

Investigation of JSS3 Students Mathematics Perceptions on the use of School Library and their Academic Achievement in Uyo Local Government Area of Akwa Ibom State

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Abstract

Public lamentations bordering the issue of poor academic achievement in mathematics in Nigerian education system have become topical issues that have results much academic research like this. Mathematics is a must do or must offer subject in all Nigerian schools ranging from creche to upper basic (SS1 - 3) irrespective of the choice of career purposed by the students either art or science oriented discipline. Mathematics is a requirement for admission into tertiary institutions yet many students fail mathematics woefully. The study investigates school-based variables such as school environment and the school library influence on JSS3 Students Mathematics perceptions on the use of school library and their academic achievement in Uyo Local Government Area of Akwa Ibom State. One null hypothesis was formulated to test the significance at .05 alpha levels with the use of Analysis of variance (ANOVA). The study shows that: class size and school environment are significant, class size and school library are significant as well as school environment and school library. The result indicated that F_{-crit} is equal to 3.23 against F_{-cal} of 299.00 which lead to the rejection of the null hypothesis. The study ended with four recommendations which include; the government and school proprietors and proprietress should put school library as must-to-have facility before commissioning and opening any school and more study times should be added to those in transition classes like the JSS3.

Introduction

Before the advent of Information Technology (IT) which ushered in online learning resources, People in all works of life use the library and its resources to keep knowledge update. These users include pupils, students, teachers, scholars, scientists, government officials etc. many people use the libraries to satisfy their quest for knowledge while others use it to achieve academic excellence. In recent times it is difficult to see public schools with standard library that is up-to-date irrespective of the impact of libraries on students' academic achievement. The absence of up-to-date libraries in modern day public schools is affecting students academic performances, students now have strong perception that libraries does not matter to their success in career development. This wrong perception of students in schools without functional libraries does not arguer well with their academic success.

Perception is the foundation for teaching and learning. To achieve a good academic success in mathematics as well other subjects, the students need to have the right perception of the subject and the school library especially now that most schools lack manpower to teach mathematics. JSS3 is a transition class to upper basic in 9:3:3 system of education operating by the Nigerian education system. It is expected at the end of the nine (9) years before the transiting into upper basic class (SS1) the students undertake a unified junior entrance examination (junior WAEC) where each individual students result will act as a predator to

the school counsellor to counsel the student(s) on the appropriate subjects that will match the choice of their career.

The word 'perceptions' is a very general term that refers to the process of attaining awareness or understanding of the whole occurrences. Perception is not just the passive receipt of the sensory information (for example, vision and hearing) but can be shaped by learning, memory, and expectation.

Goldstein (2002) stated that perceptions both create an experience of the environment and enable people to act within it. If a student or group of students must read and understand the concept of their reading, they must have the right perception of what they are reading. Mba (2007) opined that of all the supporting institutions in adult education, libraries are the most important. Mba (2007) further stated that good libraries have the advantage of acquiring books than any single individual can buy and making a variety of work accessible to the interested borrower and reader. She further stated that the libraries have personnel to assist in locating materials either as classification or reference libraries. Summarizing the objectives of the institution of libraries in a developing countries, a team of experts who worked in Nigeria under the special Commonwealth African Assistance plan between November 1962 and February 1963 said that the library development is needed to contribute to the supply of skilled manpower, to further the education development programme to help those who are studying privately and to encourage all who wish to read for a useful purpose.

(Krashen, 2006) School libraries play an important role in the development of reading skills in early learners (birth to age 8 – National Association of Young Children) by providing access to materials and books and by motivating and engaging them.

A qualitative approach was taken by Williams & Wavell (2001) in a study using a small sample of secondary schools in Scotland to investigate the impact of the school library on learning. Focus group discussions with teachers and pupils and interviews with librarians identified the perceived impact of the school library on learning. Case studies were conducted looking at a variety of curriculum-related library activities across a range of age groups, such as research work, a skills course, reading promotion as well as activities relating to the broader learning experience which are reviewed in section 2.4 of their study. Indicators of learning, developed from the focus group discussions, were used during observation, discussion with students, teachers and librarians, and students' work was examined to establish whether the perceptions of impacts on learning expressed by the groups in the initial stage were indeed happening. These indicators provide preliminary examples of learning experiences that could be looked for in the library setting. The indicators were developed under the themes:

- Motivation (for learning), such as expression of enthusiasm, absorption in the task;
- Progression (in learning), specific skills relating to information handling, ICT, reading, study skills, and new knowledge, such as the ability to make notes, cite references, etc.

Studies in Michael, Ogunniyi and Peter (2013) have shown that there is strong connection between the students' use of school library and their academic performance. They further stated that Students that use the school library often perform better in test and examination than students who fail to use the school library. This assertion was supported by Wikipedia the free encyclopaedia (2010) in Michael et.al (2013) stated that researchers have demonstrated that school libraries have positive impact on students' achievement. It contended that more than sixty (60) studies have been conducted in nineteen (19) U.S. States and one Canadian province. It maintained that the major finding of these studies is that students with access to well-supported school library media programme with a qualified

school library media specialist scored higher on reading assessments regardless of their socio-economic statuses. School library according to Busayo (2011) is an integral part of educational system that cannot be ignored without jeopardizing the quality of education in schools. The school library is an important part of elementary, middle and high school programmes without which students would not thrive academically and invariably find it most difficult to conduct academic research before they reach college level.

Washington State Study (2015) on School Library Impact shows that a well equipped, well-staffed, and well-resourced library can make a measurable difference in student academic achievement. Some findings from the report are:

- Students who attend schools with Certified Teacher Librarians (CTLs) and quality library facilities perform better on standardized tests and are more likely to graduate, even after controlling for school size and student income level. “The impact of high-quality Certified Teacher-Librarian (CTL) instruction is further heightened among students in high-poverty schools: The five-year graduation rate is 78.8 percent in schools with CTLs and 43.2 percent at those without.”
- Schools with the highest rates of free or reduced price lunch show the most dramatic relationship between the presence or absence of a CTL and student achievement. “The impact of well-staffed, better-stocked, and better-funded libraries cannot be explained away by poverty, race/ethnicity, or other school and community factors known to impact student success,” says Keith Curry Lance, a research consultant who has been involved with impact studies in 15 states.
- A key factor distinguishing high-performing high-poverty schools from low-performing high-poverty schools is a quality library program. “School library programs are positive predictors of student success that poverty cannot suppress,” Lance says. “Some people think that poorer students are going to do poorly in school no matter what we do. The findings of these studies challenge that by showing that even poorer students do better in the presence of strong school library programs.”
- It is the quality of the library facility and related instructional services rather than its presence or absence that makes a difference for student achievement. “CTLs play an important role in teaching students the critical thinking and practical skills necessary to navigate the barrage of information to which they are daily exposed. Information literacy, as these skills are often referred to, is critical to success in higher education as well as to almost any profession.”

Evidence from multiple library impact studies conducted across the U.S. offers the following conclusions:

- ✚ Access to books through school libraries develops life-long positive attitudes in students towards reading and helps them read more. The earlier the foundation can be laid, the better.
- ✚ Students consistently perform better on tests when there is a full-time, certified librarian and appropriate assistant on staff.
- ✚ Extended hours of operation and flexible scheduling have a direct impact on student achievement.
- ✚ Higher expenditures and larger, newer, and varied collections contribute to improved student test scores.
- ✚ Collaborative planning between school librarians and teachers enhance student learning.
- ✚ The higher the number of visits to the library, the higher the scores on student achievement tests.

- ✚ School libraries are essential to students by providing facilities and tools to prepare them for navigating the information age and entering the workplace of the future.
- ✚ School libraries have the ability to bridge the gap between privileged and at-risk students by providing equal access and resources for learning.
- ✚ School librarians empower students by instilling in them a love of reading from early ages; teaching new ways of learning; guiding them to read and think critically; and offering technology skills.

Statement of the Problem

The alarming rate of poor academic achievement in mathematics still stands a global concern to all. The poor achievement in mathematics could be attributed to many factors within the school environment which affects the students' perception about mathematics as a subject.

The study focused on the investigation of J SS. 3 students' attitude towards mathematics from class size, school environment and school library.

Purpose of the Study

The purpose of this study was to investigate JSS3 students' perception on the use of school library and their academic achievement in mathematics

Research Question: There is no significant difference in JSS3 students attitude towards mathematics from class size, school environment and school library.

Hypothesis 1

There is no significant difference in students' attitude towards mathematics from class size, school environment and school library.

Methodology

The study adopted Analysis of variance (ANOVA) it was conducted in Uyo L.G.A of Akwa Ibom State. Data were collected via a questionnaire on students' perception on environmental variables and students' attitude towards mathematics using a 4 point Likert scale of: Strongly Agree (SA), Agree (A), Strongly Disagree (SD) and Disagree (D). The instrument was made up of twenty (20) questionnaire items for JSS3 students.

Table 1: Summary of Anova of Students Attitude towards Mathematics from Class Size, School Environment and School Library

Source of variance	SS	df	MS	F-Calculated	F-Critical	Remark
Between groups	920.93	2	460.47	299.00	3.23	f-cal. > F.crit.
Within groups	87.65	57	1.54			
Total	1008.58	59				

Significant $P < .05$

The result in table 1 above reveals that the calculated F- value of 299.00 is greater than that of the F-critical value of 3.23. The null hypothesis which states that there is no significant difference in students' attitude towards mathematics from class Size, school environment and school library is therefore rejected. It means that class size, school environment and school library have significant difference on students' attitude towards mathematics.

From the use of Scheffe's test to determine the group of variables that differs. It is observed that class size and school environment are significant, class size and school library are significant as well as school environment and school library.

Therefore, we can conclude that there is a significant difference in students' attitude towards mathematics from class size, school environment and school library.

Summary of Data for Analysis of Variable of the Three Groups

Source of Variance	SS	Df	MS	F
Between groups	920.93	2	460.47	299.00
Within groups	87.65	57	1.54	
Total	1008.58	59		

Significant $P < .05$

Summary of Three Sets of Respondents Data in Environmental Variables (Class Size, School Environment and School Library)

CLASS SIZE DATA				SCHOOL ENVIRONMENT DATA				SCHOOL LIBRARY DATA			
S/N	SEX	X_1	X_1^2	S/N	SEX	X_2	X_2^2	S/N	SEX	X_3	X_3^2
1	M	18	324	1	F	15	225	1	M	8	64
2	M	18	324	2	F	12	144	2	F	6	36
3	F	18	324	3	F	13	169	3	M	6	36
4	F	16	256	4	F	14	196	4	F	8	64
5	F	16	256	5	M	15	225	5	M	7	49
6	M	15	225	6	F	14	196	6	F	5	25
7	F	16	256	7	M	14	196	7	M	8	64
8	M	18	324	8	M	12	144	8	F	7	49
9	F	18	324	9	M	15	225	9	M	8	64
10	M	15	225	10	F	16	256	10	F	9	81
11	M	18	324	11	F	14	196	11	M	7	49
12	M	16	256	12	M	15	225	12	F	6	36
13	M	18	324	13	M	15	225	13	M	5	25
14	F	16	256	14	F	15	225	14	F	7	49
15	F	16	256	15	M	14	196	15	M	8	64
16	F	15	225	16	M	12	144	16	F	9	81
17	F	16	256	17	F	13	169	17	M	7	49
18	M	15	225	18	M	15	225	18	F	7	49
19	M	15	225	19	F	14	196	19	M	8	64
20	F	18	324	20	M	12	144	20	F	9	81
		331	5509			279	3921			145	1079

Findings of the study

The causes of students' poor achievement in mathematic were as follows:

- i. Poverty: the recent global melt dawn has affected both the individuals and the cooperate bodies leaving parents and guardians financial imbalanced to purchase textbooks for their wards.
- ii. Poor implementation of policy: According to Nigeria national policy on education (NPE 2004), there shall be a national book policy which shall devise strategies for book development in the country. Some of the functions of the NERDC shall be the

promotion of the development, production and distribution of books for all levels of education and the encouragement of indigenous authorship. The library is at the heart of the education enterprise. The virtual library as a platform for sharing knowledge is aimed at rejuvenating Nigerian schools through the provision of current books, journals and other information resources using digital technology. The objective of the national Virtual library project include the: (i) improvement of the quality of teaching and research at all levels of education in Nigeria through the provision of current books, journals and other library services; (ii) enhancement of access of academic libraries serving the education community in Nigeria to global library and information resources; and (iii) enhancement of scholarship, research and lifelong learning through the establishment of permanent access to shared digital archival collections. To achieve the policy objectives, government shall provide appropriate Information and Communication Technology (ICT) facilities to ensure that the benefits of the virtual library permeate all levels of education in Nigeria.

- iii. Infrastructure: this include all the resources ranging from learning materials to the facilities within the school environments such as the classrooms, lighting system, ventilation, classroom carrying capacity, etc.
- iv. Lack of subject experts: this is one of the major problems of poor academic performances in schools system today. Many teachers are assigned the responsibility to teach basic subjects like mathematics which they knew nothing about.

Conclusion

The study focused on Investigation of JSS 3 Students Mathematics perceptions on the use of school library and their academic achievement in Uyo Local Government Area of Akwa Ibom State. The influence of school-based variables such as: class size, school environment and school library. The result indicated that class size and school environment are significant, class size and school library are significant as well as school environment and school library.

Therefore, we can conclude that there is a significant difference in students' attitude towards mathematics from class size, school environment and school library.

Summary

The study carried out to Investigate JSS 3 Students Mathematics perceptions on the use of school library and their academic achievement in Uyo Local Government Area of Akwa Ibom State envisaged poverty, Poor implementation of policy, Infrastructure and Lack of subject experts as the chief causes of school libraries which in turns have resulted to students' poor academic achievement. The pointed Jss3 (Basic 9) as a transition class to career choice therefore should be given more attention and improve in the learning resilience through the use of the library and its facilities. The data collected were analyzed using ANOVA at .05 alpha significant levels which shows that: class size and school environment are significant, class size and school library are significant as well as school environment and school library. F-crt is equal to 3.23 against F-cal of 299.00 which lead to the rejection of the null hypothesis.

Therefore, we can conclude that there is a significant difference in students' attitude towards mathematics from class size, school environment and school library.

Recommendation

1. Therefore, government and school proprietors and proprietress should put school library as must-to-have facility before commissioning and opening any school.
2. More study times should be added to those in transition classes.

3. The schools and the government supervisory bodies should be pro-active in school inspection and submission of feed-forward to the appropriate quarter that can provide the needed teaching/learning facilities that will enhance academic performances.

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