
EFFECT OF SCHOOL LOCATION ON STUDENTS' ACADEMIC PERFORMANCE IN MATHEMATICS IN CALABAR MUNICIPAL LOCAL GOVERNMENT AREA OF CROSS RIVER STATE, NIGERIA

Emmanuel Asuquo Edoho

*Department of Science
Education, University of
Calabar, Calabar.*

E-mail:

edohoemmanuel@yahoo.com

Inah, Joseph Odey

*Department of Science
Education, University of
Calabar, Calabar.*

E-mail: josephinah269@gmail.com

&

Okorie, Henry Emeka

*Department of Science
Education, University of
Calabar, Calabar.*

E-mail:

okoriehenryemeka@gmail.com



Abstract

The study was carried out to determine the effect of school location on students' academic performance in mathematics, in Calabar Municipal Local Government Area of Cross River State. One research question was posed and one hypothesis formulated to guide the study. This hypothesis was tested at 0.05 level of significance. The quasi-experimental non-equivalent group design was adopted for the study. The sample consisted of one hundred and ninety (190) SS1 students selected from six (6) sampled schools from both rural and urban areas of Calabar Municipality. The instrument used for data collection was the Mathematics Achievement Test (MAT). The independent t-test was used for the analysis of the hypothesis, and the result showed that the location of a school has a significant effect on the performance of its students in mathematics, especially when taught with instructional materials. Urban school students performed significantly better than rural school students did. Based on this finding, some suggestions and recommendations aimed at bridging the gap in performance between students in urban and rural secondary schools within Calabar Municipal Local Government Area of Cross River State, and Nigeria at large, were made.

Keywords: School location, mathematics, performance



Introduction

Mathematics is a compulsory subject at the pre-tertiary education level, and a major

requirement for entry into tertiary institutions in Nigeria. Its importance to our daily transactions (interactions with one another),

and a wide range of applicability in other fields of human endeavour can never be overemphasised. Ibokwe (2003) stressed that without mathematics, there will be no technology, and without technology, there will be no modern society. This implies that a strong background in mathematics is critical to the development of any nation (Alordiah and Akpadaka, 2015). Despite this importance of mathematics, it has been observed in recent times, that Cross River State (and Nigerian) students' performance in the subject, at both internal and external examinations has not been excellent. This has made teachers of mathematics, parents/guardians, the government and all education stakeholders concerned. And, in order to address this issue of below-excellent performance, researchers, over the years, have carried out studies on various variables and how they affect the achievement scores of students in mathematics. One of these variables is *school location*. According to Orji (2013), school location refers to rural and urban schools. The researcher further conceptualised urban schools as those schools in the municipalities or schools found within the town, while rural schools are those located in the villages or semi-urban areas. For Ntibi and Edoho (2017), school location refers to the particular place, in relation to other areas in the physical environment (rural or urban) where the school is sited. This school location, according to Frederick (2011), is one of the major factors that influence students' academic performance in some subject areas. He also added that many parents look at factors such as the location of schools (urban or rural) and the proximity of such schools to their homes before enrolling their children.

Arul (2012) conducted a research on school environment and the academic achievement of students. Data from 400 sampled participants were used to determine the relationship between school environment and academic achievement. The result indicated that there is a significant difference in the performance of students due to their schools' location. This is in agreement with the findings of Owioye (2011), which showed that there is a significant difference between the academic achievement

of students in rural and urban secondary schools as measured by the Senior School Certificate Examination. According to this study, students in urban areas had a better academic achievement than their counterparts in rural areas. The researcher attributed this wide gap between the performance of rural and urban secondary school students in mathematics to the uneven distribution of resources between these locations, poor school mapping facilities, problem of qualified teachers refusing appointment or not willing to perform well in isolated villages, lack of good roads, poor communication, and nonchalant attitude of some communities toward the school, among others. This is to say that students in urban locations have a very high advantage of favourable learning environment that apparently enhances their academic performance.

Furthermore, Orlu (2013) conducted a research among six hundred (600) teachers and students with the aim of finding out environmental influence on the academic performance of secondary school students in Port Harcourt Local Government Area of Rivers State. The result of this research indicated that the school environment (location) has a significant influence on academic performance. On the other hand, while examining "school variables and mathematics performance among students in Akwa Ibom State", Eme (2014), using one thousand (1000) junior secondary school two (JSS2) students spread across twenty (20) sampled schools found out that school location has no significant effect on students' achievement in mathematics. In the same vein, Ntibi and Edoho (2017), in their own study on the influence of school location on students' attitude towards mathematics and basic science, found that there is no significant difference in the mean performance scores between urban and rural school students. Before then, Onuoha (2010) had also argued that there is no significant difference between students' academic performance in mathematics in rural and urban areas, while Alokun (2013) found out that students from rural locations performed better than their counterparts in urban areas.

From the foregoing, it is clear that findings on the effect or influence of school location on the performance of students in mathematics, over the years, have produced disagreeing results. While some maintain that urban students perform better in examinations than their rural counterparts, others have found that rural students (in spite of all odds) perform in similar manner when compared to their urban counterparts. There are also researchers who contend that students in the rural areas perform better than their urban counterparts. In view of these contradicting findings, and the fact that none of these studies reviewed considered whether the use of instructional materials could affect the outcome of their researches, it is, therefore, necessary to carry out further research to ascertain the actual effect of school location on students' academic performance in mathematics when taught with instructional materials in Calabar Municipal Local Government Area of Cross River State, Nigeria.

Purpose of the Study

The purpose of this study is to determine whether the location of schools within Calabar Municipality of Cross River State, affects students' academic performance in mathematics, when taught with instructional materials.

Research Question

In line with the above purpose, the research question raised to address the issue in this study is: to what extent does the location of a school affect students' academic performance in mathematics when taught with instructional materials?

Research Hypothesis

Table 3.1

Schools	Number of students	Percentage ratio	Sample selected
A (urban)	312	15%	47
B (urban)	288	15%	43

There is no significant difference in the mean performance scores of urban and rural secondary school students taught mathematics with instructional materials.

Research Design

The quasi experimental design was adopted for this study. This is because, in order to avoid a disruption of school activities and arrangements, random assignment of subjects from different classrooms into the sample was not possible. Intact classrooms were used.

Research Instrument

The only instrument used for data collection in this study was the Mathematics Achievement Test (MAT), which was divided into two Sections (A and B). Section A consisted of the respondents' personal data such as sex and class, while Section B consisted of two theory questions. Each question was drawn from the topics considered in this study in order to ascertain the students' performance. After validation by two experts in Test and Measurement and one expert in Mathematics Education, the test-retest method was used to establish the reliability of the instrument, and a reliability coefficient of 0.87 was obtained. Thereafter, the MAT was administered to students in the sampled schools in this study after providing treatment to the experimental group.

Sample

A total of one hundred and ninety (190) SS1 students formed the sample of this study. This sample was randomly selected from the six (6) sampled schools in Calabar Municipality using 15% ratio of the population across the schools in order to avoid bias and to know the exact number of students to be selected for each sampled school as shown in table 3.1 below:

C (urban)	218	15%	33
D (rural)	213	15%	32
E (rural)	115	15%	17
F (rural)	121	15%	18
Total	1267		190

Data Analysis

Independent variable: School location

Dependent variable: Academic performance in mathematics. Statistical tool: Independent t-test

Variables	n	\bar{x}	SD	df	t
Urban	56	59.8214	13.1012	98	4.749
Rural	44	54.4318	12.1222		

Critical t = 1.960

Interpretation of Result

From the analysis on the table above, the calculated t-value of 4.749 was greater than the critical t-value of 1.960 at 0.05 level of significance with 98 degree of freedom. Hence, the null hypothesis was rejected. This implies that there is a significant difference in the mean performance scores of urban and rural secondary school students taught mathematics with instructional materials. The result shows that students in urban areas performed better (with a mean score of 59.8214) than those in rural areas (who had a mean score of 54.4318) when taught mathematics with instructional materials.

Conclusion and Recommendation

Based on the findings of the study, it is concluded that students in the urban areas perform academically better than their rural counterparts when taught mathematics with instructional materials. This is in disagreement with the findings of Onuoha (2010) who argued that there is no significant difference between students' academic performance in rural and urban areas. It is, however, in line with the

views of Owoeye (2011) who held that the geographical location of schools has a significant influence on the academic achievement of students. It was observed during the study that the major factor that accounted for the disparity in performance between urban and rural students was the fact that schools in the urban areas had more access to modern mathematics instructional materials compared to their rural counterparts. Therefore, in order to bridge this gap, government should always provide schools in the rural areas with adequate instructional materials. Trainings on improvisation of instructional materials should be organised for mathematics teachers in those areas. Lastly, incentives, in form of basic amenities and special allowances for teachers posted to rural schools, should be provided.

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