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A Quantitative Study of Factors Influencing Students' Academic Achievement in Mathematics in Private Secondary Schools in Abuja Nigeria

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Abstract

Mathematics is an essential subject taught across secondary schools. It's contribution to skill development and solving societal problems can not be over emphasized. This study examine the factors influencing students' academic achievement in Mathematics in private schools in Abuja, Nigeria. It adopted a correlational research design by sampling 400 secondary school students in Abuja Municipal Area Council, Federal Capital Territory, Abuja. The result indicated that parental support, teachers' attitude, students' attitude, methods of teaching, facilities, and peer influence have a positive correlation with students' academic achievement. In order to improve students' academic performance in Mathematics, government, school administrators, parents, teachers, policy advisors, and students must pay special attention to these factors.

Keywords: Factors, Students, Academic Achievement, Mathematics, Private Secondary Schools

Introduction

Mathematics is a fundamental subject that plays a crucial role in the development of critical thinking, analytic skills, and problem-solving skills. It is a subset of science that deals with numbers and their operations (He, 2023). As a science-based subject, it is globally accepted as a core subject that must be offered by all students from primary to secondary level (Yusuf &Araba, 2019; Hamzeh, 2014). It impacts meaningfully in people's life across ages (Maliki et al., 2009). It was adjudged to be an important subject in science education and general education (Shahrill & Clarke, 2014). This subject has enhanced effective business transactions, interaction, and relationships among people (Reyna & Brainerd, 2007; Maasz & Schloeglmann, 2006). It was also found to be useful in enhancing the intellectual development of students by providing them with problem-solving skills that will make them functional in any society (Suratno, 2016; Roy, 1990). Realizing the importance of Mathematics in day-to-

day activities and human interaction, governments across the globe have made teaching and learning this subject compulsory in primary and secondary schools. It is against this background that the Federal Government of Nigeria (2013) made teaching and learning Mathematics mandatory for all basic and secondary school students.

Teaching and learning Mathematics in Nigerian schools unlike every other developing countries is being affected by a wrong misconception about the subject. Some people believe that Mathematics is a very difficult subject to learn. This misconception has posed a great challenge to teaching and learning of Mathematics in schools (Saad et al., 2014, Ampadul, 2012). Apart from this misconception, another challenge facing teaching and learning Mathematics is the poor performance of students in the subject. The performance of students in Mathematics in external examinations in Nigeria calls for great concern. Yemi & Adeshina (2013) decried this ugly situation when he found that 75% of the students who sat for the West African Senior Secondary Certificate Examination (WASSCE) and NECO examination failed Mathematics. This poor performance in external examination has called for concern for all stakeholders as this subject is regarded as a core subject that will determine the future careers of students (Iburume, 2007). This study aims to investigate the factors responsible for students' academic achievement in Mathematics in private secondary schools in Abuja, Nigeria.

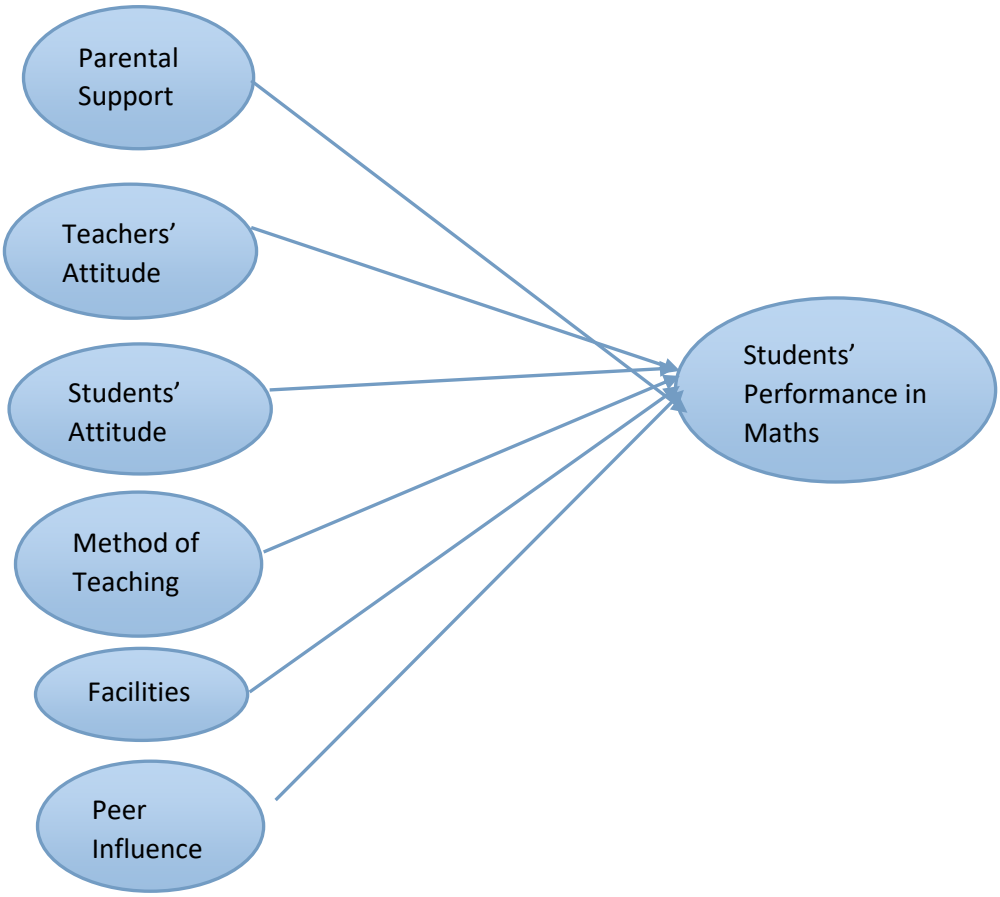
Theoretical and Conceptual Framework

This study is anchored in the Social Cognitive Learning Theory, an evolution of the earlier Social Learning Theory, both developed by Albert Bandura. Unlike traditional behaviorist approaches, Bandura conceptualized this theory from a cognitive perspective, emphasizing the pivotal role of internal mental processes in learning (Bandura, 2006). At its core, Social Cognitive Learning Theory posits that individuals acquire knowledge and skills by observing the behaviors of others and that cognitive functions such as attention, retention, and motivation, play a central role in shaping human personality and behavior (Bandura, 1999). This theoretical framework provides a more holistic understanding of human learning by integrating social interaction with cognitive processing. It emphasizes how individuals interpret and mentally engage with their social environment, and how these interpretations influence personal development and behavioral outcomes (Green & Peil, 2009; Bandura, 1999). As noted by McCormick and Martinko (2004), learning in this context is not simply a function of behavioral change but an internal process that may or may not manifest in observable behavior. Thus, Social Cognitive Learning Theory offers a robust framework for understanding how individuals learn, adapt, and evolve within social contexts, even when changes in behavior are not immediately apparent.

In addition, this study also draws upon Walberg's Theory of Educational Productivity, developed by renowned educator and psychologist Herbert J. Walberg. The theory seeks to identify and explain the key factors that influence students' academic achievement. Walberg proposed that both individual psychological traits and the psychological environment surrounding the learner, such as attitudes, behaviors, and cognitive engagement, significantly influence educational outcomes (Reynolds & Walberg, 1992). His framework highlights the critical role of social-emotional factors, including parental involvement, peer influence, classroom management, student-teacher relationships, and overall school climate, in shaping students' academic performance. By integrating multiple theoretical perspectives and

empirical methods, Walberg's model offers a comprehensive approach to understanding the complex interplay between learner characteristics and environmental factors that contribute to or hinder educational success.

These theories will be combined together in order to generate the conceptual framework for this research study. As a result, the conceptual framework that will guide this research study is presented below:



As illustrated in Figure 1, several interconnected factors influence students' performance in Mathematics. Parental support in form of social, emotional, financial, and caregiving plays a vital role in shaping learning outcomes. A student's prior background in Mathematics and the teacher's attitude toward the subject also significantly influence academic achievement. Additionally, students' interest in Mathematics, the teaching methods employed, and the availability of learning resources at home and in school further contribute to performance levels. Lastly, peer influence can either enhance or hinder a student's success in the subject. Together, these elements underscore the multifaceted nature of the academic performance of students in Mathematics. As a result, the following hypotheses were formulated to guide this study:

H1: There is a significant relationship between students' attitudes and students' performance in Mathematics in private schools in Abuja.
H2: There is a significant relationship between parental support and students' performance in Mathematics in private schools in Abuja.

H3: There is a significant relationship between teachers' attitudes and students' performance in Mathematics in private schools in Abuja.
H4: There is a significant relationship between methods of teaching and students' performance in Mathematics in private schools in Abuja.
H5: There is a significant relationship between facilities and students' performance in Mathematics in private schools in Abuja.
H6: There is a significant relationship between peer influences and students' performance in Mathematics in private schools in Abuja.

Literature Review

Factors Affecting Teaching and Learning of Mathematics

Numerous studies have identified key factors that influence the teaching and learning process, particularly in Mathematics education. One of the most critical of these is the learner. A student's attitude can significantly shape how effectively they engage with lessons, directly influencing their academic performance (Tuncer & Yilmaz, 2020; Veresova & Mala, 2016; Awang et al., 2013). Positive attitudes such as enthusiasm, curiosity, and a willingness to learn can enhance the learning experience and promote better outcomes. Conversely, a lack of interest or a negative disposition may hinder progress. Underpinning these attitudes is the learner's mindset, which includes their beliefs about the subject and their own abilities. According to Bandura (2007), mindset strongly influences self-efficacy: Students with high self-efficacy tend to embrace challenges and actively participate in learning, while those with low self-efficacy often avoid effort and view tasks as too difficult.

In addition to mindset and attitude, student preparation plays a fundamental role in shaping learning outcomes. Effective learning doesn't begin in the classroom, it starts with preparation. This includes reviewing previous lessons, completing assignments, organizing materials, and arriving in class mentally ready to learn. Students who are well-prepared are more likely to engage meaningfully during lessons, ask questions, and understand new concepts. On the other hand, inadequate preparation often leads to confusion, poor performance, and disengagement, particularly in a subject as conceptually demanding as Mathematics. Therefore, fostering a positive attitude, encouraging a growth mindset, and promoting consistent academic preparation are crucial for improving the teaching and learning of Mathematics in schools.

Teachers play a pivotal role in shaping the outcomes of the teaching and learning process. As key agents of knowledge transmission, they significantly influence learners' academic engagement and performance (Kimani et al., 2013). Beyond instructional delivery, teachers are expected to serve as *in loco parentis*—trusted guardians who provide emotional support and guidance, particularly in the absence of students' parents. This pastoral dimension of teaching underscores the importance of teachers' attitudes and interpersonal behaviors in the classroom (Tang & Hu, 2022; Kimani et al., 2013; Awang et al., 2013). Research shows that when teachers are approachable, caring, and respectful, students are more likely to confide in them and stay engaged, thereby improving their academic performance, especially in subjects like Mathematics (Blazar & Kraft, 2016). Conversely, negative behaviors such as arrogance, harshness, or the use of derogatory language can alienate students, lower their morale, and adversely affect their academic achievements (Fay & Funk, 1995). Therefore,

fostering positive teacher-student relationships is essential for promoting effective learning and enhancing educational outcomes.

Teachers play a crucial role in fostering an engaging and supportive learning environment. They are expected to be approachable, motivate students, and encourage active knowledge-sharing, especially through the effective integration of technology in the classroom (Copur-Gencturk & Li, 2023; Alalwan et al., 2019; Watt et al., 2012). Beyond interpersonal qualities, a competent teacher must demonstrate strong subject-matter expertise and a deep understanding of the content they teach. As highlighted by Hirsh et al. (2020), a teacher's mastery of their subject significantly influences their instructional approach and effectiveness. Ultimately, teachers must lead the learning process by combining relational skills with professional competence to enhance students' academic outcomes.

Parents and guardians play a pivotal role in shaping the educational journey and overall development of learners. Their attitudes toward education significantly influence students' academic engagement, motivation, and performance (Sebastian et al., 2017; Pérez Sánchez et al., 2013; Bernard, 2004). When parents actively show interest in their children's academic lives, by asking questions such as, "What did you learn today?", "How did you perform in Mathematics or English?", or "Do you have any homework or projects?", they not only reinforce the value of education but also motivate their children to strive for excellence. This level of involvement fosters accountability and encourages learners to take their studies seriously (Laura & Mahia, 2019). Conversely, parents who are disengaged, limiting their support to financial responsibilities or material needs, often miss critical opportunities to influence their children's academic success. Active parental involvement, therefore, is not merely supportive; it is essential to fostering meaningful learning outcomes.

The availability and quality of learning resources are fundamental to effective teaching and meaningful student learning. Physical facilities within a school such as spacious classrooms, well-equipped libraries, and access to instructional technologies play a critical role in creating an environment conducive to academic success (Day & Spoor, 1998). These resources do more than support instruction; they actively enhance students' engagement, understanding, and overall performance (Akomolafe & Adesua, 2016; Earthman et al., 1996). Research by Chan (1996) further demonstrates that well-maintained school facilities not only motivate learners but also improve academic outcomes and support efficient school supervision (Ajayi & Ayodele, 2001; Erlichson, 2001). In the context of Mathematics education, especially at the primary and secondary school levels, the integration of engaging and interactive learning tools is particularly impactful. The use of digital videos, educational games, word puzzles, interactive worksheets, and audiovisual aids can transform abstract mathematical concepts into relatable and enjoyable learning experiences.

The teaching methods employed by educators play a critical role in shaping the learning experience and academic success of students. Research by Atandi et al. (2019) highlights that instructional strategies can either positively or negatively influence student performance, as seen in the case of Kiswahili instruction in both public and private schools in Langata Sub-County. When teachers adopt approaches that are clear, engaging, and student-centered, learners are more likely to remain attentive, motivated, and actively involved in the learning process. Conversely, the use of rigid, uninspiring, or teacher-dominated methods often leads

to disengagement and a decline in student interest and concentration (Hirsh et al., 2020; Atandi et al., 2019). This underscores the importance of selecting pedagogical strategies that align with students' developmental stages, learning needs, and contextual realities. In subjects such as Mathematics, often perceived as challenging, teachers must be especially intentional in choosing methods that promote clarity, participation, and conceptual understanding. Ultimately, effective teaching is not only about delivering content but also about fostering an inclusive, responsive, and stimulating learning environment.

Peer relationships play a significant role in shaping a student's academic trajectory. The nature of the peer group a child associates with can either foster academic excellence or hinder it. When learners surround themselves with peers who are focused, intellectually driven, and committed to their studies, they are more likely to adopt similar attitudes and behaviors. In contrast, association with peers who prioritize leisure, parties, and distractions over learning can lead to diminished academic interest and poor performance. Peers influence each other in multiple ways, through encouragement, imitation, or even discouragement. Bandura's Social Cognitive Learning Theory emphasizes that learners are influenced not only by direct instruction but also by their social environment, including peer interactions, which shape their attitudes, behaviors, and academic outcomes (Bandura, 2006). Moreover, negative peer influence can lead to engagement in immoral or risky behaviors that distract learners from their academic goals. As highlighted by Al-Rahmi et al. (2020), peer influence can contribute to students' involvement in activities that ultimately harm their academic performance. Thus, understanding and addressing the impact of peer dynamics is crucial for promoting positive academic behavior and safeguarding student achievement.

Methods

Research design: A correlational research design was used in this study. This helps researchers to determine the relationships among variables (Creswell, 2012). It allows the researchers to predict how these factors relate well to students' academic performance in Mathematics.

Population, sample, and sampling: The population of this study consists of secondary school students in private schools in Abuja Municipal Area Council of the Federal Capital Territory, Abuja, Nigeria. A total of around 30,000 students studied in the selected schools. Out of this, a total of 400 students were randomly selected using the Krejcie and Morgan sample selection table.

Instrumentation: The data collection instrument employed in this study is a carefully adapted survey questionnaire originally developed by Al Rahmi (2020) to investigate factors influencing students' academic performance. To ensure relevance and contextual accuracy, the questionnaire was tailored specifically to reflect the environment of private schools in Abuja, Nigeria. The questionnaire is structured into two main sections: Section A gathers demographic information about the respondents, while Section B focuses on items directly related to the research topic. Participants will respond using a five-point Likert scale ranging from Strongly Agree (SA) to Strongly Disagree (SD), with options for Agree (A), Undecided (U), and Disagree (D) in between. Overall, the instrument consists of thirty-five thoughtfully designed questions aimed at capturing a comprehensive understanding of the variables under study.

Method of data analysis: The data collected from the survey questionnaire played a crucial role in this study and was analyzed using suitable statistical techniques. Both descriptive and inferential statistics were applied to thoroughly examine the information gathered. A descriptive method like simple percentage was used to analyze the demographic information of respondents, while inferential analysis was made, specifically using the Pearson Correlation Coefficient, to explore the relationships between variables under investigation.

Findings

Table 1

Demographic distribution of respondents

Item		N	Percentage
Gender:	Male	175	43.75
	Female	225	56.25
	Total	400	100
Grade:	JSS 1-3	210	52.50
	SSS1-3	190	47.50
	Total	400	100
Age:	11- 13	178	44.50
	14 -15	82	20.50
	Above 15	140	35
	Total	400	100

As indicated in Table 1 above, 175(43.75%) of the respondents are male students, while the remaining 225 (56.25%) are female students studying in the selected private schools in Abuja. Also, 210 (52.50%) of the respondents are JSS 1-3 students while the remaining 190 (47.50%) are SSS 1-3 students in private schools in Abuja. Finally, 178 (44.50%) of the respondents are between ages 11-13 years, 82 (20.50%) are 14 – 15 years students, and the remaining 140 (35%) are above 15 years old.

Testing of Hypotheses

In this section, the researchers present the result of the hypotheses tested as revealed below;

H1: There is a significant relationship between student attitude and student performance.

Table 2

Correlation

		Student attitude	student performance
Student attitude	Pearson Correlation	1	.773
	Sig. (2-tailed)		.000
	N	400	400
Student perform.	Pearson Correlation	.773	1
	Sig. (2-tailed)	.000	
	N	400	400

**Correlation is significant at the 0.01 level (2-tailed)

As shown in Table 2 above, the correlation value is .773, with a p value of .000. The Pearson Correlation shows the direction and relationship between two variables (Pallant, 2011). The relationship between student attitude and student performance in Mathematics was

investigated using the Pearson Product Moment Correlation coefficient. Preliminary analyses were conducted to ensure that the basic assumption of this correlation is not violated. It meets up with normality, homoscedasticity, and linearity. There is a strong positive relationship between student attitude and student performance in Mathematics with r = .773, n = 400, and p = .000. The strength of the relationship was high based on the suggestion of Cohen (1988), who argued that value from .50 to 1.0 is large.. Therefore, we will accept the hypothesis that states that there is a significant relationship between student attitude and student performance and fail to accept the null hypothesis.

H2: There is a significant relationship between parental support and student performance.

Table 3
Correlation

		Parental support	Student performance
Parental support	Pearson Correlation	1	.615
	Sig. (2-tailed)		.000
	N	400	400
Student perform.	Pearson Correlation	.615	1
	Sig. (2-tailed)	.000	
	N	400	400

**Correlation is significant at the 0.01 level (2-tailed)

Table 3 above reveals the result of the Pearson Correlation. The correlation value between the two variable above is .615 while the p-value is .000. The Pearson Correlation shows the direction and relationship between two variables (Pallant, 2011). The relationship between parental support and student performance in Mathematics was investigated using the Pearson Product Moment Correlation coefficient. Preliminary analyses were conducted to ensure that the basic assumption of this correlation is not violated. It meets up with normality, homoscedasticity, and linearity. There is a strong positive relationship between parental support and student performance in Mathematics with r = .615, n = 400, and p = .000. The strength of the relationship was high based on the suggestion of Cohen (1988), who argued that value from .50 to 1.0 is large. Therefore, we will accept the hypothesis that states that there is a significant relationship between parental support and student performance and fail to accept the null hypothesis.

H3: There is a significant relationship between teachers' attitudes and student performance.

Table 4
Correlation

		Teachers' attitudes	Student performance
Teachers' attitude	Pearson Correlation	1	.638
	Sig. (2-tailed)		.000
	N	400	400
Student perform.	Pearson Correlation	.638	1
	Sig. (2-tailed)	.000	
	N	400	400

**Correlation is significant at the 0.01 level (2-tailed)

The Pearson Correlation in Table 4 above shows the direction and relationship between two variables (Pallant, 2011). The relationship between teachers' attitudes and student performance in Mathematics was investigated using the Pearson Product Moment Correlation coefficient. Preliminary analyses were conducted to ensure that the basic assumption of this correlation is not violated. It meets up with normality, homoscedasticity, and linearity. There is a strong positive relationship between teachers' attitudes and student performance in Mathematics with r = .638, n = 400, and p = .000. The strength of the relationship was high based on the suggestion of Cohen (1988), who argued that value from .50 to 1.0 is large. Therefore, we will accept the hypothesis that states that there is a significant relationship between teachers' attitudes and student performance and fail to accept the null hypothesis.

H4: There is a significant relationship between methods of teaching and student performance in Mathematics.

Table 5
Correlation

		Method of teaching	Student performance
Student attitude	Pearson Correlation	1	.729
	Sig. (2-tailed)		.000
	N	400	400
Student perform.	Pearson Correlation	.729	1
	Sig. (2-tailed)	.000	
	N	400	400

**Correlation is significant at the 0.01 level (2-tailed)

The Pearson Correlation shows the direction and relationship between two variables (Pallant, 2011). The relationship between methods of teaching and student performance in Mathematics was investigated using the Pearson Product Moment Correlation coefficient. Preliminary analyses were conducted to ensure that the basic assumption of this correlation is not violated. It meets up with normality, homoscedasticity, and linearity. There is a strong positive relationship between methods of teaching and student performance in Mathematics with r = .729, n = 400, and p = .000. The strength of the relationship was high based on the suggestion of Cohen (1988), who argued that value from .50 to 1.0 is large. Therefore, we will accept the hypothesis that states that there is a significant relationship between methods of teaching and student performance and fail to accept the null hypothesis.

H5: There is a significant relationship between facilities and student performance.

Table 6
Correlation

		Facilities	**Student performance**
Facilities	Pearson Correlation	1	.542
	Sig. (2-tailed)		.000
	N	400	400
Student perform.	Pearson Correlation	.542	1
	Sig. (2-tailed)	.000	
	N	400	400

**Correlation is significant at the 0.01 level (2-tailed)

The Pearson Correlation shows the direction and relationship between two variables (Pallant, 2011). The relationship between facilities and student performance in Mathematics was investigated using the Pearson Product Moment Correlation coefficient. Preliminary analyses were conducted to ensure that the basic assumption of this correlation is not violated. It meets up with normality, homoscedasticity, and linearity. There is a strong positive relationship between facilities and student performance in Mathematics with r = .542, n = 400, and p = .000. The strength of the relationship was high based on the suggestion of Cohen (1988), who argued that value from .50 to 1.0 is large. Therefore, we will accept the hypothesis that states that there is a significant relationship between facilities and student performance and fail to accept the null hypothesis.

H6: There is a significant relationship between peer influence and student performance.

Table 7
Correlation

		Peer influence	Student performance
Peer influence	Pearson Correlation	1	.589
	Sig. (2-tailed)		.000
	N	400	400
Student perform.	Pearson Correlation	.589	1
	Sig. (2-tailed)	.000	
	N	400	400

**Correlation is significant at the 0.01 level (2-tailed)

The Pearson Correlation in Table 7 above shows the direction and relationship between two variables (Pallant, 2011). The relationship between peer influence and student performance in Mathematics was investigated using the Pearson Product Moment Correlation coefficient. Preliminary analyses were conducted to ensure that the basic assumption of this correlation is not violated. It meets up with normality, homoscedasticity, and linearity. There is a strong positive relationship between peer influence and student performance in Mathematics with r = .589, n = 400, and p = .000. The strength of the relationship was high based on the suggestion of Cohen (1988), who argued that value from .50 to 1.0 is large. Therefore, we will accept the hypothesis that states that there is a significant relationship between peer influence and student performance and fail to accept the null hypothesis.

Discussion

On the first hypothesis, the study found that there is a positive relationship between students' attitude and their academic performance in Mathematics. This result corroborates with the previous studies. As found by Awang et al. (2013) and confirmed by the study of Candeias et al. (2010), students' attitude toward learning will impact their academic performance in schools. Therefore, there is an urgent need for teachers, school administrators, parents, and policymakers to act fast and ensure that there is adequate motivation for school students to learn. Similarly, the second hypothesis found that there is a positive relationship between parental support and students' performance in Mathematics in private schools. Based on the result, the p-value was significant with .000. It corresponds with the position of Sebastian et. al. (2017); Perez-Sanchez et .al (2013) who also found that parental care and support will influence students' performance.

In addition, the third hypothesis found that there is a significant relationship between teachers' attitudes and students' performance in Mathematics. This result aligns with the study of Tang and Hu (2022) and Balzar and Kraft (2016), who found that the attitude displayed by teachers will always influence and reflect in the student's performance. So, teachers must display a positive attitude at all times and influence their students to learn better. Moreover, the study found that there is a positive relationship between the method of teaching and students' performance in Mathematics. This is evident in the r-value and p-value, respectively. This result corresponds with the study of Atandi et. al '(2019) found that the method adopted by teachers will influence students' academic performance. So, teachers of Mathematics must scale up their methods of teaching the subject as a measure of improving students' performance in Mathematics.

Also, this study found that there is a significant relationship between facilities and students' performance in Mathematics. It correlates with the study of Lei and Zhao (2007); Ajayi and Ayodele (2001), who found that facilities (physical and material) play essential role in students teaching and learning. For private schools to enhance students' academic performance in Mathematics, they must pay adequate attention to the provision of essential facilities to aid the teaching and learning process. The sixth hypothesis found that there is a significant relationship between peer influence and students' performance. This is evident in the p-value of .000. It corresponds with the finding of Ar Rahmi et. al.(2020), who found that peer influence affects students' academic performance. Therefore, the school must intervene in counselling students on the benefits of keeping good companions and friendships.

Theoretical and Practical Implication

The findings of this study carry significant theoretical and practical implications for improving students' academic performance, particularly in Mathematics. From a theoretical perspective, both behaviorist and humanist learning theories emphasize the critical role of attitude, interest, and motivation in the learning process. The attitudes displayed by students, teachers, parents, and school leaders collectively shape learners' engagement and performance. As such, a supportive, encouraging, and intentional educational environment is essential for academic success.

Practically, improving students' performance in Mathematics within private schools requires a coordinated effort from all stakeholders. School leaders must take deliberate steps to cultivate a culture that values and supports Mathematics learning. This includes implementing regular counseling programs to boost students' confidence and interest, fostering positive teacher attitudes, simplifying mathematical concepts, and reinforcing students' progress through recognition and reward systems. Celebrating academic achievements, not just of high performers but also of those making noticeable progress, can serve as a powerful motivator for continued effort and engagement.

Furthermore, it is important to address the misconception among some students that Mathematics is irrelevant beyond secondary school. In reality, foundational knowledge of Mathematics is indispensable, as university education in any discipline often requires competence in courses such as statistics and research methods. Therefore, private school administrators must embed comprehensive counseling services into their educational programs targeted at students, teachers, and parents alike to reshape attitudes toward

Mathematics, prepare learners for future academic demands, and ultimately enhance overall academic performance.

Limitations and Direction for Future Research

This study was delimited to selected private secondary schools within the Abuja Municipal Area Council of Nigeria's Federal Capital Territory. While the findings provide valuable insights, they may not be generalizable to all school settings. Future research could expand this scope by conducting comparative studies between public and private schools in Abuja to explore potential differences in the factors influencing Mathematics teaching and learning. Additionally, employing qualitative research approaches such as interviews or focus group discussions could offer deeper insights into the contextual and experiential dimensions of these factors. Further investigation into the perspectives of key stakeholders, including teachers, school leaders, parents, and students, is also recommended. Such efforts would contribute meaningfully to enhancing the quality of Mathematics instruction and student performance across secondary schools.

Conclusion

This study critically examined the key determinants of students' academic performance in Mathematics within private secondary schools in Abuja, Nigeria. The findings revealed and analyzed several influential factors, highlighting the multifaceted nature of academic achievement in the subject. It was established that students' performance is shaped by a complex interplay of variables, including the learners themselves, teachers, school environment, peer groups, and parental involvement. Moreover, the study underscored how these same factors often present significant challenges for Mathematics teachers, impacting their instructional effectiveness and overall teaching experience. These insights underscore the need for a holistic, stakeholder-driven approach to improving Mathematics education in private schools across the region. This study has a lot contributions towards understanding causes of and improving students' performance in Mathematics at internal and external examinations in Nigeria. Understanding these factors will help teachers, school administrators, parents, and government to re-strategize their plans and come up with better measures to support students in overcoming their learning challenges.

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