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Examining the Drivers and Barriers to Grade 10 Students' Interest in Learning Mathematics

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Index Terms:

classroom environment, interest in math, self-confidence, sense of value, spiral progression approach

Abstract. This study examined the drivers and barriers to Grade 10 students' interest in learning Mathematics. It employed a cross-sectional, descriptive, correlational, predictive, and comparative research design. A total of 260 students from secondary schools in Sibulan Districts 1 and 2, Schools Division of Negros Oriental, were selected as respondents through systematic sampling. Data were collected using a validated questionnaire and were analyzed using mean, Spearman's rho, Multiple Linear Regression, and the Mann-Whitney U test. The findings revealed that students generally had moderate levels of self-confidence, language proficiency, classroom environment, prior experiences in Mathematics, spiral progression exposure, and parental support, while teachers' instructional practices and personality were rated high. Although students had moderate perceptions of Mathematics' value, they showed a high recognition of its importance in real-life applications. Generally, students' interest in Mathematics was at a moderate level, with lower engagement observed in terms of enjoyment and participation in additional learning activities. Correlation analysis showed that self-confidence, sense of value in real life, teachers' instruction, teachers' personality, language proficiency, prior negative experience in Mathematics, classroom environment, spiral progression approach, and parental support were significantly related to students' interest in Mathematics ($p < .05$). However, regression analysis revealed that only self-confidence, perceived real-life value of Mathematics, classroom environment, and spiral progression approach significantly predicted students' interest, all with positive effects. On the other hand, teachers' instruction, teachers' personality, language proficiency, prior negative experience in Mathematics, and parental support were found to be non-significant predictors ($p > .05$). Furthermore, the Mann-Whitney U test indicated no significant differences in students' perceptions of the influencing factors when grouped according to sex.

Introduction

Research consistently highlights several factors contributing to students' declining interest in mathematics across various educational contexts. Among the most influential is the quality of teacher instruction, particularly teachers' self-efficacy and their ability to foster student-centered learning environments (Perera & John, 2020; Wang et al., 2024). Although active learning strategies and the integration of technology have been shown to simplify complex concepts and enhance student engagement (Attard & Holmes, 2020), many learners continue to struggle. In particular, difficulties with abstract concepts and complex problem-solving often lead to frustration and eventual disengagement (Pongsakdi et al., 2020). Moreover, Schwartz et al. (2025) reported that nearly half of middle and high school students lose interest in mathematics during lessons, especially when instruction lacks real-world relevance or sufficient support for struggling learners. These global trends emphasize the persistent challenge of sustaining students' interest in mathematics despite pedagogical advancements.

In the Philippine educational context, similar issues are evident, further intensifying students' declining interest in mathematics. Teacher personality and classroom climate have been found to significantly influence students' motivation and participation (Guinocor et al., 2020). In addition, many learners demonstrate ineffective study habits, which contribute to poor retention and lower academic performance (Barcenas & Bibon, 2022). The abstract nature of mathematics also remains a major barrier; without meaningful contextualization, students often fail to recognize its relevance to real-life situations, leading to disengagement (Ablian & Parangat, 2022). In response, Serin (2023) emphasizes the importance of connecting mathematical concepts to practical applications to enhance both understanding and interest. Furthermore, emotional factors such as math anxiety and negative prior experiences contribute to a cycle of avoidance, where students gradually lose interest and retention declines (Bacud & Futalan, 2024). These local challenges reflect the need for more context-sensitive approaches to mathematics instruction.

Despite the growing body of literature on factors affecting students' interest in mathematics, most studies tend to examine variables in isolation, such as teacher instruction (Klusmann et al., 2021), classroom environment (Caballero García et al., 2025), or parental involvement (Lee et al., 2025). Consequently, there remains a significant gap in understanding how these factors interact and collectively influence students' interest or disinterest, particularly within the Philippine setting. To address this gap, the present study investigates a comprehensive set of variables, including teacher personality, the spiral progression approach in the K–12 curriculum, language proficiency, prior negative experiences, parental support, and classroom environment. By adopting an integrated perspective, this research moves beyond fragmented analyses and seeks to provide a more holistic understanding of the multiple influences shaping students' mathematical interest. This approach enables a deeper examination of how school-related, personal, and home-based factors converge to affect learner motivation.

The conduct of this study is justified by its potential to inform evidence-based teaching practices and educational improvements in the Philippines. Identifying the factors that influence students' interest in mathematics would enable educators to design more inclusive and engaging learning environments. This study aligns with Sustainable Development Goal 4 (SDG 4): Quality Education, particularly Target 4.1 (quality learning outcomes), Target 4.5 (reducing educational disparities), and Target 4.c (improving teacher quality). Ultimately, it supports the development of mathematically literate learners equipped with critical thinking skills for lifelong learning.

Statement of the Problem

This study aimed to examine what drives or diminishes student interest in Mathematics. Specifically, it sought to answer the following questions:

1. To what extent do students perceive the following factors that may affect their interest in learning Mathematics:
    - 1.1 self-confidence;
    - 1.2 sense of value in real life;
    - 1.3 teachers' instruction;
    - 1.4 teachers' personality;
    - 1.5 language proficiency;
    - 1.6 prior negative experience in Mathematics;
    - 1.7 classroom environment;
    - 1.8 spiral progression approach; and
    - 1.9 parental support?
2. What is the extent of students' interest in learning Mathematics?
3. Is there a significant relationship between the students' perceptions of the enumerated factors and the extent of their interest in learning Mathematics?
4. Which among the identified factors (self-confidence, sense of value in real life, teachers' instruction, teachers' personality, language proficiency, prior negative experience in Mathematics, classroom environment, spiral progression approach, and parental support) significantly predict students' interest in learning Mathematics?
5. Is there a significant difference in the students' perceptions of the factors that may affect their interest in learning Mathematics when they are grouped according to their sex?

Methodology

Research Design

The study employed a cross-sectional, descriptive, predictive correlational, and comparative research design. It is considered cross-sectional because data were collected at a single point in time, providing a snapshot of students' perceptions and interest in Mathematics during the School Year 2025–2026. It is also descriptive in nature as it aims to (a) describe students' perceptions of various factors, such as self-confidence, perceived real-life value, quality of teachers' instruction, teachers' personality, language proficiency, prior negative experiences with Mathematics, classroom environment, the spiral progression approach, and parental support; and (b) determine the extent of students' interest in learning Mathematics.

The study is also predictive correlational, as it sought to examine the extent to which the identified primary (independent) variables could predict students' interest in Mathematics. Multiple regression analysis was used to determine whether and how these factors drive or diminish students' interest in the subject. Lastly, the research adopted a comparative design, as it involved comparing the perceptions of male and female students regarding the aforementioned factors to explore potential differences based on sex.

Research environment

This study was conducted in randomly selected public secondary schools within Sibulan Districts 1 and 2, under the Schools Division of Negros Oriental, focusing specifically on Grade 10 students during SY 2025–2026. The participating schools reflect a diverse educational setting, ranging from coastal and agricultural communities to semi-urban centers, providing a comprehensive environment for exploring factors that influence students' interest in mathematics. The inclusion of these schools ensured that the study captured a broad spectrum of student experiences and educational conditions. The researchers were particularly interested in understanding the environmental, instructional, and personal factors that influence students' interest in mathematics across these varied school settings.

Research respondents

The respondents of this study are the Grade 10 regular and Special Science Program (SSP) students from the secondary schools of Sibulan Districts 1 and 2, Schools Division of Negros Oriental, SY 2025–2026. Using Yamane's formula, a sample of 260 students was selected from the total population of 641. The samples were chosen through systematic sampling, in which every second student on the list was selected. This process was conducted with the assistance of their respective teachers.

Research instruments

The study utilized a validated questionnaire consisting of four parts. Part I presents the disclosure statement, where the students give consent to the researchers to gather data/information, provided that the confidentiality of the data is observed. It also contains the purpose of the study. Part II asks for the demographic profile of the respondents. Part III describes the factors that may influence the students' interest in learning Mathematics, and Part IV covers the extent of students' interest in learning math.

The instrument was subjected to content validation by experts in mathematics education and educational research to ensure relevance, clarity, and appropriateness of the items. Feedback and recommendations were incorporated before the instrument was finalized and pilot-tested.

To test the internal consistency of the items, a pilot test was conducted among a group of 30 junior high school students who were not included in the actual study. The responses were analyzed using Cronbach's Alpha Test. The results revealed the following coefficients: 0.77 (self-confidence); 0.80 (sense of value of Math); 0.84 (teachers' instruction); 0.90 (teachers' personality); 0.72 (language proficiency); 0.74 (prior negative experience in Math); 0.70 (classroom environment); 0.71 (spiral progression approach); 0.83 (parental support); and 0.88 (interest in learning Math). These values indicate that all items are reliable.

Ethical considerations

In order to uphold the principles of sound research, it is essential to consider ethical considerations. Thus, for this study, ethical clearance was sought from Foundation University and the Department of Education (DepEd), Division of Negros Oriental, which allowed the study to be conducted in the target schools. Before their inclusion in the study, the respondents were fully informed about the purpose and terms of the study, and their informed consent through the disclosure statement was obtained. It was emphasized that the respondents have the right to withdraw from the study at any time without facing coercion or intimidation. Strict confidentiality measures were also implemented to ensure the privacy of shared information. Furthermore, the study prioritized minimizing potential risks to the respondents.

Moreover, the researchers adhered to the ethical protocols established by the Ethics Committee of Foundation University and diligently followed the necessary procedures. Consultation was conducted to ensure that the research topic is sound, significant, and ethically appropriate. Throughout the process, the researchers maintained a non-judgmental attitude to avoid any form of censure.

Additionally, the researchers used artificial intelligence (AI) tools to support the development, organization, and refinement of this study. Consensus AI was first used to identify and verify relevant peer-reviewed literature, which ensures that the study is grounded in credible and research-based sources. NotebookLM was then employed to synthesize and organize the collected research materials. This facilitates a more coherent structuring of ideas and references. Finally, OpenAI's ChatGPT was used to refine the manuscript's language, improving clarity, coherence, and readability.

Although these tools assisted in streamlining the research and writing process, all outputs were carefully reviewed, interpreted, and edited by the researchers to guarantee accuracy, originality, and academic integrity. The researchers remain fully responsible for the final content of the study.

Research procedure

A formal letter of request to conduct the study was sent to the Schools Division Superintendent of the Division of Negros Oriental through the Public Schools District Supervisor upon the endorsement of the dean of the graduate school of Foundation University. The signed and approved request was presented to the school principals and respective advisers of the students. With the permission of the school heads and the respondents, the distribution of questionnaires was scheduled so that the researchers had the chance to observe and personally provide them to the respondents. During the distribution process, the researchers clarified to the students the purpose and significance of the research. The collection of the questionnaires occurred immediately after the students had completed their responses. The data were then compiled using MS Excel, analyzed with JAMOVI software, and interpreted.

Statistical Treatment of the Data

The data were analyzed using both descriptive and inferential statistical tools. The mean was used to determine the extent of students' perceptions of the factors that may affect their interest in learning mathematics. Spearman's Rank-Order Correlation was employed to determine the relationship between students' interest and the following variables: self-confidence, sense of value in real life, teachers' instruction, teachers' personality, language proficiency, prior negative experience in Mathematics, classroom environment, spiral progression approach, and parental support. Furthermore, Multiple regression analysis was conducted to determine the relationship between one continuous outcome (students' interest) and several predictors (self-confidence, sense of value in real life, teachers' instruction, teachers' personality, language proficiency, prior negative experience in Mathematics, classroom environment, spiral progression approach, and parental support).

Prior to conducting Multiple Linear Regression Analysis, key assumptions were examined. The variables were treated as continuous, and independence of observations was ensured. The Durbin–Watson statistic (1.91, $p = 0.474$) confirmed the absence of autocorrelation. Multicollinearity was not a concern, as VIF values (1.3521–2.1896) and tolerance values (0.45671–0.73958) were within acceptable limits. Although the Shapiro–Wilk test indicated non-normality ($p < .001$), the Q–Q plot showed approximate normal distribution of residuals. The residuals versus fitted plot supported the assumptions of linearity and homoscedasticity, showing random scatter and relatively constant variance. Finally, Cook's distance values (1.7244e-6 to 0.14589) indicated no influential outliers, confirming that all regression assumptions were adequately met. The detailed presentation of the assumption checks is further attached as Appendix G.

The following scales were also used to describe the extent of students' perceptions of the different factors that may enhance or diminish their interest in learning Math.

Interval	Verbal Description (VD)	Extent of Perception (EoP)/Extent of Interest (EoI)
4.21-5.00	Strongly Agree (SA)	Very High (VH)
3.41-4.20	Agree (A)	High (H)
2.61-3.40	Moderately Agree (MA)	Moderate (M)
1.81-2.60	Disagree (D)	Low (L)
1.00-1.80	Strongly Disagree (SD)	Very Low (VL)

Results and Discussion

This chapter provides information about the data gathered from the responses of Grade 10 students. The results are presented in tabular and textual forms.

Indicators	$\bar{x}$	VD	EoP	SD
I feel proud when I get high scores in math.	3.92	A	H	0.96
I believe I can do well in math if I work hard.	3.58	A	H	0.77
I feel confident when solving math problems on my own.	2.88	MA	M	0.95
I feel confident asking questions during math class.	2.71	MA	M	0.97
I feel prepared when taking math tests.	2.55	D	L	0.82
I enjoy answering math problems even if they are difficult.	2.54	D	L	1.00
I usually understand math lessons without much difficulty.	2.50	D	L	0.76
I find math easy to understand.	2.48	D	L	0.93
I am not afraid to make mistakes in math class.	2.45	D	L	1.18
I am confident when faced with challenging math questions.	2.36	D	L	0.82
Composite	**2.80**	**MA**	**M**	**0.92**

Table 1. Students' Perception of Their Self-Confidence in Learning Mathematics

Table 1 presents the students' perception of their self-confidence in learning Mathematics. The composite mean of 2.80 indicates that students possess a fair but not strong level of self-confidence in mathematics. This demonstrates that while students manifest some degree of belief in their abilities, their confidence is not yet fully developed or consistent, or is still evolving rather than firmly established.

Examining the specific indicators with a high extent of perception, students reported feeling proud of high scores ($\bar{x}$ = 3.92) and believing they can succeed through effort ($\bar{x}$ = 3.58). These results highlight a positive yet conditional form of confidence, where students associate success with performance outcomes and effort. This aligns with Hill and Seah (2022), who emphasized that self-efficacy enhances students' motivation, engagement, and persistence in mathematics. Moreover, the belief that effort leads to success reflects a growth-oriented mindset consistent with self-efficacy principles. However, this confidence appears to be externally anchored, meaning that students feel confident primarily when they achieve success rather than maintaining a stable sense of internal confidence.

For the moderate extent of perception, indicators such as independent problem-solving ($\bar{x}$ = 2.88) and asking questions ($\bar{x}$ = 2.71) connote that students demonstrate inconsistent confidence in active engagement. While they are somewhat willing to participate, hesitation and uncertainty remain evident. This aligns with Hill and Seah (2022), who found that self-efficacy is strongly associated with better performance, reduced anxiety, and increased enjoyment, all of which sustain motivation and persistence in mathematics. The findings imply that students are not yet fully comfortable engaging in mathematical discourse or independent reasoning, which may limit deeper learning.

More concerning are the indicators with low extent of perception, such as test preparedness and enjoyment of difficult problems, along with understanding lessons easily, perceiving math as easy, fearlessness in making mistakes, and confidence in challenging questions ($\bar{x}$ = 2.45 to 2.55). These results signify that students struggle not only with comprehension but also with emotional and behavioral aspects of learning mathematics. The low ratings in test preparedness and enjoyment of difficult tasks suggest that students may feel unready and overwhelmed, leading to avoidance of challenging situations.

This pattern supports the findings of Schwartz et al. (2025), who reported that students tend to disengage when lessons become difficult or when they lack sufficient support. The reluctance to embrace challenging problems and the fear of making mistakes further reflect a fixed mindset and anxiety toward mathematics, which, according to Hill and Seah (2022), negatively impacts both performance and interest.

The above results broadly reveal that although students demonstrate some belief in effort and achievement, their confidence significantly declines in situations requiring deeper engagement, persistence, and risk-taking. This emphasizes the need for teaching strategies that build resilience, normalize mistakes, and gradually develop students' confidence in handling complex mathematical tasks.

Indicators	$\bar{x}$	VD	EoP	SD
I consider Math needed in many jobs.	3.68	A	H	0.96
I believe math is useful in my daily life.	3.59	A	H	0.98
I see the importance of math in my future career.	3.55	A	H	0.99
I find Math helpful in making better decisions, such as in budgeting, shopping, etc.	3.52	A	H	1.10
I believe that Math is important in Science and Technology.	3.52	A	H	1.03
I understand how math connects to real-life situations.	3.42	A	H	0.95
I find Math helpful in solving real-world problems.	3.33	MA	M	1.02

I feel motivated to learn math because of its practical use.	3.21	MA	M	0.91
I use math in activities outside of school.	3.12	MA	M	0.98
I feel more capable in life because of Math.	2.76	MA	M	0.88
Composite	**3.37**	**MA**	**M**	**0.98**

Table 2. Students' Perception of Their Sense of Value of Mathematics in Real Life

Table 2 presents the students' perception of the value of Mathematics in real life, focusing on how they recognize its usefulness in daily activities, future careers, and practical decision-making. The composite mean of 3.37 indicates that students generally acknowledge the importance of mathematics, but this recognition is not yet strong enough to consistently motivate engagement or application.

Analyzing the specific indicators with a high extent of perception, students recognized math as essential in jobs, daily life, future careers, decision-making, science and technology, and real-life connections ($\bar{x}$ = 3.42 to 3.68). These findings depict that students have a strong cognitive awareness of the utility of mathematics. They understand that math plays a crucial role in practical and professional contexts. This notion supports the claims of Magallon (2025) that students are more likely to value mathematics when they perceive its usefulness. Similarly, Hill and Seah (2022) found that students show higher motivation when they recognize math as relevant and applicable to real-life situations.

However, despite this high recognition, the results point out that such understanding remains largely theoretical rather than experiential. Edu et al. (2025) argued that recognizing usefulness alone does not guarantee meaningful engagement unless lessons are grounded in personal relevance. This implies that while students conceptually agree that math is important, they may not be actively experiencing or applying it in authentic contexts, limiting the development of deeper interest.

For the moderate extent of perception, indicators such as solving real-world problems, motivation due to practical use, using math outside school, and feeling capable in life reveal a more nuanced picture ($\bar{x}$ = 2.76 to 3.33). These findings disclose that students do not consistently translate their understanding of math's value into action or personal empowerment. While they acknowledge its importance, their motivation and actual use remain only moderate. This aligns with Manlimos et al. (2022), who posited that students may recognize math's practicality but still hesitate to engage due to emotional detachment or prior experiences. Similarly, Shin et al. (2025) asserted that high psychological costs, such as effort and stress, can reduce students' willingness to apply mathematics despite recognizing its value.

The slightly lower rating on feeling capable in life because of math further implicates that students do not strongly associate mathematical knowledge with personal competence or life success. This supports the findings of Edu et al. (2025) that without meaningful and personalized applications, students fail to develop a deeper sense of connection with mathematics. Notably, there are no indicators under a low extent of perception, which signifies that students do not outright reject the value of mathematics. Instead, their perceptions remain generally positive but not fully internalized.

The above findings generally suggest that students possess a clear awareness of the importance of mathematics, particularly in academic and career contexts. However, this awareness is not sufficiently translated into motivation, real-life application, or a sense of personal capability. This stresses the need for instructional approaches that bridge the gap between knowing and doing, such as integrating authentic tasks, real-world problem-solving, and contextualized learning experiences that allow students to actively experience the value of mathematics in their daily lives.

My teacher…	$\bar{x}$	VD	EoP	SD
allows us to ask questions freely.	3.93	A	H	0.94
uses examples to help me understand math better.	3.91	A	H	0.73
checks if we understand the topic before moving on.	3.78	A	H	0.82
explains mistakes so we can learn from them.	3.77	A	H	0.89
gives us enough exercises for us to practice.	3.70	A	H	0.89
relates lessons to our real-life experiences.	3.66	A	H	0.98
uses teaching strategies that help me learn.	3.65	A	H	0.91
encourages us to participate in solving problems.	3.63	A	H	1.08
explains math lessons clearly.	3.53	A	H	1.00
uses visual aids or technology to teach math.	3.36	MA	M	0.99
Composite	**3.69**	**A**	**H**	**0.92**

Table 3. Students' Perception of Their Teachers' Instruction in Mathematics

Table 3 presents the students' perception of their teachers' instruction in Mathematics. The composite mean of 3.69 indicates that students generally perceive their teachers' instruction as effective, supportive, and conducive to learning. It appears that instructional practices in mathematics are positively received and may contribute to a favorable learning environment.

Focusing on the specific indicators with a high extent of perception, students gave high ratings of their teachers' practices in allowing questions, using examples, checking understanding, and explaining mistakes ($\bar{x}$ = 3.77 to 3.93). They also offered high ratings for providing exercises, relating lessons to real life, using helpful strategies, encouraging participation, and giving clear explanations ($\bar{x}$ = 3.53 to 3.70). These findings indicate that teachers are perceived as student-centered, responsive, and supportive in their instruction.

Such results align with the literature emphasizing the importance of supportive and interactive teaching practices. Wang et al. (2024) claimed that both emotional and cognitive teacher support reduce math anxiety and promote persistence. The high ratings in relating lessons to real life further support Attard and Holmes (2020), who argued that contextualized instruction increases students' interest and understanding.

Moreover, the positive perception of teachers explaining mistakes and checking understanding reflects effective formative assessment practices, which are essential in guiding students' learning. This is consistent with Guinocor et al. (2020), who highlighted that teacher factors, including instructional approach and classroom support, significantly influence student motivation and participation. These findings reflect that teachers are successfully implementing strategies that promote understanding, participation, and confidence among learners.

However, one indicator falls under the moderate extent of perception, which is the use of visual aids or technology ($\bar{x}$ = 3.36). This denotes that while teachers are generally effective in traditional and interactive instructional methods, the integration of technology and visual tools is not as strongly emphasized or consistently experienced by students. This finding supports existing literature. Attard and Holmes (2022) posited that technology-enhanced instruction can significantly improve engagement and conceptual understanding, especially when simplifying complex mathematical ideas. The moderate rating in this area may indicate limited access, insufficient training, or inconsistent use of digital tools, which prevents students from fully benefiting from technology-supported learning.

Interestingly, there are no indicators under a low extent of perception. In other words, students do not perceive major weaknesses in their teachers' instructional practices. Instead, the results reflect a consistently positive instructional environment, with only minor areas for enhancement.

Synthesizing the above discussions, the results indicate that teachers are effectively implementing student-centered and supportive instructional practices, which are crucial in fostering engagement and understanding in mathematics. However, there is a need to strengthen the integration of technology and visual aids to further enrich instruction and align with modern, interactive approaches to math education.

My teacher…	$\bar{x}$	VD	EoP	SD
motivates us to do better.	4.08	A	H	0.78
possesses an approachable and friendly attitude.	3.95	A	H	0.88
respects all students equally.	3.93	A	H	1.01
listens to students' concerns about the subject.	3.80	A	H	0.91
shows a positive attitude towards students.	3.80	A	H	0.86
makes the class lively and interesting.	3.77	A	H	0.96
teaches math enthusiastically.	3.71	A	H	0.85
shows patience while explaining the lessons.	3.70	A	H	0.96
gives grades and feedback fairly	3.58	A	H	0.94
boosts my confidence in learning math.	3.52	A	H	0.95
Composite	3.79	A	H	0.91

Table 4. Students' Perception of Their Teachers' Personality

Table 4 presents the students' perception of their teachers' personality, focusing on interpersonal traits. The composite mean of 3.79 specifies that students generally view their teachers as possessing positive and supportive personality traits. This also signifies that teachers are not only delivering instruction effectively but are also creating a welcoming and emotionally supportive classroom environment, which is essential for fostering student motivation and engagement.

Moreover, all indicators fall under a high extent of perception. This finding highlights consistent positive perceptions across different personality traits. The highest ratings are observed in motivating students, approachability, and respect for all students ($\bar{x}$ = 3.93 to 4.08). These results point out that teachers are perceived as encouraging, inclusive, and accessible, which are key qualities in promoting a positive learning atmosphere. Correspondingly, Wang et al. (2024) found that teachers with strong emotional intelligence and supportive behaviors help reduce math anxiety and enhance student motivation. Similarly, Klusmann et al. (2021) emphasized that teacher enthusiasm and positive affectivity significantly increase student engagement.

Other highly rated indicators include listening to concerns, positive attitude, making class interesting, enthusiasm in teaching, and patience in explaining ($\bar{x}$ = 3.70 to 3.80). These findings disclose that teachers are perceived as empathetic, engaging, and responsive to students' needs. Such traits contribute to a classroom environment where students feel valued and supported. Guinocor et al. (2020) highlighted that teacher personality and classroom climate significantly influence students' motivation and participation, reinforcing the importance of interpersonal qualities.

Additionally, indicators such as fair grading ($\bar{x}$ = 3.58) and boosting confidence ($\bar{x}$ = 3.52), while slightly lower, still fall within the high range. These results suggest that teachers are generally perceived as fair and supportive in building students' confidence, though there may still be room for strengthening these aspects. The ability of teachers to enhance students' confidence aligns with the findings of Perera and John (2020), where supportive feedback and encouragement contribute to stronger beliefs in one's capabilities.

Remarkably, there are no indicators under moderate or low extent of perception, indicating a uniformly positive evaluation of teachers' personality traits. This consistency demonstrates that teachers are successfully fostering strong interpersonal relationships and a positive emotional climate, which are crucial factors in student engagement and motivation.

The findings above imply that teachers' personality serves as a significant strength in the learning environment, complementing instructional practices by creating a space where students feel motivated, respected, and confident. These results reinforce the idea that, beyond content delivery, teachers' attitudes and interpersonal behaviors play a vital role in sustaining students' interest and positive disposition toward mathematics.

Indicators	$\bar{x}$	VD	EoP	SD
I understand math terms when they are explained in Filipino or Bisaya.	3.59	A	H	1.00
I have difficulty answering word problems due to unfamiliar words.	3.50	A	H	0.90
I prefer math lessons delivered in a language I am comfortable with.	3.41	A	H	0.96
I have difficulty understanding math concepts because of the English language.	3.36	MA	M	0.92
I need translations to understand math lessons.	3.21	MA	M	0.89
I have difficulty understanding math problems written in English.	3.17	MA	M	1.00
I believe that my understanding of English affects my performance in math.	3.11	MA	M	0.90
I get confused by long instructions in English during math lessons.	3.09	MA	M	0.89
I have difficulty following the teacher's instructions when they are given in English.	3.08	MA	M	0.91
I have difficulty expressing my ideas during math discussions.	3.01	MA	M	0.91
Composite	**3.25**	**MA**	**M**	**0.93**

Table 5. Students' Perception of Their Language Proficiency

Table 5 presents the students' perception of their language proficiency in learning Mathematics, particularly focusing on how language influences their understanding of mathematical terms, instructions, and problem-solving tasks. The composite mean of 3.25 indicates that students experience a moderate level of language-related difficulty in mathematics. This signifies that while students can generally cope with the language used in instruction, language remains a significant factor that affects comprehension, participation, and performance.

A closer look at the indicators with a high extent of perception, students agreed on understanding terms in Filipino/Bisaya, difficulty with unfamiliar words in word problems, and preference for a comfortable language ($\bar{x}$ = 3.41 to 3.59). These findings highlight that students learn more effectively when mathematical concepts are explained in a familiar language, but at the same time, they struggle with vocabulary demands, especially in word problems. This supports the statement of Tañola and Lomibao (2024) that language barriers in bilingual contexts hinder comprehension.

For the moderate extent of perception, indicators such as difficulty due to English, need for translation, difficulty with English problems, English affecting performance, confusion with long instructions, difficulty following instructions, and difficulty expressing ideas ($\bar{x}$ = 3.01 to 3.21) imply that students have a functional but limited proficiency in English within the context of mathematics. The students are able to understand to some extent, but comprehension becomes challenging when language complexity increases, particularly in lengthy instructions or concept-heavy explanations.

These findings coincide with Tañola and Lomibao (2024) who posited that in bilingual contexts, language barriers make it difficult for students to grasp mathematical concepts, which often results in confusion and reduced engagement The moderate ratings imply that students are not entirely hindered by English, but they require additional support such as simplification, translation, and guided explanation to fully grasp mathematical content.

The findings generally point out that students' language proficiency is developing but not yet sufficient for full independence in math learning, especially in English-mediated instruction. While they demonstrate better comprehension in familiar languages, their moderate difficulty with English specifies the need for bilingual instruction, scaffolding strategies, and the careful use of academic language. Strengthening these approaches can help reduce confusion, improve expression, and ultimately support more effective learning in mathematics.

Indicators	$\bar{x}$	VD	EoP	SD
I had a hard time understanding math in previous grades.	3.43	A	H	0.85
I used to fail or get low grades in math.	3.42	A	H	1.01
I had bad experiences in previous math classes.	3.41	A	H	1.00
I used to feel anxious during math classes.	3.35	MA	M	0.96
I received negative comments before because of poor math performance.	3.28	MA	M	0.93
I have been embarrassed when answering math questions.	3.04	MA	M	1.08
I was not motivated to learn math before.	3.04	MA	M	0.97
I have had experiences which make me less interested in math now.	3.02	MA	M	1.03
I used to avoid math subjects.	2.97	MA	M	1.02
I had a teacher who discouraged me in math.	2.88	MA	M	1.23
Composite	3.19	MA	M	1.01

Table 6. Students' Perception of Their Prior Negative Experience in Mathematics

Table 6 presents the students' perception of their prior negative experiences in Mathematics. The composite mean of 3.19 indicates that students have experienced a considerable level of negative experiences in the past, though not at an extreme level. This signifies that prior difficulties and emotional setbacks are present and influential, but not universally severe among all students.

Reviewing the specific indicators with a high extent of perception, students reported difficulty understanding math in previous grades, experiencing low or failing grades, and having bad past experiences ($\bar{x}$ = 3.41 to 3.43). These findings unveil that many students have encountered early academic struggles and unfavorable learning experiences, which may have contributed to their current perceptions of mathematics. This supports Shin et al. (2025), who found that early difficulties in mathematics often predict later disengagement.

For the moderate extent of perception, indicators such as feeling anxious, receiving negative comments, experiencing embarrassment, lack of motivation, reduced interest, avoiding math, and discouraging teacher influence ($\bar{x}$ = 2.88 to 3.35) insinuate that students have experienced modest emotional and behavioral consequences of their past difficulties. These results reflect that while not all students strongly internalize these experiences, a significant number still carry emotional residues such as anxiety, embarrassment, and reduced motivation. This finding corresponds with Shin et al. (2025), who linked past failures with increased math anxiety. The moderate rating on teacher discouragement exhibits that while some students encountered negative instructional influences, it was not a dominant experience for most, though still impactful for those affected.

Notably, there are no indicators garnering a low extent of perception. In other words, negative experiences are fairly common and consistently present, even if they vary in intensity. This result reinforces the idea that students' prior experiences in mathematics are generally not neutral but instead carry some level of difficulty or emotional impact.

As a whole, the findings denote that students' prior negative experiences are rooted primarily in academic struggles and low performance, which are then accompanied by moderate emotional and motivational consequences. These experiences may contribute to current challenges in confidence and interest. Thus, addressing these past experiences through positive reinforcement, supportive feedback, and mastery-oriented instruction is essential in helping students rebuild confidence, reframe their perceptions, and develop a more positive disposition toward mathematics.

Indicators	$\bar{x}$	VD	EoP	SD
I can concentrate better with the help of a good sitting arrangement.	3.30	MA	M	0.93
I find visual aids helpful in learning math.	3.30	MA	M	0.83
I feel comfortable working in groups during math class.	3.25	MA	M	1.02
I am encouraged to learn math in our classroom.	3.14	MA	M	0.86
I belong to a math class that is quiet and focused.	3.04	MA	M	0.92
I find my classmate cooperative during math activities.	3.00	MA	M	0.92
I study in a classroom conducive to learning math.	2.94	MA	M	0.94
I remain interested in math due to the atmosphere in the classroom.	2.93	MA	M	0.83
I can study free from distraction during math class.	2.84	MA	M	0.97
I feel safe asking questions during math class.	2.79	MA	M	0.84
Composite	3.05	MA	M	0.91

Table 7. Students' Perception of Their Classroom Environment

Table 7 presents the students' perception of their classroom environment in learning Mathematics. The composite mean of 3.05 indicates that students perceive their classroom environment as moderately adequate but not highly conducive to optimal learning. This connotes that while the environment provides some level of support, it may lack consistency in promoting strong engagement, comfort, and focus.

It is worth noting that all indicators fall under the moderate extent of perception. This signifies a uniformly average evaluation of the classroom environment without any distinctly strong or weak areas. Among these are the seating arrangement ($\bar{x}$ = 3.30) and use of visual aids ($\bar{x}$ = 3.30). These findings unveil that students recognize the importance of physical organization and instructional support in facilitating concentration and understanding. This is consistent with Kayyali (2025), who found that structured and resource-supported environments enhance student engagement. Similarly, Attard and Holmes (2020) emphasized that the integration of technology in mathematics helps simplify complex concepts and increase student engagement, thereby making learning more interactive and dynamic. Other indicators, such as group work, encouragement, and quiet and focused class ($\bar{x}$ = 3.04 to 3.25), indicate that students experience a moderate level of collaborative and supportive learning conditions. While there is some degree of encouragement and cooperation, these are not strong enough to fully maximize participation and motivation. This supports Kayyali (2025), who asserted that both psychological safety and structured environments are essential for deeper engagement. The moderate perception implies that these elements are present but not consistently reinforced. Indicators such as cooperation among classmates, a conducive environment, interest due to atmosphere, freedom from distractions, and safety in asking questions ($\bar{x}$ = 2.79 to 3.00) are also at a moderate level. These findings reflect that students may experience occasional distractions, limited peer support, and some hesitation in classroom participation. The relatively lower rating on feeling safe to ask questions is particularly important, as it reflects a lack of full psychological comfort, which may hinder active engagement. These findings are consistent with Kayyali (2025), who reported that lack of psychological and physical safety in the classroom can discourage risk-taking and participation, leading to reduced cognitive focus and frustration. The moderate ratings across these indicators imply that the classroom environment does not strongly hinder learning, but it also does not fully support a highly engaging and motivating experience. Collectively, the findings indicate that the classroom environment provides a functional foundation for learning, but lacks the strong emotional, social, and physical support necessary to maximize student engagement and interest in mathematics. This result stresses the need for improvements in classroom management, peer collaboration, reduction of distractions, and the promotion of a psychologically safe space, where students feel more comfortable participating and exploring mathematical ideas.

Indicators	$\bar{x}$	VD	EoP	SD
I can connect current math lessons to what we learned previously.	3.25	MA	M	0.86
I find the gradual approach to math topics helpful.	3.24	MA	M	0.80
I understand topics more deeply through repetition.	3.19	MA	M	0.76
I can understand better after revisiting previous topics.	3.15	MA	M	0.81
I feel that my fear is reduced even when learning new topics.	3.15	MA	M	0.78
I remember previous lessons better.	3.13	MA	M	0.85
I find learning easier if repeated each year.	3.07	MA	M	0.86
I build my math skills by learning topics through spiral progression.	3.07	MA	M	0.77
I find math lessons familiar because of spiral progression.	3.05	MA	M	0.80
I master math step-by-step.	2.90	MA	M	1.08
Composite	3.12	MA	M	0.84

Table 8. Students' Perception of the Spiral Progression Approach

Table 8 presents the students' perception of the Spiral Progression Approach (SPA) in learning Mathematics, which emphasizes revisiting topics periodically with increasing complexity to deepen understanding and reinforce skills. The composite mean of 3.12 demonstrates that students recognize some benefits of the SPA, but the overall impact is perceived as average rather than strong. This signifies that while students gain some reinforcement from revisiting topics, the approach may not fully address all challenges in learning math.

As shown in the table, all indicators fall under a moderate extent of perception, showing a consistent but moderate appreciation for the SPA. Indicators like connecting lessons to previous learning ($\bar{x}$ = 3.25) and a gradual approach to topics ($\bar{x}$ = 3.24) imply that students perceive value in the continuity and structured sequence of lessons. This supports the theoretical premise that learning is most effective when new concepts are connected to prior knowledge, which, according to Bautista (2025), can enhance comprehension and reduce confusion. Similarly, Bacud and Futalan (2024) emphasized that SPA can strengthen retention and application of concepts when appropriately scaffolded.

Other indicators, such as understanding topics more deeply through repetition, better understanding after revisiting previous topics, and reduced fear when learning new topics ($\bar{x}$ = 3.15 to 3.19), denote that students benefit from reinforcement and familiarity, although the effects are moderate. These findings align with Bacud and Futalan (2024), who observed that insufficient scaffolding during SPA can overload students and reduce confidence, which stresses the need for adaptive instructional support.

Meanwhile, indicators like mastering math step-by-step, familiarity due to spiral progression, and building math skills through repeated learning ($\bar{x}$ = 2.90 to 3.07) reflect that while students recognize the intended benefits of SPA, some still struggle with fully internalizing the step-by-step learning process. This underscores the need for more structured support and explicit connections between lessons, as noted by Tañola and Lomibao (2024), who argued that without clear links and conceptual clarity, students may perceive repetition as insufficiently structured or unhelpful.

Merging these insights, the findings show that SPA provides a moderate level of reinforcement, familiarity, and skill development. Students appreciate revisiting lessons and the gradual introduction of new topics. However, SPA's effectiveness is not perceived as highly strong. This highlights the importance of differentiated instruction, clear scaffolding, and pedagogical creativity to fully leverage the motivational and cognitive potential of SPA.

My parents…	$\bar{x}$	VD	EoP	SD
believe math is important for my future career.	3.68	A	H	0.90
monitor my math grades.	3.54	A	H	0.99
motivate me to study math regularly.	3.45	A	H	1.10
praise me when I do well in math.	3.42	A	H	0.93
encourage me to do well in math.	3.36	MA	M	0.98
provide resources like books or calculators for math.	3.28	MA	M	1.10
support me when I have difficulties in Math.	3.27	MA	M	1.09
support my desire to learn more about math.	3.15	MA	M	1.05
attend school meetings about my performance in math.	3.07	MA	M	0.98
help me with math assignments.	2.92	MA	M	1.11
Composite	**3.31**	**MA**	**M**	**1.03**

Table 9. Students' Perception of Parental Support in Learning Mathematics

Table 9 presents the students' perception of parental support in learning Mathematics. The composite mean of 3.31 indicates that students acknowledge parental support, but the overall influence is not perceived as very strong or consistent across all areas. Looking at specific indicators, those with a high extent of perception include belief that math is important for the future, monitoring of math grades, motivation to study regularly, and praise for good performance ($\bar{x}$ = 3.42 to 3.68). These findings denote that students recognize their parents' role in emphasizing the importance of math and providing encouragement. This supports the findings of Garcia (2024), who reported that students receiving consistent emotional and academic support from parents tend to exhibit higher confidence and resilience in mathematics learning.

Indicators with a moderate extent of perception, such as encouragement to do well, provision of resources, support during difficulties, support for further learning, attendance in school meetings, and help with assignments ($\bar{x}$ = 2.92 to 3.36), imply that students experience occasional but not highly consistent forms of parental academic and emotional support. While these forms of involvement provide some level of guidance and assistance, they may not be sustained or fully maximized across learning situations. This finding aligns with Lee et al. (2025), who emphasized that parents serve as powerful socializing agents who significantly shape children's motivation in mathematics through the expectations, beliefs, and support they provide at home.

Taken together, the results point out that parental support is moderate but impactful in shaping students' motivation, confidence, and perceived value of math. Students tend to feel most influenced by parents' encouragement, monitoring, and recognition of achievement, whereas practical support, like providing resources or helping with homework, is moderately perceived.

Indicators	$\bar{x}$	EoI	SD
I try to relate Math concepts to real-life situations.	3.04	M	0.91
I actively participate in Math discussions and problem-solving activities.	3.02	M	0.93
I set personal goals and track my progress in Math performance.	2.97	M	0.95
I consistently complete my math assignments and tasks on time.	2.93	M	1.00
I am interested in pursuing Math-related courses or careers in the future.	2.93	M	1.07
I eagerly ask questions or seek clarification on Math topics.	2.82	M	1.02
I show enthusiasm and cooperate with peers during group Math work.	2.77	M	0.98
I willingly take on challenging Math problems without fear of failure.	2.63	M	1.07
I spend extra time reviewing or practicing Math even outside of class hours.	2.58	L	1.05
I feel enjoyment and excitement when engaging in Math activities.	2.57	L	1.01
Composite	**2.83**	**M**	**1.00**

Table 10. Extent of Students' Interest in Learning Mathematics

Table 10 presents the extent of students' interest in learning Mathematics. The composite mean of 2.83 indicates that students generally have a moderate level of interest in learning math. This finding suggests some engagement but also room for increasing enthusiasm and active involvement. A closer look at the specific indicators with a moderate extent of interest includes real-life application, active participation, goal setting and progress tracking, task completion, and career interest ($\bar{x}$ = 2.93 to 3.04). The indicators also include questioning or clarification, group cooperation, and challenge acceptance ($\bar{x}$ = 2.63 to 2.82). These findings signify that students demonstrate engagement through participation, goal-setting, and connecting math to practical contexts, but their interest is moderate rather than high. This may indicate that while they participate and cooperate, their motivation is influenced by external factors such as the difficulty of the subject, teaching methods, or personal confidence. Correspondingly, Wang et al. (2024) reported that students' interest in a subject is strongly shaped by relevance, self-efficacy, and perceived competence, and that moderate engagement reflects a balance between motivation and apprehension toward challenging content. Similarly, Hill and Seah (2022) emphasized that students who view mathematics as relevant and feel confident in their abilities demonstrate higher motivation, greater enjoyment, and improved performance outcomes

Indicators with a low extent of interest include spending extra time reviewing or practicing math outside class ($\bar{x}$ = 2.58) and feeling enjoyment and excitement when engaging in math activities ($\bar{x}$ = 2.57). These results imply that students are less likely to engage voluntarily in additional practice or derive intrinsic enjoyment from math, which suggests possible math anxiety, lack of stimulating activities, or limited confidence in problem-solving. Supporting literature by Tañola and Lomibao (2024) highlights that fragmented or rapid topic progression in curricula can reduce students' engagement and voluntary participation. Additionally, Sulistyani et al. (2020) argued that declines in students' self-confidence can diminish their interest, leading them to hesitate, doubt their answers, and withdraw from active participation in mathematics tasks.The findings broadly indicate that while students maintain moderate interest in structured math activities, their intrinsic motivation and engagement beyond classroom requirements remain low. This emphasizes the need for teaching strategies that enhance enjoyment, relevance, and self-directed learning in Mathematics, supporting sustained interest and long-term academic development.

Students' Interest and…	r_s	p	Remark
Self-Confidence	.427	< .001	Significant
Sense of Value in Real Life	.497	< .001	Significant
Teachers' Instruction	.341	< .001	Significant
Teachers' Personality	.326	< .001	Significant
Language Proficiency	.453	< .001	Significant
Prior Negative Experience in Mathematics	.149	.016	Significant
Classroom Environment	.481	< .001	Significant
Spiral Progression Approach	.560	< .001	Significant
Parental Support	.372	< .001	Significant

Table 11. Relationship between the Different Factors and the Extent of Interest in Learning Mathematics

The findings in Table 11 reveal that all the identified factors have a statistically significant relationship with students' interest in learning Mathematics, as indicated by p-values less than .05. Among these, the Spiral Progression Approach (r_s = .560) exhibits the strongest relationship, followed by sense of value in real life (r_s = .497), classroom environment (r_s = .481), and language proficiency (r_s = .453). On the other hand, prior negative experience in Mathematics (r_s = .149) shows the weakest, though still significant, relationship.

These results strongly support existing literature. In relation to SPA, its strong association with students' interest may be attributed to its design of revisiting mathematical concepts with increasing complexity, which reinforces prior learning. However, Bautista (2025) emphasized that when foundational understanding is weak, students tend to experience confusion and frustration as lessons progress, which can negatively affect motivation. Likewise, Bacud and Futalan (2024) noted that SPA may become unengaging when implemented through repetitive or rote instructional practices rather than interactive and inquiry-based strategies. These findings suggest that while SPA has the potential to enhance students' interest, its effectiveness largely depends on how well teachers scaffold learning, ensure conceptual clarity, and employ engaging pedagogical approaches that promote deeper understanding.

Meanwhile, the strong relationship between real-life value and interest is further supported by studies (e.g., Hill & Seah, 2022; Magallon, 2025) emphasizing that relevance to real-life contexts enhances engagement and sustained interest. Similarly, the significant relationship of classroom environment corroborates findings by Kayyali (2025), which highlight that supportive and structured environments foster motivation and reduce disengagement.

The significant relationship between self-confidence and interest (r_s = .427) emphasizes self-efficacy as a key driver of motivation. This is also consistent with studies such as Hill and Seah (2022), which show that confident students are more likely to engage in and persist with mathematics tasks. Likewise, the significant role of teacher-related factors (instruction and personality) confirms prior research (Perera & John, 2020; Klusmann et al., 2021), which demonstrates that effective and supportive teaching enhances student motivation and engagement.

The significant relationship between language proficiency and interest (r_s = .453) is also supported by literature indicating that language barriers hinder comprehension and reduce engagement (Tañola & Lomibao, 2024). This signifies that students' ability to understand mathematical language plays a crucial role in sustaining their interest.

In contrast, prior negative experiences show the weakest relationship with interest. This implies that although negative experiences can influence students' engagement, their effects may be mitigated by other factors, such as instructional support and a positive classroom environment.

Predictor	Estimate	SE	t	p	Stand. Estimate (β)
Intercept	-1.302	0.317	4.101	< .001	
Self-Confidence	0.156	0.076	2.060	.040	0.112
Sense of Value in Real Life	0.251	0.061	4.097	< .001	0.233
Teachers' Instruction	-0.024	0.076	-0.316	.752	-0.021
Teachers' Personality	0.055	0.069	0.794	.428	0.050
Language Proficiency	0.134	0.086	1.554	.121	0.092
Prior Neg. Experience in Math	-0.089	0.069	-1.291	.198	-0.069
Classroom Environment	0.346	0.087	3.955	< .001	0.220
Spiral Progression Approach	0.415	0.109	3.815	< .001	0.258
Parental Support	0.067	0.056-	1.193	.234	0.064

R = 0.692
R^2 =0.478
Adjusted R^2 =0.459
F-ratio = 25.455
p-value < .001 (significant)

Table 12. Predictors of Students' Interest in Learning Mathematics

Table 12 presents the data identifying the significant predictors of students' interest in learning Mathematics. Although the relationships between each of the nine factors and students' interests have already been established through simpler analyses, the use of multiple regression remains necessary because these variables do not operate independently.

In real educational contexts, factors such as self-confidence, classroom environment, and perceived value of Mathematics are often interrelated and may overlap in their influence. Multiple regression enables the simultaneous examination of these predictors, allowing the researcher to determine the unique contribution of each variable while controlling for the others. This approach provides a clearer and more accurate understanding of which factors truly influence students' interest, avoiding misleading conclusions drawn from isolated relationships and offering a more comprehensive explanation of students' motivation in Mathematics.

The results of the regression analysis reveal that only a subset of the nine factors significantly predicts students' interest in learning Mathematics. Specifically, self-confidence ($p = .040$), sense of value of Mathematics in real life ($p < .001$), classroom environment ($p < .001$), and the spiral progression approach ($p < .001$) emerged as significant predictors. All of these variables have positive coefficients, indicating that increases in these factors lead to higher levels of student interest. The significance of self-confidence supports existing literature emphasizing the role of self-efficacy in enhancing motivation, persistence, and engagement in Mathematics (Hill & Seah, 2022). This aligns with Social Cognitive Theory, which posits that students who believe in their ability to succeed are more likely to remain interested and engaged (Heffernan, 1988).

Prior studies also affirm that connecting mathematical concepts to real-world applications enhances student engagement and interest (Hill & Seah, 2022; Magallon, 2025). In addition, the classroom environment also emerged as a significant predictor, which reinforces findings that supportive, structured, and interactive learning environments foster greater motivation and participation (Kayyali, 2025).

It is important to highlight that the spiral progression approach (SPA) showed the strongest effect ($\beta = 0.258$) among all predictors. This means that when properly implemented, SPA can significantly enhance students' interest by reinforcing prior knowledge and promoting mastery. This finding partially supports the intended design of SPA as a framework for deepening understanding through repeated exposure to concepts. However, this result contrasts with studies that report student confusion and disengagement when SPA is poorly implemented or lacks adequate scaffolding (Bacud & Futalan, 2024; Tañola & Lomibao, 2024; Bautista, 2025). This implies that in the present study, SPA may have been experienced positively by students, possibly due to effective instructional practices that ensured continuity and clarity.

In contrast, teachers' instruction, teachers' personality, language proficiency, prior negative experience in Mathematics, and parental support were found to be non-significant predictors, as their p-values exceed the 0.05 threshold. This finding diverges from several studies that highlight the importance of these variables in influencing student motivation. For instance, previous research emphasizes that teacher instruction and personality significantly affect engagement and classroom dynamics (Perera & John, 2020; Klusmann et al., 2021), while language proficiency has been shown to influence comprehension and participation in Mathematics (Tañola & Lomibao, 2024; Garcia & Roleda, 2025).

The lack of significance of these variables in the present model suggests that their effects may be indirect or mediated by stronger predictors such as self-confidence, classroom environment, and perceived value. The findings broadly indicate that students' internal beliefs and perceptions, along with the quality of the learning environment and instructional structure, play a more dominant role in shaping their interest in Mathematics than other external or background factors when analyzed collectively.

Conclusion and Recommendations

Students' interest in learning Mathematics is shaped less by surface-level exposure and more by how meaningfully they connect with the subject and their learning environment. Although students generally recognize the importance and applicability of Mathematics, this awareness alone does not necessarily lead to strong engagement or enthusiasm. Their moderate level of interest indicates that while they are capable of participating and meeting academic expectations, there is limited intrinsic motivation to go beyond required tasks or to find genuine enjoyment in the subject.

Moreover, the internal dispositions and contextual classroom conditions play a more decisive role in promoting interest than any other factors. In particular, students are more likely to develop a stronger inclination toward Mathematics when they feel confident in their abilities, perceive the subject as relevant to real-life situations, and experience a supportive and well-structured learning environment. This points out the importance of creating learning experiences that not only build competence but also reinforce the practical value and accessibility of Mathematics. Additionally, the absence of differences based on sex signifies that the factors influencing interest operate similarly across groups.

Based on the findings and conclusions drawn, it is hereby recommended that:

1. Students develop consistent study habits by practicing regularly, asking questions when unsure, and engaging actively in class through peer-to-peer collaboration, participation in mathematical discourse, and the use of manipulatives or digital tools to visualize complex problems. These practices collectively build confidence and improve understanding in Mathematics.

2. Teachers implement a multi-faceted instructional strategy that bridges the gap between the perceived value of Mathematics and student enjoyment. This may be achieved by integrating interactive, real-life applications (such as budgeting and hands-on games) and utilizing scaffolding techniques—including short, manageable tasks and the recognition of small achievements—to foster a supportive classroom environment that reduces anxiety and builds student self-confidence. Additionally, teachers assign short, meaningful tasks both inside and outside the classroom to encourage independent learning while avoiding student overload.
3. Parents actively support their child's learning by monitoring schoolwork, encouraging regular practice at home, and maintaining consistent communication with teachers to reinforce positive attitudes toward Mathematics.
4. Schools cultivate a supportive, "math-friendly" environment that embraces mistakes as part of the learning process, while encouraging teacher collaboration to ensure that the spiral curriculum becomes a seamless progression that builds students' confidence and curiosity.
5. Curriculum planners refine the Spiral Progression Approach by establishing explicit vertical alignment across grade levels to ensure conceptual depth rather than mere repetition. Furthermore, they should integrate professional development programs that equip teachers with scaffolding and inquiry-based strategies to sustain student interest and confidence, ultimately transforming the mathematics curriculum from a series of disconnected topics into a cohesive and progressively advancing structure of learning.

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Appendices

No appendices are attached to this study.