused samples enable deeper analysis and richer insights into lived experiences.

3.3 Data Collection

To gather relevant data for the study, the researcher adopted a systematic approach. Initially, an interview guide was developed and underwent validation by expert reviewers. Any suggestions and corrections from these experts were carefully reviewed and integrated into the final version of the questionnaire.

Subsequently, the researcher secured the necessary permission and approval from the Dean to conduct both in-depth interviews (IDIs) and focus group discussions (FGDs). Each participant was informed that their interview would be audio recorded. While the questions were presented in English, participants were allowed to seek clarification or ask questions if they felt uncertain. They also had the option to respond in the vernacular to ensure smoother communication and better self-expression.

During the data collection phase, each interview began with an introduction outlining the purpose of the research, confidentiality assurances, and an explanation of participants' rights. Interview sessions lasted approximately 30 to 60 minutes, depending on the participants' availability. These in-depth interviews were conducted face-to-face on the school campus with seven student participants, scheduled during breaks or after their classes. Typically, each interview was completed in a single session and aimed at identifying common themes from the students' lived experiences.

After the individual interviews, a focus group discussion was held with a separate group of seven students to collectively explore their insights. The same set of questions was used for both the interviews and the FGD to ensure consistency and enable comparison, with a specific focus on students' experiences during classroom activities.

3.4 Data Analysis

The data gathered from the IDIs and FGDs undergo a thorough transcription process, initially transcribed in the vernacular and then carefully translated into English to preserve the authenticity and nuances of participants' expressions. Following this, the data will be systematically coded and organized into emerging themes. This analytical process will involve multiple iterative rounds of reading, coding, and thematic refinement to ensure that key ideas are meaningfully explored and accurately represented.

To guide this analysis, the study employed Colaizzi's (1978) descriptive phenomenological method, which offers a structured and rigorous framework for examining the lived experiences of the participants. Each step of Colaizzi's approach will be methodically applied to derive deep insights from the data and to maintain fidelity to the voices of the participants.

Initially, the researcher began by reading and re-reading all transcripts of interviews and FGDs to fully immerse himself in the lived experiences of non-STEM students. This process allowed for a deeper understanding of how these students emotionally, cognitively, and behaviorally respond to the demands of transitioning into a field different from their academic background.

The next step involved extracting significant statements. Key statements that directly reflected the students' experiences as non-STEM learners entering a specialized academic track were identified. These statements were carefully noted as they offered direct insight into the students' inner experiences, expectations, and perceptions of their educational environment. Formulating meanings from significant statements will be the next step. The researcher then interpreted the underlying meanings of these significant statements. This phase moved beyond literal interpretation to uncover the underlying emotions and psychological dimensions that shape the students' experiences. The researcher strived to ensure that each interpretation remains faithful to the participants' intended meaning and lived context.

The fourth step Colaizzi's approach is organization of formulated meanings into themes. The meanings derived from these statements were clustered into overarching themes that represent broader aspects of the students' experiences. These themes served to organize the data meaningfully and to highlight recurring patterns and experiences shared among participants.

The next step of the approach is developing a detailed description. A comprehensive and descriptive narrative was constructed based on the identified themes, aiming to portray a holistic and empathetic understanding of their lived experiences. Insights into their personal adjustments, interactions with peers, and evolving sense of capability were integrated to capture the complexity of their journeys.

Description of the fundamental structure of the phenomenon is the sixth step. From the detailed narrative, a more concise and essential structure of the students' experiences was distilled. This structure captured the core of what it means for non-STEM students to transition into a specialized field. Recognizing that their emotional reassurance, peer connections, and an inclusive academic atmosphere play crucial roles in their persistence, identity development, and overall well-being.

Lastly, the approach ends with the validation of the findings from the participants. To ensure the accuracy and authenticity of the findings, the researcher will return the synthesized results to the original participants for review. This validation process, known as member checking, will allow the students to confirm whether the interpretations genuinely reflect their experiences. If needed, revisions will be made based on their feedback; however, it is anticipated that minimal adjustments will be necessary, as the process will prioritize remaining faithful to their original narratives.

This analytic approach will not only capture the emotional, cognitive, and behavioral dimensions of non-STEM students as they navigate a specialized academic field but will also ensure that their voices remain central to the research process. By grounding the analysis in Colaizzi's framework, the study will maintain a high level of methodological integrity and remain sensitive to the lived experiences that shape their academic journeys.

3.5 Ethical Considerations

Ethical principles will guide every stage of this research, with a strong emphasis on protecting the dignity, autonomy, and well-being of all participants. As Mack *et al.* (2005) highlight, research ethics primarily concern the relationship between researchers and participants, ensuring that this interaction remains respectful, transparent, and just. Special attention will be given to ensure that the rights and welfare of student participants are safeguarded at all times.

All interviews, whether from the IDIs or FGDs, will be transcribed carefully by the researcher, with close attention to avoiding any form of misinterpretation. The transcription and translation processes will be conducted with sensitivity to the participants' voices and contexts to preserve the authenticity of their responses.

To avoid plagiarism, all external ideas and sources referenced in the study will be properly cited, and the entire manuscript will be written with academic integrity. Furthermore, the research will adhere to a thorough informed consent process. Prospective participants will receive an official letter outlining the study's objectives, methods, and potential implications, and their voluntary participation will be confirmed through signed consent forms. This process will ensure that each participant enters the study with full awareness and without coercion.

Ultimately, this research will strive to uphold both the scientific and ethical standards necessary for producing valid, respectful, and impactful findings, placing the participants' voices and rights at the heart of the inquiry.

4. Results and Discussion

4.1 Demographic Profile of the Participants

A total of 14 non-STEM students participated in the study. Tables 1 and 2 show the profiles of those students; seven were selected for IDI and seven for FGD. The tables provide the pseudonyms, sex, age, and year level. Seven of the 14 participants were from the Humanities and Social Sciences (HUMSS) strand, three were from General Academic Strand (GAS), two were from Accountancy and Business Management (ABM), and two were from Technical-Vocational Livelihood (TVL) strand.

Table 1: Demographic Profile of the Participants for IDI

No.	Pseudonyms of the Participants	Sex	Year Level	SHS Strand
1	Jess	M	4	GAS
2	Marlon	M	4	HUMSS
3	Sarah	F	3	HUMSS
4	Princess	F	3	TVL
5	Francine	F	2	HUMSS
6	Thor	M	2	ABM
7	Magnus	M	2	HUMSS

Table 2: Demographic Profile of the Participants for FGD

No.	Pseudonyms of the Participants	Sex	Year Level	SHS Strand
1	Peter	M	4	HUMSS
2	Jay	M	3	GAS
3	Sandy	F	3	HUMSS
4	Sid	M	4	HUMSS
5	Kirk	M	2	GAS
6	Tokyo	M	2	TVL
7	Angeline	F	2	ABM

4.2 Experiences as a Non-STEM in Mathematics Program

The study explored the experiences of non-STEM graduates enrolled in the BSEd-Mathematics program. Participants shared the challenges they faced due to a lack of prior exposure to mathematics. These include limited background in mathematics, difficulty adjusting to college-level topics, and comparison against their STEM peers. The participants described coping mechanisms such as self-directed learning, motivation, and emotional strategies. Their reflections also highlighted insights on personal growth and the need for support to bridge learning gaps.

4.2.1 Challenges Due to Lack of Mathematics Exposure

As emphasized in the interviews and discussions, the experiences of the participants show a mix of challenges being a non-STEM graduate enrolled in the BSED-Mathematics program. This focused on the central theme of challenges due to the lack of mathematics exposure. The descriptive analysis of transcripts revealed three codes which characterized the responses of the participants. These codes are: (1) limited or missing background in mathematics, (2) difficulty adjusting to college-level mathematics, and (3) struggling compared to STEM students.

4.2.1.1 Limited or Missing Background in Mathematics

The participants expressed that entering the BSEd-Mathematics program without a strong foundation in mathematics created significant challenges in their academic journey. Many of them openly described feeling unprepared, overwhelmed, and anxious when facing mathematics lessons that required prior knowledge they never had. Participants shared clear narratives illustrating these struggles:

> *"It is really very difficult because it feels like I started from scratch; I have zero foundational knowledge, as if I was not able to retain my previous learning."* [IDI_3]

> *"I have no background in Mathematics, which is why those of us without a background are really struggling."* [IDI_6]

Because of their lack of background preparation, the participants often felt lost during discussions. Several participants described how their weak foundation affected not only their academic performance but also their mindset toward learning mathematics. As they explained:

> *"Since I do not have a background in Mathematics and I have no foundation, it is very difficult for me to keep my attention on the lessons."* [IDI_4]

> *"My foundation in Mathematics is really not that strong, which is why it is very difficult for me to keep up with the lessons."* [FGD_3]

Their narratives of feeling lost, overwhelmed, and unable to follow classroom discussions support the observations of Guzman *et al.* (2022), who emphasized that inadequate prerequisite mathematical knowledge hinders students' ability to engage successfully in higher-level mathematics courses. Likewise, Arambulo and Lim (2023) found that differences in foundational preparedness reduce students' academic confidence during their transition to university mathematics. The narratives show that limited background in mathematics affects students' ability in understanding lectures and participating learning tasks.

4.2.1.2 Difficulty Adjusting in College-level Mathematics

The participants expressed significant challenges in adjusting to college-level mathematics. Many of them felt overwhelmed by the sudden transition from high school Mathematics to more complex and abstract college topics. They emphasized that the lessons were far more demanding than what they had previously encountered, which made the adjustment process stressful and confusing. Participants narrated:

> *"Although mathematics was already introduced to me before, it was not at a deeper level, which is why I struggled to adjust, especially with age problems and situational problems."* [IDI_2]

> *"When I got to college, I was really shocked; when we reached Calculus 1, that was when I realized that I had never really experienced anything like that before."* [FGD_2]

The participants also narrated how the complexity of the topics made it difficult for them to study independently. College-level mathematics required strong foundational skills and broad knowledge of terminologies. They felt their previous background was not enough to support the demands of the subject. This was seen in their words:

> *"Maybe the challenge is with the terminologies because I don't really have the basics, and in my previous strand, we were not really into Mathematics."* [IDI_4]

> *"I have no background in Mathematics, which is why I really struggled to adjust, especially in Trigonometry and Geometry, because those of us without a background get confused very easily."* [FGD_7]

The responses of the participants reveal that adjusting to college-level mathematics is a complex and demanding experience. Their adjustment difficulties support the findings of Dita and Velasco (2025), who reported that students' senior high school strand influences their readiness for tertiary education. The sudden shift in the level of difficulty, the need for strong foundational knowledge, and the lack of understanding of terminologies contributed greatly to their struggles.

4.2.1.3 Struggling Compared to STEM Students

The participants shared that they experienced challenges due to a limited background in mathematics prior to entering the program. Compared to their STEM classmates, they felt that they were lagging, especially in the advanced knowledge their classmates have. This can be seen in the responses of the participants. They narrated:

"It is very difficult, especially in Algebra; the STEM graduates understand it right away, but we HUMSS graduates struggle and find it very hard to understand because it was never part of our background." [FGD_1]

"The STEM graduates understand right away, but we really struggle." [IDI_7]

The participants felt frustrated and overwhelmed as they tried to keep up with the lessons and activities. They acknowledged that there is an assumption to the idea that they already know the basic knowledge. The following responses illustrate this struggle:

"*Our teacher would say that we already know this because it was supposedly in our senior high, but that was only for the STEM students*." [IDI_5]

"*Our teacher assumes that all of us already know it because we are taking mathematics, so they think our senior high strand was also focused on mathematics*." [FGD_5]

The responses highlight that non-STEM students face significant challenges in mathematics due to their pace of learning and comparison with peers. The study of Molina (2019) found that STEM graduates generally demonstrate stronger preparation in Calculus than their non-STEM counterparts. These challenges affect the confidence and motivation of non-STEM students in a mathematics course.

4.2.2 Coping Mechanisms as Non-STEM Students

The experiences of the participants reveal that non-STEM students employed various coping mechanisms to address the academic challenges they encountered. The descriptive analysis of transcripts identified three main codes that capture the strategies used by the participants to navigate their mathematics learning journey: (1) self-directed learning and study practices, (2) using motivation and mindset, and (3) stress relief and emotional coping.

4.2.2.1 Self-directed Learning and Study Practices

The participants emphasized the importance of taking initiative in their learning process to cope with their lack of prior mathematics knowledge. They described strategies such as practicing problems independently and seeking additional resources to reinforce their understanding. The participants shared:

"I practice mathematics at home using a whiteboard, I search for problems, and I also watch YouTube videos." [IDI_5]

"*I watch YouTube videos, and then my friends and I do Google Meet sessions to practice solving problems*." [IDI_1]

In addition, the participants highlighted the value of taking structured notes during lectures and while studying independently. Having access to adequate learning resources such as PowerPoint presentations (PPT), textbooks, and online materials was seen as essential in supporting their self-directed study. They stated that:

> *"I overcome those problems by relying on my study habits; I review and take notes from the PPT so that I have a better study basis."* [FGD_2]

> *"I also take notes, but not from the PPT; I take notes while the teacher is discussing so that I can broaden their explanation on the specific topic."* [FGD_3]

These narratives illustrate that self-directed study practices allowed participants to supplement what they missed from their high school education. The participants highlighted that persistent practice and independent problem-solving enhanced their confidence in coping with the demands of the program.

4.2.2.2 Using Motivation and Mindset

Participants reported that maintaining a positive mindset and intrinsic motivation was crucial in helping them persist through difficulties. Despite feeling overwhelmed towards their STEM peers, they focused on setting goals and reminding themselves of the importance of perseverance. The participants said:

> *"To be honest, I really hate studying, but when I feel that I'm at risk, that becomes my motivation to study so that I can pass."* [IDI_4]

> *"I don't really want to pressure myself, but after that, I study; I use this as motivation to pass the next exam."* [IDI_6]

> *"I just prioritize thinking: 'Failure is a part of success.'"* [FGD_6]

The participants' responses highlight that motivation and mindset support non-STEM students in confronting academic pressures. Their experiences resonate with Bishop (2012), who emphasized that positive mathematical identity contributes to persistence despite challenges. Likewise, the participants' determination supports the study of Cribbs *et al.* (2012), who found that students with stronger mathematics identity are more likely to remain engaged in mathematics-related programs.

4.2.2.3 Stress Relief and Emotional Coping

Non-STEM students also engaged in strategies to manage stress and maintain emotional well-being. Participants mentioned activities such as taking breaks, talking to friends or mentors, and practicing mindfulness to reduce anxiety related to learning mathematics. They shared:

> *"I just go out, and then I move on right away because there's nothing else, I can do."* [FGD_4]

> *"I go to my friend, we hang out and eat, and that's where I can express my feelings; sometimes I even cry in front of them."* [IDI_7]

> *"After we finish an exam, we eat. For the next exam, that's where I make up for it."* [FGD_7]

These coping strategies reflect the participants' awareness of the link between emotional health and academic performance. Luttenberger et al. (2018) emphasized that supportive learning environments lessen anxiety and encourage persistence in mathematics. With this, positive environment serves as essential mechanisms to sustain focus, energy, and engagement in challenging courses.

Overall, the findings demonstrate that non-STEM students adopt a combination of self-directed learning, motivational strategies, and emotional coping mechanisms to manage the difficulties they face in mathematics. These strategies not only enhance their academic performance but also support their confidence, perseverance, and well-being throughout their journey in the BSEd-Mathematics program.

4.2.3 Insights on the Mathematics Program

The participants shared meaningful insights regarding their journey in the BSEd-Mathematics program. Their reflections highlight the personal and academic aspects of studying mathematics as non-STEM graduates. The descriptive analysis of the transcripts revealed two core insights that shaped their experiences throughout the program: (1) value of self-growth and (2) importance of bridging the gap. These insights illustrate how students understood the demands of the program, recognized their learning needs, and developed perspectives that guide their academic motivation and performance.

4.2.3.1 Value of Self-Growth

The participants emphasized that one of the most meaningful insights they gained is the realization of personal growth. They shared that the challenges they encountered eventually pushed them to improve their study habits, discipline, and mindset. Participants described how the program taught them perseverance, responsibility, and a stronger sense of commitment to learning. As they expressed:

> *"I am very satisfied with my program. I can't say I'm unsatisfied because of my grades, but I'm satisfied because I passed. I'm also satisfied with what happened and with my experiences."* [IDI_2]

> *"Even if I fail, I still want to try again, because it might work out and have a good outcome. I have also noticed some improvement."* [IDI_3]

Participants saw their struggles as opportunities to transform themselves into more resilient and dedicated students. Despite being non-STEM graduates, they recognized that their experiences helped them grow not only in mathematics competence but also in character. They narrated:

> *"I am really happy because I reached this year level despite having low grades."* [FGD_4]

> *"What you really need is determination, because if you're weak-willed, you really won't survive."* [IDI_5]

> *"I started from scratch. Now, I would say that I really have knowledge."* [IDI_3]

These statements show that the participants gained self-insight through their academic difficulties. Many of them expressed that the program shaped their discipline and determination. Their reflections suggest personal growth as they build their resilience and self-efficacy.

4.2.3.2 Importance of Bridging the Gap

Another insight shared by the participants is the significance of addressing the learning gap for non-STEM students. They recognized that the differences in background knowledge greatly affected their performance and overall experience in the program. There is a need for additional support systems and interventions that can help them transition more smoothly into mathematics education. They mentioned:

> *"A little bit of refresher for the non-STEM student would be better, maybe 30 minutes to one hour per week."* [FGD_3]

> *"Give non-STEM students time to review the basics, at least for one month."* [FGD_6]

> *"I think it's important to have coaching for students whose foundation in mathematics is not very strong."* [IDI_1]

Participants expressed that understanding the gap made them more aware of the importance of preparation. In addition, they also emphasized that teachers play a crucial role in this process by providing guidance. The idea of creating structured learning environments helps clarify difficult concepts. The participants stated:

> *"Teach slowly and gradually, and don't overburden the students. It's important to consider their learning pace."* [FGD_1]

> *"It would be better if there's a clear structure; for example, having board work every Friday."* [IDI_5]

"Give us some room to breathe. At most, maybe just one worksheet per week." [FGD_5]

These insights reveal that the participants not only acknowledged their challenges but also understood the structural needs of the program. These recommendations strongly support Santelices *et al*. (2024), who advocated enhancement programs to strengthen students' foundational mathematical competencies. Similarly, Dita and Velasco (2025) recommended institutional policies that consider students' academic backgrounds during admission and transition. The reflections of non-STEM students highlight how teachers' guidance can make the learning process more equitable and supportive for them.

The non-STEM students experienced significant challenges in learning mathematics. Their limited background made understanding complex topics and keeping pace with peers difficult. Participants adopted strategies like independent practice, maintaining motivation, and managing stress to overcome these difficulties. They recognized the importance of personal growth and resilience throughout the program. The findings emphasize the need for teacher support and structured interventions to help non-STEM students succeed in mathematics.

5. Recommendations

With the results presented in this study, the following recommendations for schools, teachers, students, and future researchers are proposed. The school should offer bridging programs or refresher courses for non-STEM students to strengthen their basic mathematics skills. Structured support such as tutoring, peer mentoring, and accessible learning resources can help students adjust to college-level mathematics, while wellness programs can address stress and emotional challenges.

Teachers should pace lessons according to students' learning needs, review foundational concepts, and provide guided practice through problem-solving and collaborative activities. Clear instructions, constructive feedback, and encouragement can boost students' confidence and motivation.

Students are encouraged to practice self-directed learning using online resources, textbooks, and peer study groups while maintaining a positive mindset. They should manage their time effectively, seek help when needed, and use coping strategies like breaks or social support to reduce stress.

Future researchers can explore non-STEM students' experiences in other schools or regions and conduct longitudinal studies to track their adaptation and growth. Intervention studies and mixed-methods research can also identify effective strategies and the role of motivation and mindset in academic success.

6. Conclusion

Non-STEM students in the BSEd-Mathematics program face big challenges because they lack a strong mathematics background. This lack makes many feel unprepared for college-level mathematics. Still, they show a sincere desire to learn and adjust. Their difficulties highlight that preparedness differs across senior high school strands. This calls for tailored support for non-STEM entrants.

The transition from high school to college mathematics is often overwhelming for non-STEM students. Advanced subjects like Trigonometry, Calculus, and Geometry feel especially difficult. Many feel they lag behind their STEM classmates. This causes stress, self-doubt, and pressure. It shows the need to recognize varied mathematics readiness in entrants.

Despite those challenges, many students cope through their own efforts. They study on their own, practice problems repeatedly, and use resources like notes, peers, or online videos. Motivation and a positive mindset help them keep going. They also use emotional coping like breaks or talking with friends. These behaviors show their resilience and determination.

Participants value the personal growth they gained from the experience. The struggle helped them build discipline, responsibility, and perseverance. Some felt proud of their improvement despite earlier failures or low grades. Their journey built their confidence and character, not just mathematics skills. This shows academic challenge can lead to self-transformation.

The study also points to the need for intentional support in the program. The gap between STEM and non-STEM students affects learning, engagement, and outcomes. Teachers can help by adjusting lessons, clarifying basic concepts, and offering support. Without such support, non-STEM students risk falling behind. Equity requires responsive teaching and program changes.

Generally, non-STEM students' experiences in BSEd-Mathematics are shaped by struggle, coping, and growth. Their stories show that background doesn't always determine success. Their resilience proves they can thrive given opportunity and support. The findings urge institutions to offer better support to all students. A more inclusive mathematics-education program benefit everyone.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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