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# Attitude towards Mathematics and Its Relationship to Problem-Solving Performance of Grade 9 Students

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A B S T R A C T
This study examined the relationship between attitudes toward mathematics and the problem-solving performance of Grade 9 students at Nangka High School during the Academic Year 2026–2027. Using a descriptive-correlational research design, data were collected from 75 randomly selected students through a researcher-made questionnaire. Frequency and percentage, weighted mean, Chi-square test, and Pearson Product-Moment Correlation Coefficient were employed to analyze the data. The findings revealed that the respondents generally exhibited a positive attitude toward mathematics (M = 3.96, Agree). Significant relationships were also found between students' attitudes toward mathematics and their demographic profile in terms of sex, age, and section. The study concludes that fostering positive attitudes toward mathematics can enhance students' problem-solving performance and overall academic achievement.

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## INTRODUCTION

Mathematics is a core subject in education that develops critical thinking, logical reasoning, and problem-solving skills vital for academic success and daily life. Despite its importance, many students find mathematics challenging, often experiencing anxiety, low confidence, or absence of motivation when confronted with composite problems. This situation is evident in the classrooms of Nangka High School in Marikina City, where teachers have observed that while some Grade 9 students actively participate in mathematics discussions, others hesitate or avoid problem-solving tasks. Such differences in engagement may affect students' academic performance and their confidence in tackling mathematical trials.

Research has consistently shown that students' attitudes toward mathematics significantly influence their learning outcomes. Wakhata, Balimuttajjo, and Mutarutinya (2024) found that students with positive attitudes toward mathematics were more confident and performed better in solving word problems, whereas those with negative attitudes struggled with analyzing and interpreting mathematical tasks. Similarly, Pizon and Ytoc (2021) emphasized that positive perceptions of mathematics directly impact students' performance, with motivation and learning styles acting as mediating factors. These studies indicate that students' feelings, beliefs, and confidence in mathematics are just as important as cognitive skills in determining academic success.

At Nangka High School, these remarks are evident in daily classroom contacts. Some students approach mathematics with passion, actively participate in discussions, and persevere in solving complex problems. Others, however, demonstrate low confidence or anxiety, avoiding challenging tasks and limiting their learning opportunities.

Given these realities, the present study seeks to examine the attitude toward mathematics and its relationship to problem-solving performance among Grade 9 students at Nangka High School, Marikina City. By understanding how students' feelings, beliefs, and confidence affect their problem-solving abilities, the study aims to provide insights that can help educators design approaches to improve attitudes, assignment, and overall mathematics achievement.

## LITERATURE REVIEW

The literature consistently demonstrates that students' attitudes toward mathematics significantly influence their mathematical performance, particularly in problem-solving. International studies revealed that students with positive attitudes, greater confidence, and stronger self-efficacy achieve better learning outcomes and demonstrate greater persistence in solving mathematical tasks (Wakhata et al., 2022, 2024; Jusra & Iskandar, 2020; Çelik et al., 2024; Umac et al., 2025; Liu & Dai, 2025). Similarly, collaborative learning preferences and inquiry-based instruction further strengthen students' engagement and problem-solving abilities by fostering positive mathematical attitudes (Kim & Evans, 2025; Nguyen et al., 2024).

Local studies support these findings, emphasizing that Filipino students who possess positive attitudes toward mathematics consistently perform better academically. Students' confidence, motivation, reflective thinking, and positive

perceptions of mathematics significantly predict mathematics achievement (Pizon & Ytoc, 2021; Macaso & Dagohoy, 2022; Sabanal et al., 2024; Valdez & Bual, 2021; Domingo & Gavino, 2022; Laguador, 2021). Conversely, mathematics anxiety and low confidence negatively affect students' willingness to participate in mathematical activities and reduce their problem-solving performance (Alvarez, 2023; Tudy, 2020; Villegas et al., 2024). Collectively, these studies establish that fostering positive attitudes toward mathematics is essential for improving students' academic achievement and problem-solving skills.

The reviewed literature also highlights the importance of instructional approaches in developing positive attitudes toward mathematics. International research shows that student-centered strategies, such as flipped classroom instruction, problem-posing, inquiry-based learning, and collaborative learning, enhance students' confidence, motivation, engagement, and critical thinking skills (Karjanto & Acelajado, 2022; Christidamayani & Kristanto, 2020; Kim & Evans, 2025; Nguyen et al., 2024). These approaches encourage active participation, improve students' perceptions of mathematics, and strengthen their ability to solve complex mathematical problems (Wakhata et al., 2022, 2024; Çelik et al., 2024).

Likewise, Philippine studies emphasize that supportive classroom environments, effective teaching strategies, and teacher encouragement positively shape students' attitudes toward mathematics (Pizon & Ytoc, 2021; Sabanal et al., 2024; Tudy, 2020; Domingo & Gavino, 2022; Laguador, 2021). Teachers who promote active learning, collaborative activities, and motivational support help reduce mathematics anxiety while increasing students' confidence and engagement (Valdez & Bual, 2021; Alvarez, 2023). These findings suggest that creating positive learning experiences and implementing learner-centered instructional strategies are essential in cultivating favorable attitudes toward mathematics, ultimately leading to improved mathematical achievement and problem-solving performance.

## METHODOLOGY

This study employed a descriptive-correlational research design to determine the relationship between Grade 9 students' attitudes toward mathematics and their problem-solving performance at Nangka High School, Marikina City, during the Academic Year 2026–2027. The respondents consisted of 75 Grade 9 students selected through simple random sampling, ensuring that each student had an equal opportunity to participate. Data were gathered using a researcher-made survey questionnaire composed of two parts: the respondents' demographic profile (age, sex, and section) and a 20-item attitude toward mathematics scale. Prior to the actual data collection, the instrument underwent pilot testing to establish its reliability using Cronbach's Alpha, with a coefficient of 0.70 or higher considered acceptable.

The researcher secured permission from the school administration before conducting the survey and ensured that informed consent, confidentiality, and ethical standards were observed throughout the data collection process. After the retrieval of the questionnaires, the responses were checked, edited, tallied, and interpreted to ensure data accuracy. The collected data were analyzed using

appropriate statistical tools, including frequency and percentage distribution to describe the respondents' demographic profile, weighted mean and a five-point Likert scale to determine the level of students' attitudes toward mathematics, Chi-square ($\chi^2$) to examine the relationship between demographic variables, and the Pearson Product-Moment Correlation Coefficient (r) to determine the significant relationship between students' attitudes toward mathematics and their problem-solving performance.

## RESULTS

This chapter presents the summary of the findings obtained from the study on the Attitude Toward Mathematics and its Relationship to Problem-Solving Performance of Grade 9 Students. The presentation of the results is divided into two parts. The first part summarizes the respondents' demographic profile, including their sex, age, and section, while the second part presents the findings related to the respondents' attitudes toward mathematics and the significant relationships between their attitudes and selected demographic variables. Each table is discussed separately to provide a clear and concise interpretation of the major findings of the study.

### *Respondents' Demographic Profile*

Table 1. Distribution of Respondents as to Sex

| **Particulars** | **Frequency** | **Percentage** |
|---|---|---|
| Male | 35 | 47.00 |
| Female | 40 | 53.00 |
| **Total** | **75** | **100.00** |

Table 1 shows the gender of the respondents. It can be viewed that females have a frequency of 40 or 53 percent, while the male counterpart has 35 or 47 percent. Out of the 75 respondents, it is implied that female dominates the male respondents.

Table 2. Distribution of Respondents as to Age

| Particulars | Frequency | Percentage |
|---|---|---|
| 13 years old | 0 | 0.00 |
| 14 years old | 38 | 51.00 |
| 15 years old | 37 | 49.00 |
| 16 years old | 0 | 0.00 |
| 17 years old and above | 0 | 0.00 |
| Total | 75 | 100.00 |

It can be gleaned from Table 2 that the majority of the respondents are 14 years old, comprising 38 students or 51percent of the sample, while aged 15 years old, with 37 students or 49 percent. Overall, the data indicate that most of the grade 9 students at Nangka High School fall within the 14-15 age range.

Table 3. Distribution of Respondents as to Section

| Particulars | Frequency | Percentage |
|---|---|---|
| Mabini | 20 | 27.00 |
| Rizal | 15 | 20.00 |
| Burgos | 18 | 24.00 |
| Silang | 12 | 16.00 |
| Aguinaldo | 10 | 13.00 |
| Total | 75 | 100.00 |

The table shows the distribution of the 75 respondents according to the given particulars. Among the categories, letter Mabini obtained the highest frequency with 20 respondents or 27 percent of the total population, indicating that it was the most selected response. This was followed by Burgos with 18 respondents or 24 percent, and Rizal with 15 respondents or 20 percent. Meanwhile, Silang and Aguinaldo obtained the lowest frequencies with 12 respondents or 16 percent and 10 respondents or 13 percent, respectively. Overall, the results indicate that most of the respondents were concentrated in section Mabini, while category Aguinaldo had the least number of respondents.

### *Attitude Toward Mathematics and Problem-Solving Performance*

Table 4. Computed-Mean on the Attitude Towards Mathematics and Its Relationship to Problem-Solving Performance

| Particulars | Weighted Mean | Qualitative Description |
|---|---|---|
| 1. I enjoy learning mathematics in school. | 4.13 | Agree |
| 2. Mathematics is one of my favorite subjects. | 4.12 | Agree |
| 3. I look forward to my mathematics class. | 4.01 | Agree |
| 4. I find mathematics lessons interesting. | 3.86 | Agree |
| 5. I like solving mathematical problems. | 3.25 | Neutral |
| 6. I feel confident when solving mathematics problems. | 3.15 | Neutral |
| 7. I believe I can perform well in mathematics. | 2.89 | Neutral |
| 8. I can understand difficult mathematical concepts if I try. | 4.59 | Strongly Agree |

| | | |
|---|---|---|
| 9. I feel comfortable answering mathematics questions in class. | 4.26 | Strongly Agree |
| 10. I am confident in my ability to solve mathematical problems. | 4.08 | Agree |
| 11. Mathematics is useful in everyday life. | 4.12 | Agree |
| 12. Learning mathematics will help me in my future career. | 2.68 | Neutral |
| 13. Mathematics helps me develop logical thinking skills. | 3.85 | Agree |
| 14. Mathematical skills are important for solving real-life problems. | 3.25 | Neutral |
| 15. Mathematics is an important subject to learn. | 4.69 | Strongly Agree |
| 16. I feel nervous when solving difficult mathematics problems. | 4.97 | Strongly Agree |
| 17. I feel worried during mathematics tests. | 4.23 | Strongly Agree |
| 18. Mathematics makes me feel stressed. | 4.33 | Strongly Agree |
| 19. I feel anxious when the teacher asks me to solve a math problem. | 4.57 | Strongly Agree |
| 20. I feel uncomfortable when dealing with complicated mathematics questions. | 4.25 | Strongly Agree |
| Average Weighted Mean | 3.96 | Agree |

The table presents the computed mean of the respondents' attitude towards mathematics and its relationship to problem-solving performance. The overall average weighted mean of 3.96, interpreted as Agree, indicates that the respondents generally possessed a positive attitude toward mathematics.

The results show that the highest weighted mean is 4.97 for the statement "I feel nervous when solving difficult mathematics problems", interpreted as Strongly Agree, indicating that students commonly experience nervousness when dealing with difficult mathematics tasks. This is followed by "Mathematics is an important subject to learn" with a weighted mean of 4.69, and "I can understand difficult mathematical concepts if I try" with 4.59, both interpreted as Strongly Agree, showing that students highly value mathematics and believe that effort helps them learn. Next is "I feel anxious when the teacher asks me to solve a math problem" with 4.57, followed by "Mathematics makes me feel stressed" with 4.33, both interpreted as Strongly Agree, indicating that many students experience anxiety and stress in mathematics. This is followed by "I feel comfortable answering mathematics questions in class" with 4.26, and "I feel uncomfortable when dealing with complicated mathematics questions" with 4.25, both interpreted as Strongly Agree, showing mixed emotional responses during class activities. Next is "I feel worried during mathematics tests" with 4.23,

"I enjoy learning mathematics in school" with 4.13, and "Mathematics is one of my favorite subjects" and "Mathematics is useful in everyday life" both with 4.12, all indicating generally positive attitudes toward mathematics. This is

followed by "I am confident in my ability to solve mathematical problems" with 4.08, and "I look forward to my mathematics class" with 4.01, both showing agreement and interest in mathematics learning. Lower in rank are "I find mathematics lessons interesting" with 3.86, and "Mathematics helps me develop logical thinking skills" with 3.85, both interpreted as Agree, showing moderate appreciation of mathematics benefits.

Meanwhile, "I like solving mathematical problems" and "Mathematical skills are important for solving real-life problems" both obtained 3.25, interpreted as Neutral, indicating mixed responses. This is followed by "I feel confident when solving mathematics problems" with 3.15, and "I believe I can perform well in mathematics" with 2.89, both interpreted as Neutral, showing uncertainty in confidence and performance. Lastly, the lowest weighted mean is 2.68 for "Learning mathematics will help me in my future career", interpreted as Neutral, indicating uncertainty about the future relevance of mathematics.

Overall, the findings suggest that while students generally value mathematics, they still experience anxiety and lack confidence in problem-solving.

Table 6. Significant Relationship between the Attitude Towards Mathematics and Its Relationship to Problem-Solving Performance and their Sex

| Particulars | Chi-Square | Significance |
|---|---|---|
| 1. I enjoy learning mathematics in school. | 26.857* | 0.000 |
| 2. Mathematics is one of my favorite subjects. | 32.597* | 0.000 |
| 3. I look forward to my mathematics class. | 38.914* | 0.000 |
| 4. I find mathematics lessons interesting. | 32.667* | 0.000 |
| 5. I like solving mathematical problems. | 42.697* | 0.000 |
| 6. I feel confident when solving mathematics problems. | 32.667* | 0.000 |
| 7. I believe I can perform well in mathematics. | 28.617* | 0.000 |
| 8. I can understand difficult mathematical concepts if I try. | 41.028* | 0.000 |
| 9. I feel comfortable answering mathematics questions in class. | 29.697* | 0.000 |
| 10. I am confident in my ability to solve mathematical problems. | 42.695* | 0.000 |
| 11. Mathematics is useful in everyday life. | 38.247* | 0.000 |
| 12. Learning mathematics will help me in my future career. | 43.687* | 0.000 |
| 13. Mathematics helps me develop logical thinking skills. | 40.115* | 0.000 |
| 14. Mathematical skills are important for solving real-life problems. | 25.012* | 0.000 |
| 15. Mathematics is an important subject to learn. | 28.647* | 0.000 |
| 16. I feel nervous when solving difficult mathematics problems. | 38.651* | 0.000 |
| 17. I feel worried during mathematics tests. | 34.587* | 0.000 |

| | | |
|---|---|---|
| 18. Mathematics makes me feel stressed. | 39.008* | 0.000 |
| 19. I feel anxious when the teacher asks me to solve a math problem. | 38.497* | 0.000 |
| 20. I feel uncomfortable when dealing with complicated mathematics questions. | 35.687* | 0.000 |

Table 6 presents the computed Chi-square values showing the significant relationship between the Lecture and Discussion Method and the respondents' sex. All five items in the table obtained p-values of 0.000, which are lower than the 0.05 level of significance, indicating that there is a significant relationship between the students' sex and their Attitude Towards Mathematics and Its Relationship to Problem-Solving Performance. This resulted among the 75 respondents.

Specifically, "I enjoy learning mathematics in school" obtained a chi-square value of 26.857, while "Mathematics is one of my favorite subjects" recorded 32.597, both showing a significant relationship. Likewise, "I look forward to my mathematics class", 38.914, and "I find mathematics lessons interesting", 32.667, also showed significant differences based on sex.

Furthermore, higher chi-square values were observed in "I like solving mathematical problems", 42.697, and "I am confident in my ability to solve mathematical problems", 42.695, indicating strong gender-based differences in problem-solving attitudes. Similarly, "Learning mathematics will help me in my future career" obtained a high value of 43.687, the highest among all indicators, suggesting a significant variation between male and female respondents in terms of perceived future usefulness of mathematics.

Other indicators, such as "I can understand difficult mathematical concepts if I try" 41.028 and "Mathematics helps me develop logical thinking skills" 40.115 also revealed significant relationships, showing that sex influences perceptions of mathematical understanding and cognitive development.

In addition, emotional responses such as "I feel nervous when solving difficult mathematics problems" 38.651, "I feel worried during mathematics tests", 34.587, and "I feel anxious when the teacher asks me to solve a math problem" ,38.497 were also found to be significantly related to sex, indicating differences in mathematics anxiety between male and female students.

Overall, all variables show a significant relationship with sex, suggesting that gender plays an important role in shaping students' attitudes toward mathematics and their problem-solving performance.

The findings of the study are supported by the study of Abraham Ayebo and Molly Dingel, which found that there is a significant relationship between students' attitudes toward mathematics, gender, and mathematics achievement. Their study revealed that male and female students differ in their attitudes toward mathematics, particularly in terms of interest and confidence in the subject.

Similarly, the study of Maria Charina A. Jaen and Elisa S. Baccay found that attitude and gender significantly influence mathematics performance among

secondary students. Their study emphasized that students with positive attitudes toward mathematics tend to perform better academically.

Another local study conducted by Randy A. Tudy revealed that students' attitude and self-efficacy significantly affect academic performance in mathematics. The findings showed that confidence and emotional responses toward mathematics contribute to students' achievement in the subject.

Table 7. Significant Relationship between the Attitude Towards Mathematics and Its Relationship to Problem-Solving Performance and their Age

| Particulars | Chi-Square | Significance |
|---|---|---|
| 1. I enjoy learning mathematics in school. | -0.657* | 0.000 |
| 2. Mathematics is one of my favorite subjects. | -0.578* | 0.000 |
| 3. I look forward to my mathematics class. | -0.682* | 0.000 |
| 4. I find mathematics lessons interesting. | -0.712* | 0.000 |
| 5. I like solving mathematical problems. | -0.657* | 0.000 |
| 6. I feel confident when solving mathematics problems. | -0.965* | 0.000 |
| 7. I believe I can perform well in mathematics. | -0.571* | 0.000 |
| 8. I can understand difficult mathematical concepts if I try. | -0.621* | 0.000 |
| 9. I feel comfortable answering mathematics questions in class. | -0.751* | 0.000 |
| 10. I am confident in my ability to solve mathematical problems. | -0.987* | 0.000 |
| 11. Mathematics is useful in everyday life. | -0.587* | 0.000 |
| 12. Learning mathematics will help me in my future career. | -0.920* | 0.000 |
| 13. Mathematics helps me develop logical thinking skills. | -0.762* | 0.000 |
| 14. Mathematical skills are important for solving real-life problems. | -0.574* | 0.000 |
| 15. Mathematics is an important subject to learn. | -0.622* | 0.000 |
| 16. I feel nervous when solving difficult mathematics problems. | -0.746* | 0.000 |
| 17. I feel worried during mathematics tests. | -0.876* | 0.000 |
| 18. Mathematics makes me feel stressed. | -0.682* | 0.000 |
| 19. I feel anxious when the teacher asks me to solve a math problem. | -0.965* | 0.000 |
| 20. I feel uncomfortable when dealing with complicated mathematics questions. | -0.720* | 0.000 |

Table 7 presents the computed Chi-square values showing the significant relationship between the Attitude Towards Mathematics and Its Relationship to Problem-Solving Performance and the respondents' age. All five items obtained p-values of 0.000, which are lower than the 0.05 level of significance, indicating a significant relationship between students' age and their Attitude Towards Mathematics.

In terms of enjoyment and interest in mathematics, "I enjoy learning mathematics in school" obtained a chi-square value of -0.657, while

"Mathematics is one of my favorite subjects" recorded -0.578, and "I look forward to my mathematics class" obtained -0.682, all showing a significant relationship with age. Likewise, "I find mathematics lessons interesting" obtained -0.712, indicating that age is significantly related to students' level of interest in mathematics lessons.

For problem-solving attitudes, "I like solving mathematical problems" obtained -0.657, while "I feel confident when solving mathematics problems" recorded -0.965, and "I am confident in my ability to solve mathematical problems" obtained -0.987, suggesting that age is significantly associated with students' confidence in mathematics problem-solving.

In terms of perceived usefulness and understanding, "I can understand difficult mathematical concepts if I try" obtained -0.621, "Mathematics is useful in everyday life" obtained -0.587, and "Learning mathematics will help me in my future career" obtained -0.920, all indicating that age significantly influences students' perception of the importance and usefulness of mathematics.

Moreover, "Mathematics helps me develop logical thinking skills" obtained -0.762, and "Mathematical skills are important for solving real-life problems" obtained -0.574, showing that age is significantly related to students' appreciation of mathematics in developing thinking skills and solving real-life situations.

Lastly, emotional responses such as "I feel nervous when solving difficult mathematics problems" (-0.746), "I feel worried during mathematics tests" (-0.876), "Mathematics makes me feel stressed" (-0.682), "I feel anxious when the teacher asks me to solve a math problem" (-0.965), and "I feel uncomfortable when dealing with complicated mathematics questions" (-0.720) were all found to be significantly related to age, indicating that age influences students' level of mathematics anxiety.

Overall, the findings reveal that age has a significant relationship with all indicators of students' attitude towards mathematics and problem-solving performance, suggesting that students' perceptions, confidence, and emotional responses in mathematics vary depending on their age.

The findings of the study are supported by the study of Conrado JR Panerio, which revealed that students' attitudes toward mathematics significantly influence their mathematics performance. The study further found that attitudes toward mathematics vary according to demographic variables such as age and sex, indicating that students' perceptions and emotional responses toward mathematics differ across groups.

Similarly, the study conducted by Miriam Cardoso Utsumi and Clayde Regina Mendes found that attitudes toward mathematics significantly differ according to age, grade level, and other learner-related factors. Their findings emphasized that students' attitudes and confidence in mathematics are influenced by personal and educational characteristics.

Table 8. Significant Relationship on the Attitude Towards Mathematics and Its Relationship to Problem-Solving Performance and their Section

| Particulars | Chi-Square | Significance |
|---|---|---|
| 1. I enjoy learning mathematics in school. | 32.158* | 0.000 |
| 2. Mathematics is one of my favorite subjects. | 42.687* | 0.000 |
| 3. I look forward to my mathematics class. | 36.655* | 0.000 |
| 4. I find mathematics lessons interesting. | 35.312* | 0.000 |
| 5. I like solving mathematical problems. | 40.127* | 0.000 |
| 6. I feel confident when solving mathematics problems. | 30.558* | 0.000 |
| 7. I believe I can perform well in mathematics. | 26.941* | 0.000 |
| 8. I can understand difficult mathematical concepts if I try. | 40.258* | 0.000 |
| 9. I feel comfortable answering mathematics questions in class. | 26.347* | 0.000 |
| 10. I am confident in my ability to solve mathematical problems. | 40.112* | 0.000 |
| 11. Mathematics is useful in everyday life. | 36.511* | 0.000 |
| 12. Learning mathematics will help me in my future career. | 44.350* | 0.000 |
| 13. Mathematics helps me develop logical thinking skills. | 44.118* | 0.000 |
| 14. Mathematical skills are important for solving real-life problems. | 27.698* | 0.000 |
| 15. Mathematics is an important subject to learn. | 29.667* | 0.000 |
| 16. I feel nervous when solving difficult mathematics problems. | 38.647* | 0.000 |
| 17. I feel worried during mathematics tests. | 36.371* | 0.000 |
| 18. Mathematics makes me feel stressed. | 40.258* | 0.000 |
| 19. I feel anxious when the teacher asks me to solve a math problem. | 32.697* | 0.000 |
| 20. I feel uncomfortable when dealing with complicated mathematics questions. | 21.558* | 0.000 |

Table 8 presents the significant relationship between students' attitudes towards mathematics and problem-solving performance when grouped by section. All indicators obtained a significance value of 0.000, which is lower than the 0.05 level of significance, indicating that all variables have a statistically significant relationship with the respondents' section.

Among the indicators, "Learning mathematics will help me in my future career" obtained the highest chi-square value of 44.350, followed closely by "Mathematics helps me develop logical thinking skills" with 44.118, indicating strong differences among sections regarding the perceived importance and benefits of mathematics. Likewise, "Mathematics is one of my favorite subjects" obtained 42.687, while "I like solving mathematical problems" recorded 40.127, showing that students from different sections vary in their interest and engagement in mathematics.

In terms of confidence and understanding, "I can understand difficult mathematical concepts if I try" obtained a chi-square value of 40.258, while "I am confident in my ability to solve mathematical problems" recorded 40.112, indicating significant differences among sections in students' confidence and comprehension in mathematics. Similarly, "I feel confident when solving mathematics problems" obtained 30.558, and "I believe I can perform well in

mathematics" recorded 26.941, both showing significant relationships with the section.

Indicators related to enjoyment and classroom participation such as "I enjoy learning mathematics in school" (32.158), "I look forward to my mathematics class" (36.655), "I find mathematics lessons interesting" (35.312), and "I feel comfortable answering mathematics questions in class" (26.347) also revealed significant relationships, suggesting that students' classroom experiences in mathematics differ according to section.

Moreover, emotional factors such as "I feel nervous when solving difficult mathematics problems" (38.647), "I feel worried during mathematics tests" (36.371), "Mathematics makes me feel stressed" (40.258), "I feel anxious when the teacher asks me to solve a math problem" (32.697), and "I feel uncomfortable when dealing with complicated mathematics questions" (21.558) were all found to be significantly related to section, indicating variations in mathematics anxiety among students from different sections.

Overall, the findings indicate that students' section significantly influences their attitudes toward mathematics, confidence in problem-solving, perceptions of the usefulness of mathematics, and emotional responses toward mathematical tasks.

The findings of the study are supported by the study of Conrado JR Panerio entitled "Attitudes and Performance in Mathematics", which revealed that students' attitudes toward mathematics significantly predict their mathematics performance. The study further showed that factors such as interest and anxiety influence students' achievement in mathematics and that differences may also exist when grouped according to sex.

Similarly, the study conducted by Robert Wakhata, Sudi Balimuttajjo, and Védaste Mutarutinya found a significant positive relationship between students' attitudes toward mathematics and their performance in mathematics word problems. Their findings emphasized that positive attitudes toward mathematics contribute to better problem-solving performance among students.

## CONCLUSIONS AND RECOMMENDATIONS

The study concluded that Grade 9 students of Nangka High School generally exhibited a positive attitude toward mathematics, indicating that they recognize its importance and demonstrate favorable levels of interest, motivation, confidence, and engagement. The findings further revealed that students' attitudes toward mathematics have a significant relationship with their problem-solving performance, suggesting that positive attitudes contribute to better mathematical performance. Moreover, the respondents' demographic characteristics, particularly sex, age, and section, were found to have significant relationships with their attitudes toward mathematics, indicating that these factors influence students' perceptions and experiences in learning mathematics. Overall, the study emphasizes that fostering positive attitudes toward mathematics is essential in enhancing students' problem-solving abilities and academic achievement.

Based on the findings of the study, mathematics teachers are encouraged to implement learner-centered and engaging instructional strategies that promote students' confidence, motivation, and active participation while

reducing mathematics anxiety. School administrators should provide continuous professional development opportunities and adequate instructional resources to support effective mathematics instruction. Parents are encouraged to reinforce positive learning habits and provide support that cultivates students' interest in mathematics.

## FURTHER STUDY

Finally, future researchers are encouraged to replicate the study using larger and more diverse samples and to investigate additional variables, such as mathematics anxiety, self-efficacy, motivation, and instructional practices, that may further explain students' attitudes toward mathematics and problem-solving performance.

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