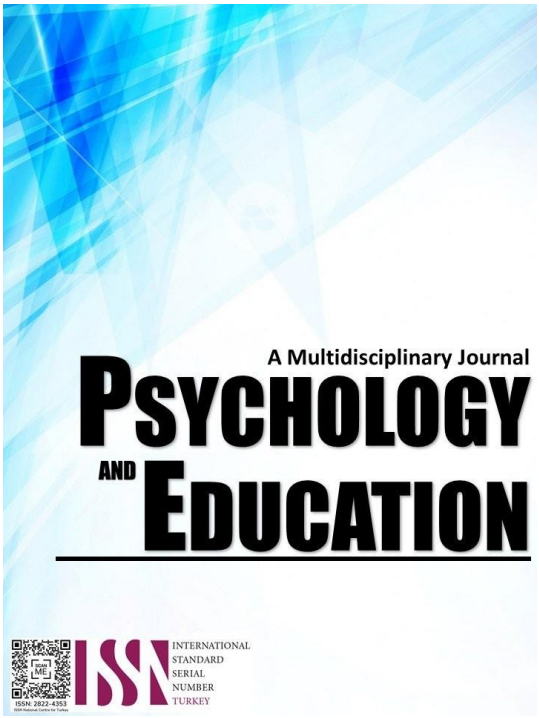
PARENTS' INVOLVEMENT, MATHEMATICAL SKILLS, AND STUDENTS' MATHEMATICS PERFORMANCE



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Research Article

Parents' Involvement, Mathematical Skills, and Students' Mathematics Performance

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Abstract

The goal of the study was to determine the relationship between parental involvement, mathematical skills, and students' mathematics performance. The researchers employed a descriptive correlational research design to determine the relationship between math performance, parental involvement, and mathematical skills. The participants of the study were 67 first-year and 56 second-year education students of private university currently enrolled during the second semester of the school year 2022-2023. Total Enumeration Sampling technique was used in the selection of the participants. Likewise, adapted survey questionnaires were used to ascertain the level of parental involvement, mathematical skills, and students' mathematics performance. The findings of the study revealed that the students have a moderately high level of parental involvement from their parents and a high level of mathematical skills in terms of interest and study habits but have a low performance in mathematics. Thus students' math performance is not directly affected by the students' parental involvement of their parents, interest, and study habits. Despite the high level of parental involvement and mathematical skills most of the students still have difficulty in mathematics.

Keywords: *parental involvement, mathematical skills, academic performance, pre-service teachers*

Introduction

Mathematics holds a central and captivating role in various fields, and a student's academic success significantly relies on their achievement in this subject. However, the performance of college students in mathematics, both globally and locally, has been a significant source of concern. Learners are generally performing poorly in mathematics, and pressure is being accumulated. According to Anderson and Schönborn (2008), university students should become proficient in a variety of cognitive skills to become "experts" in their fields and be able to solve new problems. It needs to improve students' mathematical skills to resolve one of these problems.

In student education, parents play an essential role. Parents are the children's first teachers and have a greater understanding of them than anyone else. Nonetheless, there is a common misconception among parents, that they cannot rely solely on teachers for their children's education. It is imperative that parents actively participate in their children's educational journey, and encourage them to excel academically. According to Spring (2006), parents are labeled as uninvolved when they do not meet the educational system's standards for involvement. Improving the educational success of all students is a critical educational goal that has received much public attention. It is crucial to recognize the factors that contribute to academic success and understand the mechanisms by which they exert their influence.

According to Emerson (2014), "active engagement of parents with the school can make a substantial positive impact on a student's academic achievements". The benefits of parental engagement applies to everyone concerned. When a parent or family member is actively involved in a student's education it leads to students feeling more supported in their educational journey. Vukovic (2013) affirms that when parents set ambitious academic standards for their children, they boost their children's academic performance. Performance, even if they may not be familiar with the specifics of their child's homework.

As stated by Dabell (2021), the involvement of parents is not something that can be treated as an additional, optional element, as the outcomes are of great significance. Children who have actively engaged parents in their math education tend to have a higher probability of achieving success. Parents play a pivotal role in this process, serving as the initial and most long-lasting educators, as emphasized by Kerman (2012). Even though some parents feel they should not be involved in their child's learning in college. Parents must become involved when their child is struggling. Content is constantly added in math and falling behind can be a significant mental roadblock.

Math achievement, in particular, can be seen as a crucial factor that significantly contributes to the overall quality of the education sector, as noted by Soni and Kumari (2017). Thus, this study seeks to establish the correlation between math achievement, parental engagement, math proficiency, and parental contributions to students' math success, the researcher sought to investigate the various dimensions of parental involvement and the extent of mathematical skills influenced the academic success of students in mathematics. The researcher is of the view that this study will contribute to enhancing students' math performance and provide parents with insights into the types of involvement that can aid their children's better comprehension of mathematics. Consequently, there is a compelling rationale for conducting this research.

Research Objectives

The main objective of the study was to determine the relationship between math performance, parental involvement, and mathematical skills. Specifically, it answered the following objectives:

1. Determine the level of parental involvement, mathematical skills, and math performance of the first year and second year STE students.
2. Determine the significant relationship between math performance, parental involvement, and mathematical skills.

Literature Review

Level of Parental Involvement

Parental involvement refers to the extent of a parent's commitment to their role and fostering their children's optimal development. It usually refers to the effort put into activities like education geared toward children. Parental engagement can manifest in various ways, such as assisting with educational tasks at home, engaging in school-related events, and maintaining communication with the school (Schueler et al., 2017). In the study of Huang 1, Huang 2, Li 1, and M Zhang1's (2021) research, the results from their data indicate that two dimensions of parental involvement—cognitive and behavioral—serve as partial mediators. Parents who actively supervise their children's academic progress tend to emphasize their children's advancements, consequently positively influencing their achievement in mathematics.

In Korea, parental involvement includes another aspect, private tutoring, which correlates positively with student math scores (Park et al., 2011). In a concise research paper authored by Lara and Mahia (2019), a cluster analysis of 498 parents or guardians with children in second and third grades across 16 public elementary schools in Chile revealed the presence of three discernible profiles of parental involvement—categorized as high, medium, and low. These distinctions emerged when various forms of parental engagement were considered, encompassing involvement at home, at school, and in response to invitations from the children, teachers, and the school. The findings indicate differences in children's academic achievement based on parental involvement profiles, indicating that children with low involvement have low academic achievement. The findings are consistent with international research evidence, indicating the importance of focusing on this variable in Latin American contexts.

A preliminary inquiry carried out by Cai, Moyer, and Wang (2016) found that "students who receive the strongest support from their parents not only demonstrate higher levels of proficiency but also hold more positive attitudes toward mathematics in comparison to students with less supportive parents". This highlight the significance of encouraging parental involvement, with particular attention to the parental role in their children's mathematical education.

Mathematical Skills

Mathematics does not only provide us with an attitude or ability to memorize; it also helps us to understand mathematics. The students' comprehension of mathematical concepts is shaped by their grasp of the material and their interpretation of the presented problem. They are learning Mathematics studies, expanding situations, conclusions, and solving problems. Mathematics also advances the habit of accuracy, logical, systematic, and order arrangements. Teaching mathematics can only be truly effective when it positively impacts student learning Generation Ready (2021). It has been regarded that mathematics is a fundamental subject since it consists of arithmetic and logical reasoning.

"The involvement of students in mathematics subject decreases as they progress from secondary to tertiary education and beyond," as noted by Fullarton et al. (2003) and Kennedy et al. (2014). Academic challenges in mathematics at higher education levels prompted inquiries into the connection between teaching approaches and students' learning processes, as explored by Kwan (2017). Hence, educational institutions place a strong focus on students' competence in computational abilities and their problem-solving skills, as highlighted by Yeh (2019). This article assessed the level of mathematical skill proficiency among students pursuing both mathematics and non-mathematics majors within the recently introduced general education course known as "Mathematics in the Modern World. The study investigated differences in the degrees of mathematical proficiency and highlighted the importance of these skills in influencing student success. The psychosocial factors highlight personality, cognitive factors, and motivation towards mathematics. Mathematics learning is related to personality traits and cognitive factors, which may be considered predictors of students' mathematical ability. Motivation is strongly connected to self-efficacy beliefs. Stronger self-efficacy beliefs of the student lead to better motivation to perform tasks (Walter & Hart, 2009).

Many students have difficulty understanding mathematics, and this affects learners' achievement. According to the study of M R Ramdhania, B Usodob, S Subantic (2017), The absorption capacity of students has the lowest absorption of 42.01% at the district level, 40.26% at the provincial level, and 47.19% at the national level. This shows that most of the time, students' problems with proving were brought on by their misunderstanding of basic mathematical definitions and concepts, making it impossible for them to create mathematical examples, write mathematical symbols, or use mathematical language correctly. Students' mathematical skills and their mathematical comprehension skills are related. Mathematical understanding is fundamental in understanding mathematical problems and problems in daily life. A meaningful understanding of learning mathematics should be directed at developing the mathematical connections between different ideas and understanding how mathematical ideas are interrelated by building a thorough understanding and use of mathematics in contexts outside of mathematics. Furthermore, it enhances the interest and study habits of the learners. Study Habits of the child will help to enhance the interest in the subject by setting a background of the topic and the basic computation while at home, and their parents' support will help them resolve confusion. The research conducted by Jay, Rose, and Simmons (2018)

underscores the widely acknowledged significance of parents and the home environment in significantly influencing students' mathematical learning. This provides the context for examining various factors that promote or impede diverse forms of parental engagement in children's mathematics education. Therefore, it is essential to pinpoint the factors that positively contribute to academic success and comprehend the mechanisms by which they operate. According to Huang et al. (2021), one especially encouraging pathway for improving students' academic performance is through active parental engagement. It was also supported by the study of Manya Whitaker (2019), which implies that parent involvement includes helping children succeed in school. Parents who attempt to support their children's learning can be grouped into one or more of the following categories: participation through encouragement, participation through modeling, participation through reinforcement, and participation through guidance.

The majority of students despise mathematics, which is a well-known truth. It is complicated, confusing, and one of the only subjects that tends to lower student GPAs. These studies show how parents' participation significantly impacts the child's learning process. It will greatly affect and enhance the child's academic performance and skill in mathematics, and students will be able to build connections using mathematics and develop a math model that reflects the complexity and interconnectedness of global circumstances. It is crucial to reflect on how mathematical subjects can empower students to comprehend the world around them, how students can apply their experiences to use mathematics for community impact, and the specific mathematical knowledge students require to address intricate challenges in a complex world.

Math Performance

According to Guinocor Marvin's (2020) research, teaching and understanding mathematics poses significant challenges within educational systems. The researchers conclude that their research reveals that their learners “exhibit diverse study approaches”. They recommend further investigation to assess the effectiveness of study techniques based on their findings.

The investigation of Blömeke and Delaney in 2012 is crucial and “mandated across various fields”. Nonetheless, challenges related to achieving proficiency in mathematics persist not only in the Philippines but also in other countries. In the Philippine context, educational modules in mathematics cover specific topics and instructional standards aimed at equipping students with the necessary skills to comprehend fundamental mathematical concepts. Several factors influence the grades that reflect students' mathematical performance. This study will primarily concentrate on the emotional aspects of students, “with a specific focus on their study habits and attitudes, often collectively referred to as study orientations”, as identified by Biswas in 2015.

Bashir and Mattoo (2012) uncovered noteworthy results indicating a substantial link between different facets of study behaviors and academic success. Khurshid (2012) also conducted research that illustrated a clear association between study habits and academic accomplishments. The attitude toward studying, in particular, has a crucial impact on determining the depth and approach to learning. It affects students' dedication to understanding and applying mathematical concepts and skills. Instances, where students need more study orientations may lead to decreased performance in mathematics

Relationship between Math Performance and Parental Involvement.

According to the research conducted by F Huang, Z Huang, Li, and Zhang (2021) in their study that the scholars have defined parental involvement as a “multifaceted concept encompassing cognitive/intellectual, behavioral, and personal engagement”. Academic success and parental involvement have a different relationship depending on the interaction. However, much research has been done on how parental participation affects children's math skills. Furthermore, it needs to be clarified how parental involvement underlying mechanisms impact students; math achievement. In earlier studies, students &; mental health and their sense of self-efficacy were found to be reliable indicators of academic success. These two crucial aspects greatly influence students' accomplishments because of their malleability and relationship to one another. When considered as a whole, parental involvement in several dimensions may play a significant role in raising children and math proficiency through its influence on students' mental health.

This study evaluated the mediating roles of students. The multifaceted character of parental participation entails a comprehensive analysis of psychological health and self-assurance regarding mathematical skills, encompassing cognitive, behavioral, and personal elements in a Chinese context. Questionnaires were distributed to 2866 adolescents and their parents. Structural equation modeling and bias-corrected bootstrap methods were utilized. The results indicate that different aspects of parental involvement exert distinct impacts on mathematical success. Moreover, the results indicate that children's mental well-being and confidence in mathematics acted as complete or partial mediators in the impact of the complex construct of parental involvement on mathematical achievement. The findings also provide insights into potential interventions to explore parental engagement.

Several investigations have been carried out to establish a framework for learning and formulating successful teaching approaches. The present study aims to empower children with the tools required to apply and develop self-regulation skills in mathematics beyond the conventional and formal school setting, leveraging their day-to-day activities and parental involvement. The ongoing study evaluated the impact of parental involvement on children's ability to address mathematical problems and employ self-regulation to overcome cognitive hurdles. A program was developed to modify parents' views regarding supporting their children's persistence in problem-solving and overcoming challenges.

According to Vukovic et al. (2013), there may be a connection between parental participation and academic accomplishment and

children's mathematical anxiety. The results emphasize the requirement for a program aimed at enhancing parental engagement in mathematics, with a specific focus on methods conducted at home, as parents can influence their children's math skills by reducing math-related anxiety. Jay, Rose, and Simmons (2017) advocate for parents actively engaging in "exploring mathematics through everyday activities" with their children. The findings suggest that when parents gain confidence in applying mathematical concepts, they also become more adept at conveying their ideas and knowledge to their children. In their efforts to enhance their children's academic performance, parents often believe that assisting with homework is a necessary step. Van Voorhis (2011) asserts a "connection between parental participation and the academic accomplishments of students in math, science, and language." Meanwhile, in their 2014 study, O'Sullivan, Clen, and Fish discovered that concerning parental participation in math homework, specifically with regard to providing direct help and fostering independence, "it does not serve as a predictor of children's grades". However, the anticipated impact of autonomy support is expected to differ from a control situation where parents dictate the schedule for their children's homework

Relationship between Math Performance and Mathematical Skills

The study by Shu-Ling Wong and Su Luan Wong (2019) which the primary objective of this initial investigation is to "explore whether there is a potential link between the enthusiasm of Malaysian students for mathematics and their achievements in a technology-enhanced learning setting". Forty understudies were given the Science Intrigued Stock to discover how interested they were in math, and a math test was utilized to discover how well they did in math. The understudies were directly interested in science, concurring with the expressive measurable analyses. Students' science execution was not connected with their intrigue, concurring with correlational analyses. However, among understudies with lower arithmetic execution, a noteworthy relationship was found between intrigued and performance. Given the study's solid relationship with arithmetic execution, the noteworthiness of creating intrigue among understudies with lower math execution was highlighted. The Interest-Driven Maker hypothesis tied down the study's hypothetical system, which was discussed inside the learning arithmetic setting. Numerous research studies have dedicated their efforts to intevening and encouraging the cultivation of students' enthusiasm for learning mathematics. As per Thien and Ong's (2015) research, one potential explanation is that students might experience anxiety about mathematics despite recognizing its practical value in Malaysian education. This is attributed to the requirement of obtaining a passing grade in general mathematics for admission to various higher education institutions. The findings of the present study indicate that there is no substantial correlation between interest in mathematics and overall math performance, especially among individuals with higher math skills. However, a noteworthy positive connection is observed between an enthusiasm for learning mathematics and math performance for those with lower math skills.

Methodology

Research Design

The researcher used the descriptive-correlational type of research design. This design correctly describes the relationship between Parental involvement (at home and school) and the student's academic performance in Mathematics (interest and study habits) variables. According to McBurney & White (2009), descriptive correlational design is used in research studies that provide static pictures of situations that investigate relationships between variables without the researcher controlling or manipulating them. It aimed to determine whether there is a positive or negative correlation. The direction of a correlation can be either positive or negative. Furthermore, correlational studies are non-experimental, meaning the experimenter does not manipulate or control variables (Cherry, 2022). Findings from correlational research can be used to determine prevalence and relationships among variables and to forecast events from current data and knowledge (Curtis et al., 2016).

Respondents

The study respondents were the first year with 67 STE students and the second year with 56 STE students of Liceo de Cagayan University, who are currently enrolled during the second semester of the school year 2022-2023. The researchers have easy access to them in times of data gathering. Likewise, the researchers are STE students who desire to contribute something to their college through research output involving STE students. Furthermore, the researchers used the Total Enumeration Sampling technique to select the participants. According to Sugiyono (2014:68), the total population sampling technique is where the whole population is treated as a sample. The researchers consider this their sampling method because the population is so small and well-defined. This means that all first and second-year STE students, with a total of 123 students, consented to be included as research participants.

Instrument

The gathered data answered the research questions, the researchers used an adapted parental involvement questionnaire of Dohner-Chávez (2007), mathematical skills questionnaire of Balbalosa (2010) and mathematics test items. Both parental involvement and mathematical skills questionnaires are 5-scaled questionnaires wherein 5 (SA) is the highest possible response and 1(SD) is the lowest possible response.

Content validation of the Survey Questionnaire was made by three chosen experts in the field of Mathematics Education for analysis, recommendations, and questionnaire enhancement. The validity of a questionnaire was established using a panel of experts who explored theoretical constructs (Bolarinwa, 2016). On the other hand, Pilot Testing was conducted on 30 students not included in the

sample to carry out a reliability test of the questionnaire. Cronbach's Alpha Coefficient was used for its Internal Consistency Reliability Test from the participants' responses. As Bolarinwa (2016) further noted, the reliability coefficient (alpha) can range from 0 to 1, with 0 representing a questionnaire that is not reliable and 1 representing a highly reliable questionnaire.

The reliability test result of parental involvement was established with Cronbach's Alpha coefficient of 0.789, students' interest was established with Cronbach's Alpha coefficient of 0.788, and students' habits were established with Cronbach's Alpha coefficient of 0.943, Math performance was established with the Cronbach's Alpha coefficient of 0.992 and interpreted as acceptable and reliable. A reliability coefficient (alpha) of 0.70 or higher is considered acceptable reliability in SPSS (Statistical Package for Social Sciences, by IBM incorporated)—the items in the questionnaire of parental involvement, numbers 5, 10, 14, and 15. In the questionnaire of students' interest, numbers 2, 3, and 5, and the questionnaire of math performance, number 1 was considered unreliable. Thus, these items had been excluded.

Procedure

The Researcher conducted the research in the Second Quarter of the School Year 2022- 2023 in February 2023. Prior to the implementation of the research, a letter was approved and submitted to the Dean of the School of Teacher Education at Liceo de Cagayan University. After the Dean has approved the letter and a clearance from the Research Ethics Board of Liceo de Cagayan University is secured, the data-gathering procedure has followed. The Survey Questionnaire was distributed to 30 respondents not included in the study's sample population for pilot testing via Google form. After that, the reliability test was processed, and content validation of the tool was executed. The participants of this study are the 123 STE students of Liceo de Cagayan de Oro. With the corresponding target population of each stratum or year level obtained from a proportionate stratified random sampling method, the research administered a simple random sampling using the lottery method, assigning numbers to students in a classroom to be able to reach out to those participants in each stratum. Simple random sampling is a method of randomly selecting the sample from the population's subset or strata (Thomas, 2020). participation is voluntary. Those who took part and found it uncomfortable to answer the item can skip the question, not answer, or withdraw their participation.

The Researcher administered the survey questionnaires to its target participants through Google Forms. The completed questionnaires have been selected, and the data gathered was forwarded to the statistician for data analysis. Answering the items survey questionnaire took the participants approximately 15 – 30 minutes to finish. The Researcher has not used the survey result or their Personal Information for any purpose beyond the scope of this research project. If the item in the survey triggers distress among the participants, they may notify the Researcher directly or withdraw their participation from the study. Furthermore, they are not forced to answer any questions that are too personal or uncomfortable for them. Moreover, the participants have not received any financial remuneration due to their involvement in the current study.

Participants' Information obtained from this study was treated with complete confidentiality and anonymity. The possibility of a breach of their privacy is considered. As a result, the Researcher used every means to ensure confidentiality. Participants' names are not disclosed but rather be used solely for gathering data on their academic performances in mathematics obtained from their respective mathematics teachers. The data gathered will only be used throughout the study process. They are used for academic purposes, which excludes their Personal Information. After all the data is gathered, the Statistical Package for Social Sciences (SPSS) will be used in tallying, analyzing, and interpreting the results with the help of relevant experts in this field.

The people who have access to the gathered data are no one else except the Researcher, the research adviser, the statistician, and others who will be engaged in data analysis. The findings of this research have also been shared with other students for future research. The completed paper of this research has been made accessible at the Liceo de Cagayan University campus libraries. Prior to publishing, the approval of the University and the participants will be taken into account. They also not be addressed or specified in the publication.

Lastly, the Researcher understands that conflict of interest refers to situations in which financial or other personal considerations may compromise judgment in evaluating, conducting, or reporting research, therefore declaring that no personal conflict of interest may arise from the application and submission of this research proposal.

Data Analysis

After the data was coded and tallied, the Researcher used statistical tools to analyze and interpret the results. To answer Problems 1, 2, and 3, Descriptive Statistics, specifically the Mean and Standard Deviation, was employed to determine parental involvement, mathematical skills in terms of interest and study habits, and their level of Mathematics Performance. Lydersen (2022) asserted that mean and standard deviation are frequently used measures of central tendency and variability in data from scale variables. Thus, this statistical tool is appropriate for this study's problems 1, 2, and 3.

To know if there is a significant relationship between the independent variables (parental involvement and basic mathematical skills in terms of interest and study habits) and the students' mathematics performance as the dependent variable, Problem 4 used the Pearson Correlation Coefficient (r). The Pearson product-moment correlation coefficient (Pearson's correlation, for short) measures the strength and direction of association between two variables measured on at least an interval scale. Thus, Curtis et al. (2016) confirmed that findings from correlational research can be used to determine prevalence and relationships among variables and to forecast events from

current data and knowledge

Results and Discussion

This section presents the results and discussion based on the data collected of the study conducted. The presentation of the tables below according to the order of the objectives of the study. The data collected were analyzed using the statistical software which served as the basis of the tabular presentation. Text below the table serves as the discussion of the interpretation of the results of the analysis of the data.

Objective 1. Determine the level of parental involvement, mathematical skills, and math performance of the first-year and second-year year STE students.

Table 1. *Level of Parental Involvement of the Parents as Perceived by the Students*

Indicators	*Mean*	*SD*	*Description*	*Interpretation*
1. My parents helped me develop good study habit	3.69	1.01	Agree	High
2. My parents encouraged me to get good grades.	3.88	.901	Agree	High
3. My parents were strict when it came to School	3.57	1.05	Agree	High
4. My parents checked to see if I had homework.	3.06	1.00		High
5. My parents punished me (e.g., took away my TV privileges) if I received bad grade	2.69	1.25	Neutral	Moderately High
6. My parent(s) volunteered in my class.	2.88	1.15	Neutral	Moderately High
7. My parents provide we with the material support	3.63	1.09	Agree	High
8. My parents demonstrated support for my extracurricular activities.	3.56	1.06	Agree	High
9. My parents seemed to be proud of me when I received good grades in school.	3.87	.922	Agree	High
10. My parents allot time for me to do my homework	3.86	.770	Agree	High
Over-all Mean	3.47	1.02	Neutral	Moderately High

Legend: 4.50-5.00, Strongly Agree (Very High); 3.50-4.49, Agree (High); 2.50-3.49, Neutral (Moderately High); 1.50-2.49, Disagree (Low); 1.00-1.49, Strongly Disagree (Very Low)

Table 1 presents the Level of Parental Involvement of the Parents as Perceived by the Students. As shown in the table, the students obtained the highest mean score of 3.88 for item number 2, "My parents encouraged me to get good grades," followed by item number 9, "My parents seemed to be proud of me when I received good grades in school" with a mean score of 3.87. Meanwhile, the students obtained the lowest mean score of 2.69 for item number 5, "My parents punished me (e.g., took away my TV privileges) if I received a bad grade," followed by item number 6, "My parent(s) volunteered in my class" with a mean score of 2.88. The overall mean is 3.47, interpreted as moderately high. This finding revealed that the students have a moderately high level of parental involvement from their parents. This finding supports the claim of Voorhis (2011) that parents are willing and eager to be involved with their children schoolwork and want their interactions to be fruitful , beneficial and positive. Similar to the study of Chen and Gregory (2011), middle school students perceived parental involvement in their academic lives as beneficial and supportive in one study. Students reported that their parents assisted them with homework, counseled them on academic and career options, and attended school events and conferences. According to the students, parents' involvement also helped them feel more motivated and confident in their academic abilities. Bunijevac and Durisic (2017) also cited that a high level of parental involvemen led to student success.

Table 2. *Level of Mathematical Skills of the Students in Terms of Interest*

Indicators	*Mean*	*SD*	*Description*	*Interpretation*
1. I make myself prepared for the math Subject	3.45	.885	Neutral	Moderately High
2. I listen attentively to the lecture of my math teacher.	4.02	.940	Agree	High
3. I actively participate in the discussion, answering exercises and/or clarifying things I did not understand.	3.40	.913	Neutral	Moderately High
4. I want to get good grades on tests, quizzes, assignments and projects.	4.12	.836	Agree	High
5. I get frustrated when the discussion is interrupted or the teacher is absent.	3.69	.927	Agree	Moderately High
6. I always take down notes of all the equation.	3.80	.919	Agree	Moderately High
7. I assert myself by answering board work, and answering exercises.	3.66	.871	Agree	High
8. I clarify things/ equation I did not understand.	3.87	.901	Agree	High
9. I get bored if the teacher don't ask question about the lesson	3.43	.985	Neutral	Moderately High
10. I get terrified to answer if the teacher is strict.	3.94	.993	Agree	High
Over-all Mean	3.74	0.91	Agree	Moderately High

Legend: 4.50-5.00, Strongly Agree (Very High); 3.50-4.49, Agree (High); 2.50-3.49, Neutral (Moderately High); 1.50-2.49, Disagree (Low); 1.00-1.49, Strongly Disagree (Very Low)

Table 2 presents the Level of Mathematical Skills of the Students in Terms of Interest. As shown in the table, the students obtained the highest mean score of 4.12 for item number 4, "I want to get good grades on tests, quizzes, assignments, and projects," followed by item number 2, "I listen attentively to the lecture of my math teacher" with a mean score of 4.02. Meanwhile, the students obtained the lowest mean score of 3.40 for item number 3: "I actively participate in the discussion, answering exercises or clarifying things I did not understand," followed by item number 9, "I get bored if the teacher does not ask a question about the lesson," with a mean score of 3.43. The overall mean is 3.74, characterized as high. This findings indicates that the students possess a significant degree of mathematical competence in relation to their interest. This observation aligns with Shu Ling Wong's assertion in 2019 that "interest in learning mathematics is positively linked to mathematical performance in individuals with varying levels of mathematical ability". One explanation offered by this study could be that students in the high mathematics performance group were driven to learn for external reasons. Their classroom math learning activities were more structured, or they taught well because they had better mathematics competency. As a result, even though there are some lower levels of interest in mathematics, they could still perform better on the mathematics test according to their level of interest.

According to Ryan's study (2022), the findings show that the Mathematical Skills of the Students in Terms of Interest are also high, and motivated pupils with a good attitude regarding the topic excel in mathematics. According to research, a deep interest in the subject contributes to academic success and influences students' career aspirations and goals. Similar to the study of Illiyas (2017) stressed out that parental encouragement for their children to study Mathematics deeply is considered a factor that influences students' interest in learning Mathematics. Students' enthusiasm for learning mathematics is said to be influenced by their parents' support of them to do so. This research's findings concur with those of Dimakos, Tyrlis, and Spyros (2012) and Safiyeh and Ali (2014), who found that students' parents play significant roles in influencing and enhancing their children's interest in mathematics learning.

Table 3. *Level of Mathematical Skills of the Students in Terms of Study Habits*

Indicators	*Mean*	*SD*	*Description*	*Interpretation*
1. I do my assignments regularly.	3.88	.772	Agree	High
2. I exert more effort when I do difficult assignments.	3.73	.868	Agree	High
3. I spend my vacant time in doing assignments	3.59	1.01	Agree	High
4. I study the lessons I missed if I was absent from the class	3.69	.806	Agree	High
5. I study and prepared for quizzes and tests.	3.81	.884	Agree	High
6. I study harder to improve my performance when I get low grades.	3.93	.907	Agree	High
7. I spend less time with my friends during school days to concentrate more on my studies.	3.96	3.09	Agree	High
8. I prefer finishing my studying and my assignments first before watching any television program.	3.61	.900	Agree	High
9. I see to it that extracurricular activities do not hamper my studies.	3.76	.951	Agree	High
10.I have a specific place of study at home which I keep clean and orderly.	3.94	.934	Agree	High
Over-all Mean	3.79	1.11	Agree	High

Legend: 4.50-5.00, Strongly Agree (Very High); 3.50-4.49, Agree (High); 2.50-3.49, Neutral (Moderately High); 1.50-2.49, Disagree (Low); 1.00-1.49, Strongly Disagree (Very Low)

Table 3 presents the Students' Level of Mathematical Skills in Terms of Study Habits. As shown in the table, the students obtained the highest mean score of 3.96 for item number 7, "I spend less time with my friends during school days to concentrate more on my studies," followed by item number 10 ".I have a specific place of study at home which I keep clean and orderly" with an average score of 3.94. At the same time, students received the lowest average score of 3.59 for item 3, "I spend my vacant time doing assignments," followed by item number 8, "I prefer finishing my studying and my assignments first before watching any television program," with a mean score of 3.61. The overall mean is 3.79, interpreted as high. This finding revealed that the students have a high level of mathematical skills regarding study . This finding revealed that students have high math skills in relation to study habits. This finding supports Odiri's (2015) claim "Students who cultivate effective study routines demonstrate a more profound comprehension of mathematics". This highlights the positive impact of study habits on mathematical attainment. Additionally, they found that adept study habits are linked to favorable outcomes. Sakirudeen (2017) mentioned that "good study habits, using the library, scheduling study time, and student's academic success in mathematics are significantly correlated and have high results". Students should receive an orientation from guardian counselors on how to take excellent notes and manage their time. This would encourage students to develop productive study habits. The findings support Onu's (2016) assertion that scheduling study time involves structuring efforts to produce the best results possible given the time constraints.

The study of Capuno (2019) The statistics result of their imply that the respondents' study practices require improvement. One of the explanations for their acceptable success in arithmetic can be attributed to their study habits. Most of the time, mathematical ideas entail calculations and problem-solving, which call for pupils to practice outside of the classroom. Moreover, this finding supports the claim of a study by Jafari (2019) that most students had moderate academic performance and study habits. There was a strong correlation between students' study behaviors and academic success, given the significance of study habits for students' academic success and future jobs and that most study habits can be taught and rectified. It was believed that using study techniques and developing

good study habits will help students perform better academically. Academic success and reaching educational objectives depend on a number of variables, the most crucial of which is an individual's study habits, as using a variety of efficient study techniques enhances students' academic mathematics performance.

Table 4. *Level of Math Performance of the Students*

Range	*F*	*%*	*Interpretation*	*Mean*	*SD*	*Interpretation*
45-50	1	.9	Very High			
35-44	5	4.6	High			
25-34	18	16.8	Moderately High			
15-24	49	46.2	Low			
14 and Below	33	31	Very Low	19.55	8.22	Low
Total	106	100.00				

Table 4 presents the Level of Math Performance of the Students. As depicted in the table, 46.2% of the students have low math performance, 31.0% have deficient performance, 16.8% have moderately high performance, 4.6% have high performance, and .9 % have very high performance. The overall mean is 19.55, interpreted as low performance. This finding revealed that the students have a low performance in mathematics. The data backed up the statements of Blomeke and Delanay (2012) that the low performance of Filipinos in mathematics is still evident. In line with Sharma et al.'s (2018) research, students in the 21st century come into classrooms facing significant deficiencies in numerical and algebraic concepts, analytical understanding problem-solving skills and harbor negative attitudes towards these subjects. Students could do better in mathematics if their attitudes, motivation, and guidance are improved, and if appropriate instructional resources are made available. Studies in the United States, similar conclusions were drawn when they indicated that subpar performance in Mathematics is associated with classroom-related factors, notably ineffective teaching techniques (Elliot et al., 2013). Kiwanuka et al. (2015) also averred in their study that students often have low performance even though mathematics is part of the core subjects taught.

Objective 2. Determine the significant relationship between math performance, parental involvement, and mathematical skills.

Table 5. *Results of Pearson R Correlation Computation for the Significant Relationship between Math Performance, Parental Involvement, and Mathematical Skills*

Variable	*N*	*R*	*P-value*	*Interpretation*
Parental Involvement	106	.096	.325	Not Significant
Interest	106	.082	.403	Not Significant
Study Habits	106	.092	.348	Not Significant

*** Correlation is significant at the 0.05 level (2-tailed)*

Table 5 presents the Results of Pearson R Correlation Computation for the Significant Relationship between Math Performance, Parental Involvement, and Mathematical Skills. As demonstrated in the table, the variables parental involvement (r=.096, p>.05), interest (r=.082, p>.05), and study habits (r=.092, p>.05) possess probability values lower than the alpha threshold of .05, suggesting that these variables lack a significant correlation with students' math academic performance. It means that a student's math results in a 50-point multiple- choice test are not directly affected by the involvement, interest, and study habits of the students' parents. This finding supports Myers' (2021) claim that a parent helping a student with curriculum development had no effect on a student's math GPA. Boonk (2018) mentioned that parental involvement in the child's school activities had no relationship with the student's performance. On the other hand, there is another component, "household structure," which has a slight negative association. These are just a few illustrations of how findings on parental involvement and its correlation to academic achievement, like many other complex phenomena, are conflicting or have no significant correlation.

Conclusions

Based on the findings of the study, this study concludes that the student-respondents' level of parental involvement is moderately high, level of mathematical skills in terms of interest is high, level of mathematical skills in terms of interest is high, and the level of math performance is low. Meanwhile, the variables namely parental involvement, mathematical skills in terms of interest, and mathematical skills in terms of study habits have no significant correlation or relationship to students' mathematics performance.

From the result and findings, the researchers have arrived at the following recommendation.

Educators and educational policy makers may reexamine curriculum offerings and consider integrating 21st-century learning skills, especially in mathematics.

School academic guidance may develop assessment tools to deal with any difficulties in such areas.

Future researchers are encouraged to gather more related studies about mathematics for their performances.

Future researchers aiming to promote mathematics achievement may be given through clearing the concept of logic and reasoning.

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