

**THE PROBLEMS ASSOCIATED WITH TEACHING AND LEARNING
OF MATHEMATICS IN JUNIOR SECONDARY SCHOOLS IN EPE
LOCAL GOVERNMENT EDUCATION AREA OF LAGOS STATE.**

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Abstract

The objective of this study was to examine the challenges pertaining to the instruction and acquisition of mathematics in junior secondary schools. The study employed a survey research design. The study consisted of a sample size of 50 teachers and 50 students, randomly selected from five junior secondary schools in the Epe Education Zone. The research employed two questionnaires, namely the instructors' questionnaire and the students' questionnaire. The reliability coefficient for the teachers' questionnaire was determined to be 0.71, while the students' questionnaire exhibited a reliability coefficient of 0.73. The study's findings indicated that the instruction and acquisition of mathematics at junior secondary schools within the specified zones were influenced by several variables, namely the absence of instructional materials, an overcrowded syllabus, and an inadequate learning environment. Hence, it is suggested that the government should establish collaborations with professional organisations in order to arrange workshops for mathematics educators, enabling them to stay informed about advancements in secondary school mathematics education.

Keywords: Problem, Teaching, Learning, Mathematics.

Introduction

The discipline of mathematics plays a pivotal role in aiding human endeavours, empowering individuals to lead purposeful and systematic lifestyles. The subject at hand requires students to exhibit rigorous focus and determined efforts in order to fully grasp its complexities, since it holds considerable significance for their forthcoming academic pursuits. A robust mathematical groundwork is necessary for each student to attain outstanding academic achievement. According to Isaac-

Oloniyo (2017), it is suggested that a good foundation in mathematics is crucial for studying science and technology courses at the postsecondary level, as well as for obtaining satisfactory academic accomplishment in the following studies. The Federal Republic of Nigeria (FRN 2013) posits that the perception of mathematics should be oriented towards the cultivation of a child's cognitive capacities, including critical thinking, logical reasoning, analytical aptitude, and proficient communication. The discipline of mathematics is deeply intertwined with various facets of our daily existence, embracing a wide range of ubiquitous features. These include the pervasive presence of mathematics in mobile devices, the enduring influence of mathematical principles in architecture extending from ancient to current times, the incorporation of mathematical concepts in artistic expressions, the intricate relationship between mathematics and monetary systems, the indispensable role of mathematics in engineering efforts, and even the use of mathematical principles in athletic pursuits. Across the annals of human history, the quest for mathematical understanding has constantly held a significant role across several societies, encompassing both ancient civilizations and primitive villages. The emergence of mathematics can be attributed to the demands of society.

As the level of societal complexity escalates, there is a concomitant rise in the need for intricate mathematical frameworks. Primitive societies relied on fundamental numerical abilities while also employing mathematical concepts to ascertain the position of the sun and applying principles of physics to improve their hunting methods. To achieve success in the process of nation-building, it is crucial to foster a citizenry distinguished by the cultivation of rational and critical thinking skills. In order for a nation to achieve socio-economic stability and long-term progress, it is crucial to prioritize education in many fields of knowledge. The lack of emphasis on mathematics has negative consequences for the acquisition of knowledge, as individuals who lack ability in this field are unable to grasp concepts in other scientific fields or comprehend phenomena in the world (Roohi, 2015). Haruna (2014) asserts that the improvement of science and technology plays a crucial role in driving both national and human development. Mathematics, in particular, serves as the essential underpinning for this progress. Okafor (2005) asserts that the lack of a robust foundation in mathematics instruction inside educational institutions impedes the progress of scientific and technological development in any given country. The existing body of research in the domain of mathematics education has revealed that the predominant approach to instruction, particularly in secondary schools, is primarily oriented around the teacher (Obioha, 2006, as cited in Iyoke, 2015). Many topics prioritise the use of expository techniques and textbooks over engaging students in critical thinking and applying their knowledge to real-world situations (Butty, 2001; Iyoke, 2015). The effectiveness of a teaching and learning

approach is dependent on the level of engagement and receptiveness exhibited by the students, regardless of the technique's quality and appeal.

Oduoro (2012) posits that a robust comprehension of scientific concepts is insufficient without a solid grounding in mathematical principles. The inclusion of mathematics in the secondary school curriculum in Nigeria holds significant relevance in fostering the progress of scientific development. The prominent inclusion of mathematics as a core subject in secondary education in Nigeria is to be expected. To emphasise the importance of this specific topic, it is crucial to mandate its inclusion in the curriculum of students at all educational levels. The objective of this project is to foster students' adaptability, ingenuity, and solid groundwork in anticipation of their future endeavours in life. Despite the considerable significance of mathematics in the progress of our society, numerous research studies have indicated that students' proficiency in mathematics is below the desired standard across various educational levels. In the present context, the term "accomplishment" pertains to the cognitive progress achieved by pupils, which can be measured through their performance on mathematical assessments administered by teachers or educational establishments.

The findings of a recent study suggest that there has been a consistent decrease in academic performance in the field of mathematics. The head of the West African Examinations Council (WAEC) stated in 2017 that students' academic performance in mathematics has consistently displayed below-average results, with a sizable percentage of candidates receiving scores below 40%. The phenomenon of children's underperformance in mathematics is widely acknowledged and extensively studied. The study conducted by Maduabum and Odili in Nwabueze (2009) investigated the scholastic achievement of students in the subject of general mathematics at the senior school certificate level in Nigeria, spanning a duration of twelve years. The study's results indicated a notable inadequacy in the academic achievement of students in the field of mathematics. According to Obarakpo (2009), as referenced by Iyoke (2015), there is evidence to suggest a decline in the academic achievement of senior secondary school students in mathematics from 1997 to 2008. According to Nwabueze (2009), the occurrence of widespread failure and ongoing inadequate performance in mathematics among pupils for a prolonged duration raises substantial worries over the nation's capacity to achieve advanced levels of scientific and technological competence. According to the research conducted by Zalmon and Wonu (2017), an analysis of student performance in the general mathematics topic during the May/June West Africa Senior Secondary Certificate Examination (WASSCE) in Nigeria spanning from 1991 to 2016 indicated a notable deficiency in mathematics attainment. Precisely, a mere 27.31%

of students achieved credits and above, and the remainder, 72.69%, received pass marks or below. The matter of subpar performance within the realm of mathematics has elicited considerable apprehension among educators who possess a genuine dedication to scholarly advancement.

Statement of the Problem

The focal point of inquiry is the progressive deterioration in scholastic performance observed among student specializing in the discipline of mathematics. Every academic discipline presents its own distinct set of obstacles. However, a substantial amount of evidence suggests that students' academic performance in relation to the indicated subject has consistently stayed below average over the years. The significance of mathematics in both the personal lives of individuals and the technological advancement of Nigeria is of utmost importance and should not be underestimated. Nevertheless, the pedagogical framework for mathematics instruction in junior secondary schools throughout Lagos State remains uncertain. Numerous individuals have expressed concern regarding the inadequate mathematical foundation of junior secondary school students. This issue can be attributed to various factors, including the presence of under qualified mathematics teachers in overcrowded classrooms, the manifestation of insufficient knowledge of mathematical content among these teachers, the negative attitudes of students towards learning, the lack of support from certain parents, the insufficient availability of instructional resources for mathematics education in numerous junior secondary schools, the influence of environmental factors and socioeconomic status on families, as well as the inadequate motivation of professional mathematics teachers, among other factors. Hence, the primary objective of this research is to examine the challenges pertaining to the instruction and acquisition of mathematical concepts in junior secondary educational institutions.

Research Questions

Answers were sought to the following research questions.

1. Do mathematics teachers have the required qualification to teach mathematics effectively?
2. Are there enough instructional materials to teach the subject effectively?
3. Is the mathematics syllabus overcrowded?
4. To what extent does the environmental influence affect the performance of students in learning the subject?

Research Hypotheses

The following hypotheses were formulated for the study:

1. There is no significant difference between the mean responses of male and female teachers on whether mathematics teachers have the require qualification to teach mathematics effectively.
2. There is no significant difference between the mean responses of teachers and students regarding availability of instructional materials to teach mathematics effectively.
3. There is no significant difference between the mean responses of teachers and students regarding overcrowding of mathematics syllabus
4. There is no significant difference between the mean responses of teachers and students regarding environmental influence and the performance of students in learning the subject.

Methodology

The study employed a survey research method, utilising questionnaires as the primary data collection instrument. The research was done inside the public junior secondary schools located in the Epe Local Government Educational Area of Lagos State. The study's population encompasses mathematics teachers and students in public junior secondary schools within the Epe Local Government Educational Area of Lagos State. A sample of five junior secondary schools was obtained by a random selection process from the population. Within each selected school, a random sample of ten teachers and ten students was also obtained. A total of 50 professors and 50 pupils were chosen for the study. This study included two research tools, namely the teachers' questionnaire and the students' questionnaire. Every questionnaire is designed in a systematic format and aims to provide responses to the study topic and hypotheses presented. The subject matter was partitioned and constrained into several segments. Each respondent was assigned to Section A and Section B. Section A pertains to the personal information of the participants, whereas Section B encompasses research statements developed in accordance with the study inquiries and hypotheses. Each respondent is given a set of alternatives from which they can select or mark one option. The instrument underwent validation by two certified instructors with Bachelor of Education degrees in mathematics who are currently employed as educators in junior secondary schools. The instrument was additionally provided to the Mathematics Desk Officer at the Lagos State Universal Basic Education Board (SUBEB) to assess its face and content validity. The instrument's reliability was assessed using the test-retest method, specifically employing the Pearson product moment correlation coefficient. The reliability coefficient for the teachers' questionnaire was determined to be 0.71, while the students' questionnaire yielded a reliability coefficient of 0.73. These findings indicate a high level of reliability for both questionnaires. The mean and standard deviation were employed to address the

research inquiries, while the t-test was utilised to assess the hypothesis at a significant level of 0.05.

Results

Research Question One: Do mathematics teachers have the required qualification to teach mathematics effectively?

Table 1.

Mean and standard deviation of respondents on the whether mathematics teachers have the required qualification to teach mathematics effectively.

S/ N	PROBLEM OF TEACHERS	MEA N	SD	REMAR KS
1	Non availability of qualified teachers	1.91	0.4 5	Disagreed
2	Deficiency in professional development opportunities	2.44	0.6 4	Disagreed

The table 1.0 above reveals that the mean score of both the respondents is below the acceptable mean of 2.50 for the above stated items. This indicates that mathematics teachers have the required qualification to teach mathematics effectively in junior secondary school in Epe Local Government.

Research Question Two: Are there enough teaching aids to teach mathematics effectively?

Table 2.

Mean and Standard deviation of respondents on the instructional materials to teach mathematics effectively.

S/ N	INSTRUCTIONAL MATERIALS	MEA N	SD	REMARKS
1	Lack of instructional materials	3.71	0.45	Agreed
2	Inability to access necessary materials	3.94	0.64	Agreed
3.	Lack of functional mathematics laboratory	3.87	0.49	Agreed

The table 2.Above reveals that the mean score of both the respondents is above the acceptable mean of 2.50 for all the stated items. This indicates that there are not enough instructional materials to teach mathematics effectively in junior secondary schools in Epe Local Government.

Research Question Three: Is the mathematics syllabus overcrowded?

Table 3.

Mean and Standard deviation of respondents on overcrowding of mathematics syllabus.

S/N	ITEMS	MEAN	SD	REMARKS
1	Elaborated syllabus	3.71	0.45	Agreed
2	Mathematics over syllabus	3.84	0.64	Agreed

The table 3.0 above reveals that the mean score of both the respondents is above the acceptable mean of 2.50. for all the stated items. This indicates that junior secondary school mathematics syllabus is overcrowded.

Research Question Four: To what extent does that environment influence affect the performance of student in learning mathematics?

Table 4.

Mean and standard responses of respondents on the extent of environment influence on the performance of student in learning mathematics

S/N	ITEMS	MEAN	SD	REMARKS
1	Environment factors affects the teaching of mathematics in junior secondary school in Lagos state	3.71	4.05	Agreed
2	Poor physical infrastructure of learning environment	3.14	3.98	Agreed

The table 4.0 reveals that the mean score of the respondents is above and acceptable mean of e2.50 for all the stated items. This indicates that

environment influences affects the performance of student in learning mathematics.

Hypothesis one: There is no significant difference between the mean responses of male and female teachers on whether mathematics have the required qualification to teach mathematics effectively.

Table 5

Mean and standard responses of respondents on the extent of environment influence on the performance of student in learning mathematics based on gender

Variables	Means	SD	N	F	P.VALUE	SIG	DECISION
Male	3.405	0.700	22	48	-0.161	0.05	Retain H ₀₁
Female	3.223	0.473	28				

Table 5.0 above reveals that the P-value of -0.161 is lower than 0.05. Therefore the null hypothesis is retained. This implies that there is no significant difference between the mean responses of male and female teachers on whether mathematics teachers have the required qualification to teach mathematics effectively.

Table 6

T-test Analysis of the Response of Teachers and Students Regarding Availability of Teaching Aids

Variables	Means	SD	N	F	P.VALUE	SIG	DECISION
Teachers	3.145	0.857	50				
Students	3.245	0.448	50	135	-0.748	0.05	Retain H ₀₁

Table 6.0 above reveals that the P-Value of -0.748 is lower than 0.05. Therefore, the null hypothesis is retained. This implies that there is no significant difference between the mean responses of teachers and students regarding availability of teaching aids to teach mathematics effectively.

Hypotheses Three: there is no significant difference between the mean responses of teachers and students regarding overcrowding of mathematics syllabus.

Table 7

T-Test of the Mean Responses of Teachers and Students Regarding Overcrowding of Mathematics Syllabus

Variables	Means	SD	N	F	P.VALUE	SIG	DECISION
Teachers	3.402	0.583	50	135	-0.146	0.05	Retain H ₀
Students	3.427	0.700	50				

Table 7.0 reveals that the P-Value of -0.146 is lower than 0.05. Therefore, the null hypothesis is retained. This implies that there is no significant difference between the mean response of teachers and students regarding overcrowding of mathematics syllabus.

Hypotheses Four: there is no significant difference between the man responses of teachers and students regarding environment influence and the performance of student are learning mathematics.

Table 8.

T-Test Analysis of the Men Responses of Teachers and Students of teachers and students regarding environment influence and the performance of student in learning mathematics

Variables	Means	SD	N	F	P.VALUE	SIG	DECISION
Teachers	3.394	0.617	50	48	-0.146	0.05	Retain H ₀
Students	3.388	0.471	50				

Table 8 reveals that the P-Value of -0.146 is lower than 0.05. Therefore, the null hypothesis is retained. This implies that there is significant difference between the mean responses of teachers and students regarding environmental influence and the performance of student in learning mathematics.

Discussion of Findings

Based on the above analysis, finding reveals that mathematics teachers have the required qualification to teach mathematics effectively in junior secondary School in Epe Local Government. This is not unconnected with the effort of the state government in provision of qualified teachers across the state. This finding opposed the finding of Boggan, Harper and Whitmire (2012) that most of the schools have insufficient mathematics teachers. However, the finding corroborates the submission of Onu (2018) that there are qualified mathematics teacher in Lagos State junior secondary schools.

The finding also revealed that there are no enough teaching aids to teach mathematics effectively in Junior Secondary Schools in Epe Local Government. This finding supported the revelation of Zalmm & Wonu (2017) that lack of instructional materials is one of the problems associated with the teaching and learning of mathematics in junior secondary schools.

Furthermore, finding revealed that junior secondary school mathematics syllabus is overcrowded. This is due to variety of topics being taught in the subject. Finally, finding revealed that environmental influence negatively affects the performance of student in learning mathematics. This finding supported the revelation of Boggan, Harper and Whitemire (2012) that non-existence of conducive learning environment is affecting the teaching and learning of mathematics in junior secondary schools.

Conclusion

Based on the findings of the study, the teaching and learning of mathematic in junior secondary schools in Epe Local Government is associated with some factors which are lack of instructional materials, over-crowding of syllabus and unconducive environment. On the basis of the finding, it could also be deduced that there are qualified teachers for teaching and learning of mathematics in junior secondary schools in the study area. Therefore, all hand must be on deck by the concerned stakeholders in surmounting the problem associated with teaching and learning mathematics in the study area, if the objective of the subject is to be achieved.

Recommendation

The following recommendations were made on the basis of the findings:

- i. The establishment of collaborative partnerships between the government and professional bodies is recommended to facilitate the organisation of workshops for mathematics educators. This effort will

facilitate the acquisition of up-to-date knowledge among instructors regarding the latest developments in secondary school mathematics education. To improve the instructional methods of mathematics teachers, it is crucial to establish comprehensive professional development programmes for educators across all levels of education. The primary objective of these projects is to provide educators with up-to-date approaches and strategies that are in line with current teaching practices in the field of mathematics.

- ii. The government person in charge of secondary school education should conscientiously implement the assigned budget to effectively align with the intended goals of budgeting in junior secondary schools.
- iii. The implementation of suitable measures by the government is necessary to effectively tackle the obstacles encountered in the teaching and learning of mathematics, which is a fundamental academic discipline. The issues encompass a lack of adequate teaching resources, a curriculum that is burdened with excessive content, and an inadequate educational setting.
- iv. The allocation of authority to mathematics educators is vital for the purpose of ensuring their ability to properly supervise and manage the instructional and educational procedures pertaining to the field of mathematics. It is crucial that individuals are provided with comprehensive teaching materials and educational tools.

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