



INFLUENCE OF HOME SUPPORT ON THE ACADEMIC PERFORMANCE OF JUNIOR SECONDARY SCHOOL STUDENTS IN MATHEMATICS IN THE ODOGBOLU LOCAL GOVERNMENT AREA OF OGUN STATE

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Abstract

This study examined the influence of home support on the academic performance of junior secondary school students in mathematics in Odogbolu Local Government Area of Ogun State. A descriptive survey research design was adopted. The population comprised all students in the twenty-eight public junior secondary schools in the area, from which a sample of 200 students was selected from ten schools using a purposive sampling technique. Two self-developed instruments, the Home Support Questionnaire (HSQ) and the Mathematics Performance Test (MPT), were used for data collection. The instruments were validated by experts in test and measurement, yielding reliability coefficients of 0.79 and 0.81, respectively. Two research questions guided the study, and the data were analyzed using Multiple Regression Analysis (MRA). The findings revealed an ($F_{(3,199)} = 23.797, p < 0.05$), which indicated that the three independent variables jointly accounted for a 32.8% variance in predicting students' performance in mathematics. More so, cognitive support ($\beta = 0.405, t = 5.435; p < 0.05$), financial support ($\beta = 0.234, t = 3.198; p < 0.05$) and emotional support ($\beta = 0.096, t = 1.296; p < 0.05$) independently predicted students' performance in mathematics. Based on the outcome of the findings, the study recommended among others that Schools and educational organizations should develop workshops for parents to encourage engagement in cognitive-stimulating activities. Activities such as discussing problem-solving techniques, engaging in puzzles, and providing math-related educational games can strengthen students' cognitive skills essential for mathematics.

Keywords: Emotional Support, Financial Support, Cognitive Support, Mathematics Performance

Introduction

Mathematics is universally recognized as a core subject in education due to its foundational role in fostering logical reasoning, problem-solving skills, and the analytical abilities necessary for various fields, including science, engineering, technology, and economics. In Nigeria, particularly at the Junior Secondary School (JSS) level, mathematics is not only mandatory but also essential for the overall academic development of students. Mathematics is a gateway subject, meaning that proficiency in it opens doors to careers in science, technology, engineering, and mathematics (STEM) fields, which are critical to Nigeria's economic development. Therefore, poor performance in mathematics not only limits individual students' future opportunities but also has broader societal consequences by reducing

the pool of skilled professionals in STEM fields (Aminu, Oyediji & Ifamuyiwa, 2024).

Despite its critical importance, the performance of students in mathematics has consistently been slightly above average. In Ogun State, data from national examinations like the West African Examinations Council (WAEC) and the National Examinations Council (NECO) consistently show that a significant percentage of students fail to achieve credit-level passes in mathematics, a requirement for admission into higher education institutions (Okebukola, 2020). The students' performance in the senior secondary school certificate examination in mathematics between 2020 and 2024 conducted by the West African Examinations Council in Table 1.1 can attest to this unsatisfactory achievement in mathematics.

Table 1.1: Summary of Students' Performance in the Senior Secondary School Certificate Examination in Mathematics between 2020 and 2024

Years	Total Entry	Total Obtained Credits & Above (A1-C6)	% Obtained Credits & Above (A1-C6)	Total Obtained (D7-F9)	% Obtained (D7-F9)
2020	1,538,445	1,003,668	65.24	569,654	34.76
2021	1,560,261	1,274,733	81.70	285,528	18.30
2022	1,601,047	1,222,505	76.36	378,542	23.64
2023	1,613,733	1,287,952	79.81	325,781	20.19
2024	1,805,216	1,301,949	72.90	503,267	27.10

Source: WAEC (2024)

Several studies have identified multiple school-based factors that contribute to persistent underachievement in mathematics. These include the quality of mathematics instruction, teaching methodologies, teacher-to-student ratios, and the availability of instructional materials (Adeyemi, 2021; Akomolafe & Adesua, 2019; Okebukola, 2020). Research indicates that when mathematics is taught using abstract, teacher-centered approaches with limited opportunities for active participation and problem-solving, students often fail to develop conceptual understanding or sustained interest (Aminu, Oyediji, & Ifamuyiwa, 2024). Similarly, inadequate instructional materials such as manipulatives, charts, and technological aids further constrain

effective learning, especially in public schools (Desforjes & Abouchaar, 2022).

One of the major gaps in these interventions is the lack of focus on the home support. As Onuoha, (2022) pointed out, school-based interventions alone are insufficient to improve academic outcomes in mathematics. The influence of parents and the home environment plays an equally important, if not greater, role in shaping students' academic performance (Epstein, 2018). Therefore, understanding how students' home support contribute to their success in mathematics is crucial for developing more effective strategies to improve academic outcomes.

Home support, which includes the emotional,

financial, and cognitive resources parents provide to support their children's learning. Emotional support manifests through encouragement, reassurance, and showing interest in the child's academic progress. When parents express high expectations and provide emotional support, children are more likely to develop a growth mindset, believing that they can improve through effort (Onuoha, 2022). This mindset is crucial in mathematics, where problem-solving and persistence are key. Financial support also plays a significant role. Parents who can afford to provide supplementary learning materials, private tutoring, or access to educational technology create a more supportive environment for learning. Cognitive support, on the other hand, involves parents directly helping with schoolwork or fostering a culture of learning at home. This is especially important in households where parents have a strong educational background and can assist with difficult subjects like mathematics (Adeyemi, 2021).

Moreover, the general perception that education is solely the responsibility of schools further exacerbates the problem. Many parents view their role as limited to providing for their children's basic needs, leaving the responsibility of academic success entirely to teachers and schools. This hands-off approach often leaves students without the necessary reinforcement they need at home, particularly in subjects like mathematics, which requires continuous engagement and practice (Adeyemi, 2021). However, empirical studies have consistently stressed the role of home support in determining students' academic outcomes, particularly in mathematics. Fan and Williams (2020) emphasized that students from homes characterized by supportive parental engagement exhibit higher levels of self-efficacy and intrinsic motivation, both of which correlate positively with mathematics achievement. Similarly, Kim and Hill (2021) found that cognitively stimulating home environments, where parents encourage discussions about problem-solving and logical reasoning, contribute significantly to improved mathematical thinking among adolescents. Hill and Tyson (2022) further confirmed through a meta-analysis that parental involvement in middle school especially in monitoring and learning at home is a key factor that promotes

achievement in mathematics. These studies collectively suggest that when parents actively participate in their children's cognitive development, they help build the persistence and analytical reasoning necessary for mathematical competence.

Financial support has also been identified as a crucial dimension of home support influencing students' educational success. Chowa, Ansong, and Masa (2021) established that financial investment in children's education through access to textbooks, tutoring, and a conducive learning environment directly impacts their academic outcomes. Adeyemi (2021) also observed that financial challenges often limit students' ability to access learning materials, thereby hindering their performance in core subjects like mathematics. Hence, families with greater financial stability are more capable of providing educational enrichment opportunities that enhance students' cognitive readiness.

Furthermore, emotional support is essential for sustaining students' motivation and academic engagement. Wentzel (2023) asserted that emotionally supportive parents help students develop resilience, confidence, and a positive attitude toward learning. Emotional support, though less directly related to cognitive skill acquisition, influences students' persistence and willingness to face academic challenges. Onuoha (2022) similarly noted that emotional warmth and encouragement from parents create a psychologically safe environment conducive to better learning outcomes. These perspectives reinforce the view that home support—comprising cognitive, financial, and emotional dimensions jointly fosters students' academic success in mathematics and related cognitive-demanding subjects.

Therefore, the study is motivated by the need to explore the influence of home support on students' academic performance in mathematics at the junior secondary school level in Ogun State. By examining how these factors contribute to academic outcomes, the study aims to identify specific forms of home support that can enhance students' performance in mathematics. Given the critical importance of mathematics in the broader educational landscape, understanding these dynamics is essential for both educators and policymakers seeking to improve educational

outcomes.

This study is particularly relevant in the situation of Ogun State, where the government has been making concerted efforts to improve the quality of education. However, these efforts have largely focused on school-based interventions, with little attention given to the role of parents and the home environment. This research, therefore, provided valuable insights into how home support can be harnessed to complement school-based interventions, ultimately leading to improved student performance in mathematics.

Theoretical Framework

This study is anchored in two theories: Bronfenbrenner's Ecological Systems Theory and Epstein's Overlapping Spheres of Influence Model.

Bronfenbrenner's Ecological Systems Theory

Bronfenbrenner's (1979) Ecological Systems Theory suggests that a child's development is influenced by multiple layers of environmental systems, ranging from the immediate family to broader societal factors. The microsystem, which includes family and school, is the most immediate and has a direct impact on a child's academic performance. Home support fall within this microsystem and have a crucial role in shaping learning outcomes, especially in challenging subjects like mathematics. By engaging with their children's academic life, parents become active agents within this system, directly influencing academic success.

Epstein's Overlapping Spheres of Influence Model

Epstein (2018) proposed the Overlapping Spheres of Influence Model, which emphasizes the collaboration among the family, school, and community in a child's education. According to Epstein, the most effective educational outcomes are achieved when these spheres overlap, meaning that parents, schools, and communities work together to support the child's learning. The model underlines the importance of parental involvement as a predictor of students' academic success, particularly in difficult subjects like mathematics. Epstein identifies six types of parental involvement, including communication, learning at home, and decision-making, all of

which significantly influence academic outcomes. The two theories are relevant to the study as they explain how home support, predicts mathematics performance among JSS students in Ogun State.

Statement of the Problem

Despite numerous educational reforms and interventions aimed at improving students' performance in mathematics, a significant proportion of junior secondary school students in Ogun State continue to underperform. Some researchers have points to home support as contributing factors (Akomolafe & Adesua, 2019; Onuoha, 2022; Adeyemi, 2021). Many parents either lack the necessary educational background to assist their children or are preoccupied with socio-economic challenges, limiting their engagement with their children's education. This problem is exacerbated by a general perception that education, particularly mathematics, is the responsibility of schools alone. The gap between school efforts and home support often leaves students struggling, especially in subjects like mathematics, which requires consistent practice and reinforcement. Thus, this study seeks to fill this gap by examining how various aspects of home support predict mathematics performance in JSS students in Ogun State.

Objectives of the Study

The primary objective of this study was to examine the influence of home support on the academic performance of junior secondary school students in mathematics in Ogun State. Specifically, the study aimed

1. Determine joint effect of home support (emotional, financial, cognitive) on students' academic performance in
2. Determine relative effect of home support (emotional, financial, cognitive) on students' academic performance in mathematics.

Research Questions

1. To what extent will home support (emotional, financial, cognitive) jointly determine students' academic performance in mathematics?
2. To what extent will home support (emotional, financial, cognitive) relatively determine students' academic performance in

mathematics?

Methodology

The descriptive survey type was adopted for the study. This involved collection of information that described the influence of home support on the academic performance of junior secondary school students in mathematics in the Odogbolu local government area of Ogun State. The population consisted of all the twenty-eight junior secondary school students in the Odogbolu Local Government Area of Ogun State. Simple random sampling technique was used to select ten (10) out of Twenty-Eight (28) schools. Thereafter, purposive sampling techniques was used to select 20 JSS Two students from each of the selected schools in the Odogbolu Local Government Area of Ogun State to form a total of 200 respondents who formed the sample for the study.

The instrument used for data collection was a self-constructed questionnaire Tagged Home Support Questionnaire (HSQ) and Mathematics Performance Test (MPT). The Home Support Questionnaire (HSQ) had four sections. Section A consisted of the demographic information of the respondents. Section B contained items on emotional support, Section C focused on financial support, while Section D included items on cognitive support. These items were on a 4-point Likert scale of Strongly Agree, Agree, Disagree, and Strongly Disagree.

The face and content validity of the instruments were established by experts in tests and measurements. The reliability of the

instrument was established through the parallel-test method. This involved administration of the instrument to two different groups at the same time who were not included in the study. The two sets of scores were correlated and a reliability coefficient of 0.79 was established using Pearson correlation.

The Mathematics Performance Test (MPT). is a four-option multiple-choice item. An initial pool of forty (40) questions was drawn to cover JSS II topics in Mathematics. The items were from the past questions of the Junior School Certificate Examination that corresponded with the topics covered by the students. The reliability of the instrument was established through the parallel-test method. This involved administration of the instrument to two different groups at the same time who were not included in the study. The two sets of scores were correlated and a reliability coefficient of 0.81 was established.

The research instrument was personally administered by the researchers. Two hundred copies of the instrument were administered and retrieved by the researchers as the researcher took the time to explain the content of the instrument to the respondents. The administration of the ten schools was done within two weeks as the schools were not in the same location. Data collected were analyzed using descriptive statistics of frequency counts, percentages mean, and inferential statistics of Multiple Regression Analysis (MRA).

Result

H₁: To what extent will home support (emotional, financial, cognitive) jointly determine students' academic performance in mathematics?

Table 1: Model Summary of Joint contribution of home support (emotional, financial, and cognitive) to students' academic performance in mathematics

Multiple R = .537					
Multiple R ² = .328					
Adjustment R ² = .315					
Std. Error of the Estimate = 1.940					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	268.755	3	89.585	23.797	.000**
Residual	549.618	196	3.765		
Total	818.373	199			

a. Dependent Variable: performance in mathematics

b. Predictors: (Constant), cognitive, financial, emotional

The joint contributions of the three independent variables (cognitive, financial, and emotional) were examined. Table 1 shows that the regression yielded a coefficient of multiple regression (R) of 0.537, a coefficient of determination (R^2) of 0.328, an adjusted R^2 value of 0.315, and a standard error of 1.940. The result in Table 2 revealed a significant outcome ($F_{(3,199)} = 23.797$, $p < 0.05$), which implies that the predictor variables, when combined, significantly determine the students' performance in

mathematics. The table, however, reveals that the predictor variables jointly accounted for 32.8% ($R^2 = 0.328$) of the variance in the dependent variable. Hence, the home support (cognitive, financial, emotional) combined explained 32.8% of the variance in the student's performance in mathematics. In comparison, the remaining 67.2% is due to other factors not considered in this study. This result shows that, together, these types of home support significantly explain variations in academic performance.

H₂: To what extent will home support (emotional, financial, cognitive) relatively determine students' academic performance in mathematics?

Table 2: Relative contribution of home support (emotional, financial, cognitive) to students' academic performance in mathematics

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	4.905	1.327		3.696	.000
emotional	.088	.068	.096	1.296	.007
financial	.246	.077	.234	3.198	.002
cognitive	.369	.068	.405	5.435	.000

a. Dependent Variable: performance in mathematics

Table 2 revealed the relative contribution of each independent variables as determinant of the dependent variable (mathematics performance). The result revealed that from the three independent variables, cognitive support ($\beta = 0.405$, $t = 5.435$; $p < 0.05$) was the most potent determinant out of the three variables. The coefficient ($B = 0.369$) indicates that a one-unit increase in cognitive support corresponds to a 0.369 increase in math performance, assuming other variables remain constant, followed by financial support ($\beta = 0.234$, $t = 3.198$; $p < 0.05$). The coefficient ($B = 0.246$) suggests that a one-unit increase in financial support is associated with a 0.246 increase in students' performance in mathematics, holding other factors constant. While emotional support was the least potent ($\beta = 0.096$, $t = 1.296$; $p < 0.05$). The coefficient ($B = 0.088$) suggests that, for each unit increase in emotional support, students' performance in mathematics is expected to increase by 0.088 units, assuming other factors remain constant. However, the effect is relatively small. This means that each of the three independent variables, that is emotional, financial, cognitive support significantly independently contributed

to students' academic performance in mathematics in Odogbolu local government area of Ogun State.

Discussion

The results of the study show that cognitive, financial, and emotional support from home play a significant role in students' mathematics performance, these jointly accounting for 32.8% of the variance in the dependent variable. This analysis aligns with the study of Fan and Williams (2020) who found that home environment factors, including parental involvement, significantly influence academic outcomes, particularly in cognitive-intensive subjects like mathematics. The study suggested that supportive home environments not only boost students' confidence but also provide the necessary resources and structure to support effective learning.

Among the three independent variables, **cognitive support had the strongest positive effect** on mathematics performance. This suggests that when students receive cognitive support at home—through activities such as problem-solving discussions, mental stimulation, and assistance with homework—they are better

prepared to understand and apply mathematical concepts. Studies highlight cognitive support as crucial for academic performance, particularly in STEM (science, technology, engineering, and mathematics) subjects. For instance, Kim and Hill (2021) noted that children whose parents engaged them in cognitively stimulating activities displayed better problem-solving skills and improved math performance. Cognitive support encourages analytical thinking and perseverance, which are essential for tackling complex mathematical problems (Hill & Tyson, 2022).

Financial support also had a notable impact on mathematics performance. Financial support might involve access to additional learning resources, such as tutoring services, educational materials, and a conducive study environment, which can enhance students' ability to perform well in school. Financial support's effect on academic performance has been widely studied. Chowa, Ansong, and Masa (2021) found that financial investment in education positively influences academic performance because it grants access to necessary resources that support learning. This is particularly relevant in contexts where students may face limitations due to socioeconomic factors. Financial support can alleviate these barriers, offering students a fair chance to succeed academically.

Emotional support showed a smaller but still statistically significant impact on mathematics performance. Although its effect size was weaker compared to cognitive and financial support, emotional support contributes positively by fostering a supportive and stable learning environment. Emotional support might not directly improve mathematical skills, but it likely enhances students' resilience and self-confidence, indirectly benefiting academic outcomes. Emotional support is linked to students' motivation and psychological well-being, which are essential for long-term academic engagement. The outcome is in line with the study of Wentzel (2023) who found out that emotional support can reduce anxiety and increase motivation, leading to improved academic performance. Students who feel supported emotionally are more likely to face academic challenges with a positive attitude, which, in turn, can enhance their performance over time.

Conclusion

The findings of this study provided deep insights into how different forms of home support influence the mathematics performance of junior secondary school students in Ogun State. The outcome demonstrated that cognitive support exerts the strongest influence on students' mathematical achievement. This suggests that when parents engage their children in intellectually stimulating activities such as helping with assignments, discussing mathematical concepts, or encouraging logical reasoning they indirectly strengthen problem-solving and analytical abilities critical to mathematics learning. Financial support emerged as the second most influential factor, implying that parents who invest in supplementary resources like private tutoring, learning materials, and technology create an enabling environment that sustains academic improvement. Although emotional support had the weakest effect, its contribution remains vital in maintaining students' morale, self-belief, and perseverance in the face of academic challenges.

From a broader interpretive perspective, the study highlighted the interconnectedness of emotional, cognitive, and financial supports as essential pillars of academic achievement. This aligns with Bronfenbrenner's ecological systems theory and Epstein's overlapping spheres of influence, both of which affirm that home and school must operate collaboratively to foster holistic learning outcomes. The findings imply that efforts to improve mathematics performance should not be school based alone but must also involve empowering parents through awareness programs and policy initiatives. Schools should regularly organize parental workshops and home-based learning partnerships to guide parents on how best to support their children cognitively and emotionally. Educational policymakers should also consider integrating parent-support models into existing school improvement frameworks. In essence, the study reveals that sustainable academic excellence in mathematics requires a shared responsibility between schools and homes—anchored on informed parental engagement and consistent support.

Recommendations

Based on the study's findings possible

suggestions for improving students' academic performance in mathematics are made:

- i. Schools and educational organizations should develop workshops for parents to encourage engagement in cognitive-stimulating activities. Activities such as discussing problem-solving techniques, engaging in puzzles, and providing math-related educational games can strengthen students' cognitive skills essential for mathematics.
- ii. Governments and non-profit organizations should create financial aid programs or resources, such as scholarships or free access to learning materials, particularly targeting families with limited resources. By reducing financial barriers, these programs can improve students' access to textbooks, tutoring, and other supplementary materials that support mathematics learning.
- iii. Schools should initiate seminars or counseling sessions to inform parents about the positive impact of emotional support on students' academic motivation and resilience. Providing emotional encouragement, a stable environment, and understanding helps boost students' confidence and persistence in challenging subjects like mathematics.
- iv. Schools should collaborate with community organizations to establish support systems that provide both academic resources and family assistance. For example, partnerships could provide students with free after-school tutoring or access to educational materials, further enhancing the cognitive and financial support available to them.
- v. Schools should distribute guidelines for parents on creating a conducive learning environment at home. Recommendations might include setting up quiet, distraction-free study areas, maintaining consistent study schedules, and fostering a positive attitude towards education, all of which support cognitive and emotional development.
- vi. Schools can organize training sessions or workshops to teach parents how to assist with math homework effectively, focusing on encouragement rather than solving problems for their children. This approach builds students' cognitive skills, independence, and

critical thinking in mathematics.

- vii. Schools should create platforms or regular parent-teacher meetings to discuss students' progress, challenges, and ways parents can provide additional support at home. Such collaboration can help parents understand the specific academic needs of their children and how best to support them, particularly in subjects like mathematics where consistent support is critical.

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