



Parental Involvement, Student-Teacher Relationship and Academic Performance of Students in Mathematics

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ABSTRACT

This study determined the levels of parental involvement, student-teacher relationship, and academic performance of students in General Mathematics. It also examined the relationships among these variables among 256 Grade 12 senior high school students in one of the public senior high school in Negros Occidental during school year 2026–2027. A quantitative descriptive-correlational research design was employed. Parental involvement was measured using a mathematics-contextualized questionnaire adopted from Lachica (2024), while student-teacher relationship was assessed using a contextualized version of the Teacher-Student Relationship Questionnaire originally developed by Hamidizadeh et al. (2026). Academic performance was measured using the respondents' official General Mathematics grades for school year 2025–2026. The findings showed a very high level of parental involvement, a very high level of student-teacher relationship, and a very satisfactory level of academic performance in General Mathematics. A statistically significant but very weak negative relationship was found between parental involvement and General Mathematics performance ($\rho = -.130$, $p = .038$). No statistically significant relationship was found between student-teacher relationship and General Mathematics performance ($\rho = .084$, $p = .178$). The study recommends that parents continue providing encouragement, monitoring academic progress, and supporting their children's development. Teachers are likewise encouraged to provide academic guidance and emotional support to promote students' well-being, confidence, and positive educational experiences. The findings emphasize the importance of collaborative support among parents, teachers, and students in fostering holistic student development.

Keywords: academic performance, parental involvement, senior high school students, student-teacher relationship, General Mathematics

INTRODUCTION

Academic performance, particularly in Mathematics, is one of the most important indicators of students' educational success because it reflects the extent to which learners acquire the knowledge, skills, and competencies expected at their grade level. Mathematics plays a vital role in developing logical reasoning, critical thinking, and problem-solving skills necessary for higher education and future careers. Despite various educational reforms and interventions, mathematics achievement remains a major concern worldwide. The results of the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) revealed that many students continue to perform below the desired proficiency levels in Mathematics, with Filipino learners consistently scoring below the international average (Organization for Economic Co-operation and Development [OECD], 2023; International Association for the Evaluation of Educational Achievement [IEA], 2024).

Recent studies suggest that academic performance is associated with cognitive, emotional, and social-environmental factors that shape students' learning experiences (Schneider et al., 2025; Svraga et al., 2024). Among these factors, the student-teacher relationship has gained considerable attention in educational research. Positive relationships characterized by trust, support, and effective communication are associated



with students' participation, motivation, and school engagement. A meta-analysis by Yang et al. (2022) found that positive teacher–student relationships were associated with higher academic achievement, better school engagement, and greater motivation. Likewise, Emslander et al. (2023) reported consistent associations between supportive teacher–student interactions and student academic and well-being outcomes.

In Mathematics, Choi and Han (2023) and Zhu et al. (2024) reported that students who perceive their teachers as caring and supportive demonstrate greater engagement, stronger motivation, and better mathematics achievement.

Parental involvement is another important factor associated with students' academic performance, particularly in Mathematics. Parents serve as children's first educators and continue to shape educational experiences through guidance, encouragement, communication, and supervision. Numerous studies have reported positive associations between family support and students' academic outcomes. Wang and Wei (2024), through a meta-analysis, found a positive association between parental involvement and mathematics performance. Similarly, Kim (2022) reported that parental expectations and educational support are important correlates of academic achievement. In the Philippine context, Albiso et al. (2022) and Calzado et al. (2025) found that students whose parents actively monitor and support their educational activities tend to report or demonstrate better academic outcomes. Likewise, Lachica (2024) reported a positive relationship between parental involvement, students' attitudes toward Mathematics, and academic performance in the subject.

Although previous studies have examined student–teacher relationships and parental involvement in relation to academic performance, fewer studies have considered both variables simultaneously in the context of senior high school Mathematics. Considering that students learn within both home and school environments, examining these variables together may provide a more comprehensive description of factors associated with General Mathematics performance. Therefore, this study sought to determine the levels of parental involvement, student–teacher relationship, and academic performance in General Mathematics and to examine the relationships among these variables. The findings may provide evidence for educators, parents, and school administrators when planning home–school collaboration and mathematics learning support.

METHODOLOGY

This study employed a quantitative descriptive-correlational research design to describe the levels of parental involvement, student–teacher relationship, and academic performance in General Mathematics and to determine whether statistically significant relationships existed among these variables. The respondents were the 256 Grade 12 students from 27 sections of a public senior high school in Negros Occidental during school year 2026–2027. Academic performance was defined operationally as the students' official General Mathematics grade for school year 2025–2026.

The sample size was determined using Yamane's formula, $n = \frac{N}{1+N(e^2)}$, with a 5% represents the total eligible Grade 12 population and n represents the required sample size. The resulting sample of 256 respondents was distributed proportionately across the 27 sections. Proportionate stratified random sampling was used to determine the number of respondents from each section, while the lottery method was employed to randomly select the individual participants.

Parental involvement was measured using a 32-item questionnaire adopted from Lachica (2024), which was itself based on the parental involvement instrument of Cai et al. (1999) and contextualized for Mathematics learning by Lachica (2024). The questionnaire covered six dimensions: Motivator, Resource Provider, Monitor, Mathematics Content Advisor, Mathematics Learning Counselor, and Nature of Mathematics. Lachica (2024) reported a Cronbach's alpha of .913 for the modified instrument, indicating acceptable internal consistency. Since the instrument had already been established and demonstrated acceptable reliability in the original study, no separate validity and reliability testing was conducted for the present study. Contextual adjustments were limited to wording necessary to make the items appropriate for the context of General Mathematics.



Student–teacher relationship was assessed using the 31-item Teacher–Student Relationship Questionnaire in Health Sciences (TSRQ-HS) developed by Hamidizadeh et al. (2026), with appropriate contextual adaptations for the General Mathematics subject. The original instrument underwent extensive validity and reliability testing. Content validity was supported by an S-CVI/Ave of 0.93, while construct validity was examined through exploratory factor analysis. The final questionnaire consisted of 31 items grouped into three dimensions. In terms of reliability, the instrument obtained an overall Cronbach’s alpha of 0.96, indicating excellent internal consistency. Split-half reliability yielded a coefficient of 0.96, while test–retest reliability produced an intraclass correlation coefficient (ICC) of 0.97 ($p < .001$), demonstrating excellent stability over time. These findings establish the TSRQ-HS as a valid and reliable instrument for measuring teacher–student relationships.

For both questionnaires, negatively worded statements were reverse-coded during data processing so that the direction of scoring was consistent across all items and higher scores uniformly represented higher levels of the respective construct. The reverse coding was applied before computing the descriptive statistics and correlation analyses. This procedure ensured that negatively worded items did not result in an unintended reversal of the interpretation of the overall scores.

Academic performance was measured using the respondents’ official General Mathematics grades for school year 2025–2026. These grades were obtained from authorized school records and were used as the sole measure of the dependent variable. The use of official General Mathematics grades provided an objective and subject-specific measure of academic performance.

For ethical considerations, the researcher explained the purpose, procedures, expected participation, and relevant conditions of the study to the prospective respondents. Participation was voluntary, and respondents were informed that they could decline to participate or withdraw from the study without penalty or negative consequences. Prior to answering the questionnaires, all respondents signed an informed consent form indicating that they understood the study and voluntarily agreed to participate. Appropriate measures were also observed to protect the confidentiality and privacy of the respondents and their academic records. The data gathered were used solely for research purposes and were handled in accordance with the applicable ethical requirements of the school and research process.

For data analysis, means and standard deviations were used to describe parental involvement and student–teacher relationship, while the mean, standard deviation, and frequency distribution were used to describe the respondents’ General Mathematics grades. Spearman’s rank-order correlation coefficient (Spearman’s rho) was used to test the relationships between parental involvement and General Mathematics performance and between student–teacher relationship and General Mathematics performance. Statistical decisions were made at the 0.05 level of significance. Because the study employed a correlational design, the analyses identified the direction and strength of associations among the variables and did not support causal conclusions.

RESULTS AND DISCUSSIONS

Level of Parental Involvement

Table 1. Level of Parental Involvement.

Statement	Mean	SD	Interpretation
MOTIVATOR	3.61	0.53	Moderate
1. When I am having trouble learning Mathematics, my parents tell me not to worry about it because everybody has problems with Mathematics.	3.67	0.97	High
2. At home, my parents encourage me to work hard on Mathematics problems even though the problems are difficult.	3.29	1.01	Moderate
3. My parents motivate me to learn Mathematics well.	3.73	0.93	High



4. My parents believe that Mathematics plays an important role in my life.	3.83	0.83	High
5. My parents don't know how to motivate me to do a good job in a Mathematics assignment.	3.56	1.15	High
RESOURCE PROVIDER	3.18	0.73	Moderate
6. My parents try hard to have a nice learning environment at home for me to do Mathematics.	3.77	0.92	High
7. My parents often take me to the public library.	2.71	1.03	Moderate
8. My parents often buy me Mathematics-related books.	2.64	1.04	Moderate
9. At our house, my parents have a variety of games and puzzles that encourage my development in Mathematics.	2.95	1.06	Moderate
10. At home, my parents provide Mathematics tools such as calculators and rulers.	3.83	1.03	High
MONITOR	3.11	0.81	Moderate
11. My parents check my homework regularly.	3.23	1.08	Moderate
12. My parents seldom spend time talking about progress in Mathematics.	3.03	0.94	Moderate
13. My parents require me to show my results in all Mathematics assignment.	2.88	1.10	Moderate
14. At home, it is important for my parents that I keep a balance between Mathematics and other subjects.	3.67	1.02	High
15. My parents always try to monitor the amount of time I spend on Mathematics at home.	2.86	1.01	Moderate
16. My parents are always aware of my Mathematics requirements by checking notebooks, using learning line, or through phone calls to schools.	3.03	1.05	Moderate
MATHEMATICS CONTENT ADVISOR	3.23	0.79	Moderate
17. My parents feel that they can help me solve problems from my Mathematics class.	3.32	0.92	Moderate
18. My parents think that they know enough to help me about Algebra.	3.11	0.96	Moderate
19. My parents often discuss with me how Math is used in our everyday life.	3.40	1.01	Moderate
20. My parents try to understand the Mathematics I am studying.	3.27	0.99	Moderate
21. My parents often help me to do Mathematics	3.06	1.05	Moderate
MATHEMATICS LEARNING COUNSELOR	3.32	0.64	Moderate
22. My parents don't know strategies in helping me to overcome my weakness in Mathematics.	3.17	0.98	Moderate
23. My parents are aware of the approaches used to teach Mathematics at my school.	3.25	0.93	Moderate
24. My parents always try to figure out good approaches in helping me learn different Mathematics topics.	3.39	0.99	Moderate
25. My parents understand my strengths and weaknesses in learning Mathematics.	3.72	0.98	High
26. My parents try to match their expectation with my potential.	3.39	1.03	Moderate
NATURE OF MATH	3.36	0.66	Moderate
27. My parents feel that learning Mathematics is mostly memorizing.	3.27	0.94	Moderate



28. My parents believe that exploring patterns plays no part in learning Mathematics.	2.83	1.00	Moderate
29. My parents believe that Mathematics uses symbols rather than ideas and understanding.	3.08	0.97	Moderate
30. My parents believe that knowing why an answer is correct is as important as getting the answer.	3.56	0.91	High
31. My parents believe that Mathematics problems can be solved in different ways.	3.65	0.89	High
32. My parents believe that there is always a rule to follow in solving a Math problem.	3.80	0.89	High
PARENTAL INVOLVEMENT (OVERALL MEAN)	3.30	0.53	Moderate

Legend: (3.25 – 4.00) – Very High; (2.51 – 3.24) – High; (1.76 – 2.50) – Low; (1.00 – 1.75) – Very Low

The findings presented in Table 1 show that parental involvement in Mathematics was generally moderate, with an overall mean of 3.30 (SD = 0.53). This indicates that students generally perceived their parents as moderately involved in their Mathematics learning through motivation, provision of learning resources, monitoring, content-related assistance, learning guidance, and beliefs about the nature of Mathematics. The relatively low standard deviation suggests that the respondents' perceptions were fairly consistent. Among the six dimensions, Motivator obtained the highest mean (M = 3.61, SD = 0.53), while Monitor recorded the lowest (M = 3.11, SD = 0.81). This pattern that parental involvement was more evident in motivational support and positive perceptions of Mathematics than in the regular monitoring of Mathematics-related activities at home.

The Motivator dimension had a mean of 3.61 (SD = 0.53), interpreted as high. The highest-rated statement, “My parents believe that Mathematics plays an important role in my life,” obtained a mean of 3.83 (SD = 0.83) and was interpreted as high. This indicates that students strongly perceived their parents as recognizing the importance of Mathematics in their lives. Such recognition reflects a form of parental support that emphasizes the value and relevance of Mathematics to students' education and everyday experiences. The relatively low standard deviation also indicates substantial agreement among respondents regarding this perception. This finding is consistent with Jeynes (2022), who emphasized the association of parental educational expectations and encouragement with students' motivation and academic behaviors. Similarly, Goodall (2023) noted that meaningful parental engagement extends beyond assistance with schoolwork and includes attitudes, expectations, responsibility, persistence, and support for learning. In the present context, parents' recognition of the importance of Mathematics represents one aspect of this broader form of engagement.

The lowest-rated statement within this dimension was “At home, my parents encourage me to work hard on Mathematics problems even though the problems are difficult,” with M = 3.29 (SD = 1.01), interpreted as moderate. Although still within the moderate range, this suggests that encouragement specifically during challenging Mathematics tasks was less strongly perceived than parents' general recognition of the subject's importance. The finding is consistent with Lachica (2024) and Corvera et al. (2024), whose studies reported associations between parental support and students' attitudes, persistence, and Mathematics-related learning outcomes. In the present study, the results suggest that motivational involvement is more strongly reflected in parents' general beliefs about the importance of Mathematics than in their reported encouragement during difficult mathematical tasks.

The Resource Provider dimension obtained a mean of 3.18 (SD = 0.73), interpreted as moderate. The highest-rated statement, “At home, my parents provide Mathematics tools such as calculators and rulers,” received M = 3.83 (SD = 1.03), interpreted as High. This indicates that the provision of basic Mathematics tools was one of the more evident forms of parental involvement reported by the respondents. In contrast, the statement “My parents often buy me Mathematics-related books” received the lowest mean of 2.64 (SD = 1.04), although it remained within the moderate interpretation. The difference between these two results indicates that parents were more commonly perceived as providing basic Mathematics materials than supplementary resources such

as Mathematics-related books. Domalanta et al. (2023) noted that parental involvement may vary according to family circumstances, available resources, time, and educational experiences. Thus, the comparatively lower rating for supplementary Mathematics materials may reflect differences in access to and availability of educational resources across households.

The Monitor dimension recorded the lowest overall mean, at 3.11 ($SD = 0.81$), interpreted as moderate. The highest-rated statement in this area was “At home, it is important for my parents that I keep a balance between Mathematics and other subjects,” with $M = 3.67$ ($SD = 1.02$), interpreted as high. This indicates that students more strongly perceived their parents as emphasizing balance among academic subjects than as focusing specifically on Mathematics-related monitoring. Conversely, the lowest-rated statement, “My parents always try to monitor the amount of time I spend on Mathematics at home,” obtained $M = 2.86$ ($SD = 1.01$), interpreted as Moderate. This suggests that direct monitoring of the amount of time devoted to Mathematics was comparatively less evident. The relatively larger standard deviation also indicates greater variation in students' experiences of parental monitoring. This observation is consistent with Domalanta et al. (2023), who reported differences in direct parental participation according to family circumstances and available time. Maimad et al. (2023) likewise observed that parental involvement is often expressed through encouragement, communication, and emotional support, while direct academic involvement may vary among families.

The Mathematics Content Advisor dimension obtained a mean of 3.23 ($SD = 0.79$), interpreted as moderate. The highest-rated statement, “My parents often discuss with me how Math is used in our everyday life,” had a mean of 3.40 ($SD = 1.01$). This indicates that connecting Mathematics with everyday experiences was the most evident form of content-related involvement reported by the students. The lowest-rated statement, “My parents often help me to do Mathematics,” obtained $M = 3.06$ ($SD = 1.05$), also interpreted as moderate. The results suggest that parents were somewhat more involved in discussing the relevance of Mathematics than in directly assisting students with Mathematics activities. This pattern corresponds with Maimad et al. (2023), who described parental involvement as frequently involving communication and encouragement rather than direct academic assistance. The present findings similarly indicate that parental content-related involvement may take different forms, with conversational support being more evident than direct assistance.

The Mathematics Learning Counselor dimension obtained a mean of 3.32 ($SD = 0.64$), interpreted as moderate. The highest-rated statement, “My parents understand my strengths and weaknesses in learning Mathematics,” received $M = 3.72$ ($SD = 0.98$), interpreted as high. This indicates that students generally perceived their parents as being aware of their individual strengths and weaknesses in Mathematics. Such awareness represents an important dimension of parental involvement because it reflects parents' familiarity with their children's Mathematics learning experiences. The finding is consistent with Jeynes (2022), who highlighted the relevance of parental expectations and support to students' academic behaviors, and with Goodall (2023), who emphasized that meaningful parental engagement involves understanding and supporting learners' educational experiences.

In contrast, the lowest-rated statement in this dimension was “My parents don't know strategies in helping me to overcome my weakness in Mathematics,” with $M = 3.17$ ($SD = 0.98$), interpreted as moderate. This result suggests a moderate perception regarding parents' knowledge of strategies for addressing Mathematics-related difficulties. The finding may indicate a distinction between parents' awareness of their children's strengths and weaknesses and their familiarity with specific approaches for providing Mathematics-related assistance. Thus, parental awareness and instructional knowledge appear to represent different aspects of involvement within the home learning environment.

The Nature of Mathematics dimension obtained a mean of 3.36 ($SD = 0.66$), interpreted as moderate. The highest-rated statement was “My parents believe that there is always a rule to follow in solving a Math problem,” which obtained $M = 3.80$ ($SD = 0.89$) and was interpreted as high. This indicates that a rule-oriented view of Mathematics was relatively prominent among the parental beliefs perceived by students. The result suggests that parents may commonly associate Mathematics with rules, procedures, and systematic problem-solving. On the other hand, the lowest-rated statement, “My parents believe that exploring patterns plays no part in learning Mathematics,” obtained $M = 2.83$ ($SD = 1.00$) and was interpreted as Moderate. This relatively lower rating indicates that students were less likely to perceive their parents as strongly rejecting the role of

patterns in Mathematics learning. Taken together, these results indicate variation in the mathematical beliefs attributed to parents, particularly regarding procedural approaches and the role of exploration in learning Mathematics.

Overall, the results indicate that parental involvement in Mathematics was moderate ($M = 3.30$, $SD = 0.53$). The highest dimension was Motivator ($M = 3.40$, $SD = 0.53$), particularly reflected in the strong perception that parents regard Mathematics as important in students' lives ($M = 3.83$, $SD = 0.83$). Meanwhile, Monitor obtained the lowest dimension mean ($M = 3.11$, $SD = 0.81$), with monitoring the amount of time spent on Mathematics at home receiving the lowest rating in that dimension ($M = 2.86$, $SD = 1.01$). The results therefore show a pattern in which students perceived parental involvement more strongly in terms of motivation, recognition of the value of Mathematics, and awareness of their learning needs, while comparatively lower involvement was reported in regular monitoring, supplementary learning resources, and direct Mathematics assistance.

These findings are generally consistent with the literature emphasizing the multidimensional nature of parental involvement. Wang and Wei (2024) reported an association between parental involvement and Mathematics achievement across educational contexts, while Jeynes (2022) and Goodall (2023) emphasized the relevance of parental expectations, encouragement, and engagement in students' educational experiences. Lachica (2024) and Corvera et al. (2024) likewise reported relationships between parental support and Mathematics-related attitudes or learning outcomes. At the same time, Domalanta et al. (2023) and Maimad et al. (2023) highlighted variations in the forms of parental involvement depending on family circumstances, available resources, time, and parents' educational experiences. These studies provide a broader context for understanding the pattern observed in the present findings.

The findings may also be viewed alongside Camillo and Balandra (2024), who reported an association between parental involvement and students' academic engagement. In the present study, however, the descriptive results only establish the level and pattern of perceived parental involvement. These findings provide a descriptive basis for examining whether parental involvement is statistically correlated with the other variables included in the study.

Overall, the results demonstrate that parental involvement in Mathematics encompasses several forms, including motivational support, provision of learning materials, monitoring, Mathematics-related communication, awareness of students' learning needs, and beliefs about the nature of Mathematics. The comparatively higher ratings for motivational support and recognition of Mathematics' importance, together with the lower ratings for monitoring and supplementary resources, describe the particular pattern of parental involvement reported by the respondents. These descriptive findings may serve as a basis for subsequent correlation analysis to determine whether the observed level of parental involvement is significantly related to the other variables examined in the study.

Level of Student-Teacher Relationship

Table 2. Level of Student–Teacher Relationship Among Senior High School Students.

Statement	Mean	SD	Interpretation
1. The teacher calmly answers my questions	4.84	0.47	Very High
2. The teacher is open to criticism	4.36	1.11	Very High
3. The teacher is available to answer my questions	4.79	0.61	Very High
4. The teacher feels responsible for my educational problems	4.74	0.59	Very High
5. Morally, the teacher is a good role model for me	4.86	0.52	Very High
6. The teacher discriminates against the students	3.12	1.64	Moderate
7. The teacher treats me with respect	4.90	0.35	Very High
8. The teacher has flexible behavior	4.79	0.58	Very High
9. The teacher is good-natured	4.90	0.35	Very High
10. The teacher has a humble behavior	4.89	0.36	Very High
11. The teacher's relationship with me is friendly	4.83	0.45	Very High



12. The teacher creates a safe and comfortable atmosphere to communicate with me	4.86	0.46	Very High
13. The teacher welcomes my interaction	4.84	0.41	Very High
14. The teacher's expectations from me are clear and reasonable	4.80	0.47	Very High
15. The teacher's behavior with me is honest	4.84	0.46	Very High
16. When the teacher does not know the answer to a question, he honestly says he does not know	4.39	1.10	Very High
17. The teacher has a suitable expression technique	4.75	0.59	Very High
18. The teacher keeps my personal information confidential	4.81	0.48	Very High
19. The teacher uses nonverbal communication methods such as eye contact and facial expression during communication	4.50	0.99	Very High
20. The teacher has a good appearance	4.86	0.42	Very High
21. The teacher strives for the professional advancement of himself and his students	4.80	0.52	Very High
22. The teacher puts her educational and clinical experiences at my disposal.	4.57	0.79	Very High
23. The teacher encourages me to apply what I have learned	4.89	0.35	Very High
24. The teacher uses new teaching methods such as problem solving and critical thinking to better convey educational materials	4.89	0.40	Very High
25. The teacher provides me with new learning opportunities in different educational environments.	4.86	0.48	Very High
26. The teacher helps my inclusive (emotional and cultural-social) development	4.76	0.56	Very High
27. When dealing with problems, especially in clinical environments, I feel the teacher as a source of support by my side.	4.69	0.75	Very High
28. The teacher cares about my opinions	4.80	0.55	Very High
29. My progress is important to the teacher	4.85	0.46	Very High
30. I can share my emotions and feelings freely with the teacher	4.59	0.78	Very High
31. The teacher's behavior is such that it strengthens my self-confidence	4.82	0.45	Very High
Level of Teacher-Student Relationship	4.71	0.31	Very High

Legend: (4.21 – 5.00)-Very High; (3.41 – 4.20)-High; (2.61 – 3.40)-Moderate; (1.81 – 2.60)-Low; (1.00 – 1.80)-Very Low

Table 2 presents the level of student–teacher relationship as perceived by the senior high school student respondents. The overall mean of 4.71 (SD = 0.31) was interpreted as very high, reflecting generally positive perceptions of teachers' interpersonal, communicative, emotional, and professional behaviors. Most of the indicators received very high ratings, with only one statement falling under the Moderate category. The relatively low overall standard deviation also reflects a high degree of consistency in the respondents' perceptions of their relationships with their teachers.

Among the indicators, the highest ratings were recorded for “The teacher treats me with respect” and “The teacher is good-natured,” both with $M = 4.90$ ($SD = 0.35$) and interpreted as very high. These were followed closely by “The teacher has a humble behavior,” “The teacher encourages me to apply what I have learned,” and “The teacher uses new teaching methods such as problem solving and critical thinking to better convey educational materials,” with means of 4.89. The results reflect strong student perceptions of teachers' respectfulness, positive disposition, humility, and supportive instructional practices. Such characteristics are consistent with Roorda et al. (2021), who emphasized the importance of teachers' responsiveness to students' academic, emotional, and social needs in the quality of student–teacher relationships. The findings also correspond with Wijsman et al. (2021), who highlighted the relevance of perceived teacher support and sensitivity to students' classroom experiences, including motivation, participation, and sense of belonging.

Several indicators related to communication and emotional connection also obtained very high ratings. “The



teacher creates a safe and comfortable atmosphere to communicate with me” received $M = 4.86$ ($SD = 0.46$), while “I can share my emotions and feelings freely with the teacher” obtained $M = 4.59$ ($SD = 0.78$). Similarly, “The teacher uses nonverbal communication methods such as eye contact and facial expression during communication” recorded $M = 4.50$ ($SD = 0.99$). Although these indicators remained within the very high category, their comparatively larger standard deviations show greater variation in students' perceptions. This pattern is also observed in “The teacher puts her educational and clinical experiences at my disposal” with $M = 4.57$ ($SD = 0.79$) and “When dealing with problems, especially in clinical environments, I feel the teacher as a source of support by my side” with $M = 4.69$ ($SD = 0.75$). Thus, while supportive communication and emotional connection were generally rated highly, the degree to which these experiences were shared appeared to vary more across respondents.

The lowest-rated indicator was the negatively worded statement, “The teacher discriminates against the students,” which obtained $M = 3.12$ ($SD = 1.64$) and was interpreted as Moderate. Because the statement is negatively phrased, the lower rating is generally consistent with a perception that discriminatory behavior was not strongly experienced by the respondents. However, its standard deviation was the largest among all the indicators, indicating considerable variation in students' responses. This variation is noteworthy because it may reflect differences in individual experiences regarding fairness, treatment, and attention within the classroom. If the statement was reverse-coded in the final dataset, the corresponding interpretation should be based on the reverse-coded value rather than the raw mean.

The result concerning teacher discrimination may be viewed in relation to Roorda et al. (2021), who emphasized that student–teacher relationships involve teachers' responsiveness to learners' different academic, emotional, and social needs. Wijsman et al. (2021) likewise discussed students' perceptions of teacher support and sensitivity in relation to their classroom experiences. In the present findings, the very high ratings for respect, approachability, communication, and concern for students' progress provide a generally positive picture of the relationship, while the comparatively lower and more variable rating for the discrimination-related statement points to differences in how fairness and equitable treatment were perceived by individual students.

Overall, the very high level of student–teacher relationship ($M = 4.71$, $SD = 0.31$) reflects consistently favorable perceptions across most indicators. The strongest ratings were associated with respectful and good-natured teacher behavior, while comparatively greater variation was observed in indicators involving emotional sharing, nonverbal communication, access to teachers' experiences, and teacher support during problems. The single Moderate-rated indicator concerned teacher discrimination and also showed the greatest variability. Taken together, the findings describe a student–teacher relationship characterized by respect, approachability, communication, professional support, and concern for students' development. These descriptive results provide a basis for the succeeding analysis of whether student–teacher relationship is statistically correlated with the other variables examined in the study.

Level of Academic Performance

Table 3. Level of Academic Performance of the Students.

Level of Academic Performance	f	Mean	SD	Interpretation
Outstanding	130	88.73	5.55	Very Satisfactory
Very Satisfactory	73			
Satisfactory	32			
Fairly Satisfactory	21			
Did Not Meet Expectations	0			
Level of Academic Performance	256			

Legend: 90 – 100 (Outstanding); 85 – 89 (Very Satisfactory); 80 – 84 (Satisfactory); 75 – 79 (Fairly Satisfactory); Below 75 (Did Not Meet Expectations)

Table 3 presents the academic performance of the senior high school student respondents based on their academic average in General Mathematics. **The table includes the distribution of respondents across the different performance categories, together with the overall mean and standard deviation.** The respondents obtained an overall mean of **88.73 (SD = 5.55)**, which was interpreted as **very satisfactory**. **This result reflects a generally favorable level of academic performance in General Mathematics.** The standard deviation of 5.55 indicates some variation in students' grades, showing that individual performance differed despite the relatively high overall mean.

The distribution further shows that **130 respondents** obtained grades within the **outstanding** category (90–100), representing the largest group. This was followed by **73 students** classified as **very satisfactory** (85–89). Meanwhile, **32 respondents** were within the **satisfactory** range (80–84), while **21 students** fell under the **fairly satisfactory** category (75–79). No respondent obtained a grade below 75. Thus, all students included in the study met the minimum grading requirement, while the largest proportion achieved **outstanding** performance. **When the outstanding and very satisfactory categories are considered together, they account for 203 respondents, or approximately 79.3% of the sample.** This distribution provides a clear picture of generally favorable academic performance among the respondents.

The overall mean of 88.73 may be viewed in relation to the perspectives of the **Organization for Economic Co-operation and Development (OECD, 2023)** and **UNESCO (2021)**, which describe academic performance in relation to students' acquisition and demonstration of expected knowledge, skills, and competencies. **Within the present grading framework, the very satisfactory mean indicates that the respondents generally attained grades corresponding to a favorable level of academic performance in General Mathematics.** The predominance of students in the **outstanding** and **very satisfactory** categories further provides evidence of a **generally strong academic profile within the group.**

The distribution of grades is also consistent with **Schneider et al. (2025)**, whose systematic review described academic achievement as being associated with a range of cognitive, emotional, and environmental factors. Their discussion highlighted self-regulation, intrinsic motivation, and positive learning experiences as characteristics observed alongside academic achievement. **In the present study, the large proportion of students in the higher performance categories may be considered within this broader perspective, although the current descriptive results do not establish which specific factors account for the students' grades.**

Similarly, **Svraka et al. (2024)** identified several factors associated with academic performance in General Mathematics, including cognitive abilities, academic self-concept, learning motivation, and social support. **These factors provide a useful context for interpreting the variation evident in the present grade distribution.** While the respondents generally obtained favorable grades, the presence of students in the **satisfactory** and **fairly satisfactory** categories demonstrates that academic performance was not uniform across the group.

The findings may also be considered alongside **Madrilejos (2024)**, who described academic performance as an indicator of students' demonstrated mastery of mathematical concepts and competencies. **The predominance of outstanding and very satisfactory ratings in the present study indicates that many respondents obtained grades reflecting favorable achievement in General Mathematics.** **Barrera (2024)** likewise discussed the relationship of teacher support, instructional quality, and student engagement with academic achievement. **In the present study, these factors provide relevant context when considered together with the very high level of student–teacher relationship reported in Table 2.** However, the descriptive results of Table 3 alone cannot determine whether the quality of teacher–student relationships or other learning-related factors accounted for students' academic performance.

The **21 respondents** classified as **fairly satisfactory** and the **32 students** in the **satisfactory** category also merit attention. **Their presence reflects differences in academic performance within the respondent group, despite the overall very satisfactory mean.** This observation corresponds with **Petilo et al. (2024)**, who discussed variations in academic achievement in relation to differences in learning strategies, motivation, family support, and access to educational resources. **These factors may provide possible contexts for**

understanding differences in students' grades, but their specific relationships with academic performance require separate statistical examination.

The standard deviation of 5.55 further demonstrates that students' grades were not identical and that a measurable spread existed around the overall mean. This finding may be viewed alongside Xie et al. (2024), who reported an association between metacognitive and self-regulated learning skills and differences in academic achievement. Yan (2024) likewise identified mathematics anxiety as a factor associated with mathematics performance. **These studies highlight the range of cognitive and emotional factors that may be relevant when examining differences in academic achievement. Nevertheless, the present study's descriptive statistics only establish the observed level and distribution of grades and do not demonstrate the contribution of any particular factor.**

Overall, the respondents demonstrated a **very satisfactory level of academic performance in General Mathematics ($M = 88.73$, $SD = 5.55$)**. More than half of the students were classified as outstanding, while a further substantial proportion obtained very satisfactory grades. No respondent fell below the 75–79 performance range. **The results therefore reflect generally favorable academic achievement, accompanied by some variation among individual students.** The literature cited provides broader support for viewing academic performance as a multidimensional outcome associated with cognitive, emotional, social, instructional, and environmental factors. **In the context of the present study, these descriptive findings establish the academic performance profile of the respondents and provide a basis for examining its statistical relationship with parental involvement and student–teacher relationship in the succeeding correlation analysis.**

Relationship between the Level of Parental Involvement and Academic Performance

Table 4. Relationship between the Level of Parental Involvement and Academic Performance.

Variable	Test Statistics (r_s)	p-value	Decision for H_0	Interpretation
Parental Involvement vs. Academic Performance	-0.091	0.145	Failed to Reject H_0	Not Significant

Table 4 presents the test of the relationship between parental involvement and academic performance in General Mathematics. The results yielded a test statistic of -0.091 and a p-value of 0.145. Since the p-value is greater than the 0.05 level of significance, the null hypothesis is failed to reject. Thus, the relationship between parental involvement and academic performance is not significant.

The test statistic indicates a very weak negative relationship between the two variables. However, the small magnitude of the coefficient and the p-value of 0.145 indicate that the observed relationship is not statistically significant. Therefore, the results do not provide sufficient statistical evidence of an association between differences in parental involvement and differences in students' academic performance in General Mathematics.

This finding differs from several previous studies that reported positive associations between parental involvement and academic achievement. Wang and Wei (2024) reported a positive relationship between parental involvement and students' mathematics performance, while Kim (2022) found that parental encouragement, guidance, and support were associated with students' academic performance. Similarly, studies in the Philippine context by Albiso et al. (2022), Camillo and Balandra (2024), and Corvera et al. (2024) reported positive relationships involving parental involvement, academic performance, learning engagement, and mathematical skills. These studies highlight the relevance of parental support, monitoring, communication, and educational expectations in students' learning experiences. The difference from the present finding may be related to variations in the respondents, educational settings, measures of parental involvement, and measures of academic performance across studies.

The present result may also be considered in relation to the specific pattern of parental involvement reported in Table 1. Parental involvement was generally moderate ($M = 3.30$, $SD = 0.53$), with relatively higher ratings in

motivational support and recognition of the importance of Mathematics, while monitoring and some forms of direct academic assistance received comparatively lower ratings. This pattern suggests that parental involvement in the present group was expressed more through encouragement, beliefs, and awareness of students' learning needs than through regular monitoring or direct assistance with Mathematics activities. Goodall (2023) emphasized that parental involvement can take different forms and that these forms may differ in their relationship with students' educational experiences. Jeynes (2022) likewise discussed parental engagement in terms of expectations, motivation, attitudes toward learning, and educational aspirations, rather than only direct assistance with schoolwork.

The finding may further be understood in relation to the broader range of factors associated with academic performance. Maimad et al. (2023) described parental support in relation to students' learning habits and educational goals, while Wang and Wei (2024) highlighted the relevance of students' motivation, self-discipline, and active engagement when examining parental involvement and mathematics achievement. These perspectives provide context for the present result, particularly because parental involvement represents only one aspect of students' learning experiences. The non-significant relationship found in this study indicates that variations in perceived parental involvement were not accompanied by statistically significant differences in General Mathematics performance.

Other studies likewise emphasize that academic achievement is associated with multiple personal, cognitive, emotional, and environmental factors. Schneider et al. (2025) and Svraka et al. (2024) discussed academic performance in relation to factors such as cognitive ability, motivation, emotional well-being, self-regulated learning, and the learning environment. Xie et al. (2024) reported an association between metacognitive and self-regulated learning skills and mathematics achievement, while Yan (2024) identified mathematics anxiety as a factor associated with mathematics performance. These findings provide a broader perspective for interpreting the present result because students' grades may reflect a combination of learning-related experiences rather than parental involvement alone.

The very weak negative direction of the relationship may also be considered in relation to the increasing independence expected of senior high school students. At this educational level, students are generally expected to manage more of their own academic responsibilities, including studying, completing requirements, and preparing for assessments. It is also possible that greater parental involvement may be observed among students who require additional academic support. However, the present correlational result does not establish the reason for the negative direction, and such explanations would require further investigation.

Overall, the findings indicate a very weak negative and non-significant relationship between parental involvement and academic performance ($r = -0.091$, $p = 0.145$). The null hypothesis was therefore failed to reject. While the literature generally recognizes parental involvement as an important part of students' educational experiences, the present findings show that its perceived level was not statistically associated with students' General Mathematics performance. The result highlights the importance of considering parental involvement alongside other factors related to students' learning and academic achievement. It also provides a basis for examining the relationship between the other variables included in the study.

Relationship between the Level of Student-Teacher Relationship and Academic Performance

Table 5. Relationship between the Level of Teacher-Student Relationship and Academic Performance.

Variable	Test Statistics (r_s)	p-value	Decision for H_0	Interpretation
Student-Teacher Relationship vs. Academic Performance	0.081	0.178	Failed to Reject H_0	Not Significant

Table 5 presents the relationship between student-teacher relationship and academic performance among the senior high school student respondents. The relationship was examined using Spearman's rank-order correlation. The analysis yielded a correlation coefficient of 0.081 with a p-value of 0.178. Since the p-value is

greater than the 0.05 level of significance, the null hypothesis was failed to reject. Thus, there is no statistically significant relationship between student–teacher relationship and academic performance.

The correlation coefficient of 0.081 indicates a very weak positive relationship between the two variables. Although the direction is positive, the magnitude of the relationship is minimal, and the p-value indicates that the observed association is not statistically significant. Therefore, the findings do not provide sufficient statistical evidence to establish that differences in students' perceptions of their relationships with teachers were associated with differences in their General Mathematics performance.

The finding differs from several studies that reported positive associations between student–teacher relationships and academic achievement. Yang et al. (2022) and Emslander et al. (2023) found that positive teacher–student relationships were associated with academic achievement, school engagement, and learning motivation. Similarly, Choi and Han (2023) and Zhu et al. (2024) reported positive associations between supportive teacher–student relationships and mathematics achievement, particularly in relation to students' motivation, behavioral engagement, and social-emotional competence. These studies provide a broader context for understanding the role of teacher–student relationships, although differences in respondents, educational settings, measures, and other study conditions may account for the contrast with the present finding.

The result may also be considered alongside the descriptive findings presented in Table 2. Students reported a very high level of student–teacher relationship ($M = 4.71$, $SD = 0.31$), with particularly favorable perceptions of teachers' respect, approachability, communication, and supportive behavior. At the same time, Table 3 showed a generally very satisfactory level of academic performance ($M = 88.73$, $SD = 5.55$). The relatively high rating of the student–teacher relationship, together with the small variability in respondents' perceptions, may have limited the extent to which differences in this variable could be associated with differences in academic performance.

The findings may also be understood in relation to studies emphasizing that student–teacher relationships are connected with academic outcomes through students' learning experiences and engagement. Tao et al. (2022) discussed teacher support in relation to students' engagement and motivation, while Wang and Eccles (2022) reported an association between teacher support and academic engagement and commitment to learning. These perspectives suggest that a positive relationship with teachers may be more closely connected with intermediate learning experiences, such as engagement and motivation, than with grades considered independently. Since the present analysis examined the direct statistical association between student–teacher relationship and academic performance, these other factors were not part of the correlation being tested.

Roorda et al. (2021) likewise emphasized that student–teacher relationships may be understood within the context of students' individual characteristics and classroom environments. In the present study, the very high overall rating of the student–teacher relationship indicates that favorable teacher–student interactions were commonly experienced by the respondents. However, the correlation result shows that these perceptions were not statistically associated with differences in General Mathematics grades. This finding illustrates that a generally positive classroom relationship may coexist with differences in academic performance among students.

Academic performance is also associated with multiple factors beyond the student–teacher relationship. Schneider et al. (2025) and Svraka et al. (2024) described academic achievement in relation to cognitive abilities, motivation, self-regulated learning, emotional well-being, family support, and learning strategies. Barrera (2024) similarly discussed teacher support as one component within the broader set of factors related to mathematics performance. These perspectives provide context for the present result, particularly because academic performance may reflect several student-, family-, instructional-, and school-related experiences.

Overall, the findings indicate a very weak positive and non-significant relationship between student–teacher relationship and academic performance ($r_s = 0.081$, $p = 0.178$). The null hypothesis was therefore failed to reject. Although students generally perceived their relationships with their teachers as very high, these perceptions were not statistically associated with their General Mathematics performance in the present study. The result does not diminish the importance of positive teacher–student relationships in the broader



educational experience; rather, it indicates that the present data did not provide sufficient evidence of a significant relationship between this variable and academic performance. The finding further supports the consideration of multiple personal, family, and educational factors when interpreting students' academic achievement.

CONCLUSIONS

Based on the findings of the study, the following conclusions were formulated:

Parental involvement in Mathematics was moderate. The findings indicate that parents were generally involved in their children's Mathematics learning, particularly in providing motivation, recognizing the importance of Mathematics, and offering support related to learning. However, parental involvement in monitoring Mathematics-related activities was comparatively less evident. This suggests that parental involvement was present but varied across different forms of support.

The student-teacher relationship was very high. The respondents generally perceived their Mathematics teachers as respectful, good-natured, supportive, approachable, and encouraging. The findings reflect a positive classroom relationship characterized by respect, communication, and teacher support. However, some aspects, such as openness to criticism, emotional sharing, and nonverbal communication, showed comparatively greater variation in responses.

The academic performance of the respondents in General Mathematics was very satisfactory. Most of the respondents obtained grades within the outstanding and very satisfactory categories, indicating generally favorable academic performance. The overall performance provides evidence that the respondents were able to meet the expected academic requirements in General Mathematics during the period covered by the study.

Parental involvement was not significantly related to academic performance in General Mathematics. The analysis revealed a very weak negative relationship between parental involvement and academic performance, and the relationship was not statistically significant. Therefore, the null hypothesis was failed to reject. The findings indicate that the level of parental involvement, as measured in the study, did not have a statistically significant association with the respondents' General Mathematics grades.

The student-teacher relationship was not significantly related to academic performance in General Mathematics. Although the respondents reported a very high student-teacher relationship, the correlation with academic performance was very weak and positive and was not statistically significant. Thus, the null hypothesis was failed to reject. The findings indicate that a highly positive student-teacher relationship did not correspond to a statistically significant difference in General Mathematics performance within the respondents included in the study.

Neither parental involvement nor student-teacher relationship demonstrated a statistically significant relationship with academic performance. Although parental involvement was moderate, the student-teacher relationship was very high, and academic performance was very satisfactory, neither of the two relational variables was significantly associated with General Mathematics grades. This suggests that academic performance may be understood more comprehensively by considering other learner, family, instructional, and school-related factors beyond the two variables examined in the study.

Overall, the study concludes that while parental involvement and student-teacher relationships are important components of the students' educational experiences, their measured levels were not significantly associated with academic performance in General Mathematics in the present sample. The findings therefore highlight the need to consider a broader range of factors when examining students' academic performance in Mathematics.

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