



Environmental Effect on Students' Academic Performance in Public and Private Secondary Schools in Adamawa State, Nigeria

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ABSTRACT

The study investigated the effect of school environment on students' academic performance in public and private secondary schools in Adamawa State, Nigeria. Three research questions and three hypotheses guided the study. The descriptive survey design was adopted for the study. The population of the study comprised 5110 teachers from 297 public/private secondary schools in Adamawa State. 400 teachers from 22 public/private secondary schools constituted the sample of the study. Proportionate stratified random sampling technique was used to select the sample size. A four point structured 15-item rating scale questionnaire titled School Environment Questionnaire (SEQ) was constructed by the researchers and used to collect data for the study. The data collected were analyzed using mean and standard deviation to answer research questions while chi-square (χ^2) test of goodness of fit was used to test the hypotheses at level of significance 0.005. The study revealed that there was a significant influence of infrastructural facilities, class-size and school location on students' academic performance in both public/private secondary schools in Adamawa state, Nigeria. It was recommended among other things that All schools communities should partner with their schools and provide infrastructural facilities that would complement the effort of the government in enhancing quality education.

INTRODUCTION

The issue of poor academic performance of students in Nigeria has been of much concern to the government, parents, teachers and even student themselves. The quality of education not only depends on the teachers as reflected in the performance of their duties, but also in the effective coordination of the school environment (Ajao, 2001) That is to say the environment where the child leaves is a central determining factor in the performance of child's at all levels of education. This is because the physical, social and psychological environments provide the mental readiness of the learner for new learning to take place. The term environment can be seen as all the physical, social and psychological factors influencing the life and activities of people in a particular place (Akem, 2008). This shows that environment is not only the place in which the child lives (physically), but also the people with which he/she comes in contact with (socially). In this regard, environment is a place where the child functions; the home, the school, the peer group, the classroom among others. School environment therefore, comprises all the components of the school system that contributes positively or negatively towards effective teaching and learning (Songu, 2016). A good school environment, therefore, refers to all improved school conditions, such as availability of the right functional and usable infrastructures, availability of the right quality and quantity of teaching materials and workforce, standard class-size, proper location, good student teacher relationship and improved methodologies which combined to encourage teachers and students for effective teaching and learning (Songu, 2016). in addition, Usaini and Abubaker (2015) asserts that a supportive and favorable school environment enriched with enough learning facilities, and favorable climate makes students more comfortable, more concentrated on their academic activities that resulted in



high academic performance and as such a proper and adequate environment is very much necessary for a fruitful learning of the child.

Ortese (2006) also postulates that learning is influenced by the nature of the environment, be it at home or school. A conducive environment is free from threat, stress and tension and includes adequate infrastructural facilities, standard class size, appropriate location of the school, teachers' motivation, adequate instructional materials, type of ownership among others. However, the focus of this paper is to find out the effects of school environment in the areas of infrastructural facilities, class-size and school location on students' academic performance. According to Songu (2016), infrastructural facilities refer to the physical and spatial enablers of teaching and learning. These include classrooms, libraries, laboratories, workshops, playfields, school farms and gardens etc. They have to be of the appropriate quantity, size and quality to meet the minimum standards for promoting meaningful teaching and learning as well as students' academic performance. However, Hassan (2006) adds that these facilities are lacking in most secondary schools, thereby making teaching and learning more difficult for students to comprehend. A research by Sunday (2012) revealed that there is a significant relationship between physical school environment and students' academic performance in both public/ private senior secondary schools. The result indicated that students with adequate library, laboratory, classrooms and other physical facilities perform better than those in school with less or without such facilities. This is an indication that poor facilities and inadequate space, as well as the arrangement of items including seats in the classroom, library and laboratory, would affect the organization of learning environment since favourable school climate gives room for students to work hard and enhance their academic achievement.

Hassan (2006) also notes that aside the insufficiency of both infrastructural and instructional facilities in public and private secondary schools, the number of students per class outweigh standard class-sizes which may influence the kind of attention each student would receive from the teacher thereby thwarting learning and academic performance of students. The nature of the class-size in a school determines to a large extent the success or failure of that school especially in terms of students' academic performance. In line with this, Schanzenbach (2014) noted that class size is an important determinant of a variety of students' outcomes, ranging from test scores to broader life outcomes. Wisconsin (2000) observes that the percentage of time devoted to instruction in smaller classes increased from 80% compared to large classes, while the percentage of time devoted to non-instructional activities such as discipline and classroom arrangement decreased from 20% to 14%. Usman (2003) note that the teacher-student ratio of about sixty to one makes effective teaching and learning almost impossible as students' outgrow the teacher's control. Jones (2005) also agrees with Usman's and Kennedy's assertion that students' disruption will occur frequently in classes that are poorly managed, where students are not provided with appropriate and interesting instructional tasks which are primarily caused as a result of over-crowded class size and that the academic performance of such students would likely drop. When a class is over-populated, there is a problem of the teachers not knowing the difficult areas of individual students and thereby not paying



proper attention to them. Teachers find it difficult to give frequent exercises to help students work hard in order to retain what they have learnt and improve on their performances especially when the school is not sited in a proper location (Usman, 2003). School location which is the site of a school too can be one of the hurdles to students' academic output; that where students undergo long trekking distance to get to school may affect their interest and understanding (Okoh, 2001 & Orlu, 2013). Okoh stretch further that, schools located in an environment where there are noise traffic and noisy sound of machine from play-wood industry may also affect students' academic performance negatively because, the noisy environment may disturb students from concentrating while studying. In another development, Oworye, (2011) study also shows that there is a significant difference between the academic achievement of students in rural and urban secondary schools as measured by senior school certificate examinations. To the author, the geographical location of schools has a significant influence on the academic achievement of students. This could be seen in the uneven distribution of resources, poor school mapping, facilities, problem of qualified teachers refusing appointment or not willing to perform well in isolated villages, lack of good road, poor communication, and nonchalant attitude of some communities to school among others are some of the factors contributed to a wide gap between rural and urban secondary schools. Oworye, notes that schools located in rural areas lack qualified teachers. This is because teachers do not want going to rural areas that lack social amenities. They prefer to stay in urban schools. It is also observed that a lot of coaching of urban students is done to prepare them for public examinations, thus promoting the spirit of competition and rivalry that may be lacking in the rural students, probably, owing to limitations in exposure and experience. Also, the study has proven that students in urban areas had better academic achievement than their rural counterpart.

On the other hand, students' academic performance is the outcome of education, the extent to which a student has achieved his/her educational goals or how well a student meets standards set out by government and educational institutions. Michelle (2000) sees academic performance as the ability to study effectively and show how facts fit together and form larger patterns of knowledge. And being able to think for oneself in relation to facts as well as being able to communicate the knowledge verbally or down on paper. To him students' academic performance is how well a student is able to recall facts learnt by either verbally or written down on paper. One can therefore conclude that students' academic performance is the process of how students deal with their studies and how they cope with or accomplish different tasks given to them by their teachers. However, extensive review of literature shows that, academic performance of students seems to have declining in recent times in Nigeria, Adamawa state inclusive. Consequently, the issue of poor academic performance in public secondary schools has reached the point where effective use of relevant strategies ought to be explored and employed. The researchers, therefore, deemed it fit to find out the environmental effect on students' academic performance in public/private secondary schools in Adamawa States, Nigeria.



Statement of the Problem

In spite of the efforts of government, parents' teachers associations, old boys associations, non-governmental organizations and the administrators of private/public secondary schools in the Adamawa states of Nigeria to ensure a conducive teaching and learning environment that will enhance students' academic performance, the problems associated with poor school environment seem to hamper and overwhelm these efforts. This may be due to the large number of students enrolment which leads to over-crowding in available classes, most schools seems to lack basic class-room furniture like seats, desks and tables resulting to some students' sitting on the floor or logs of wood; sometimes even the available classes lack ventilation which results in adverse health and academic implications. In fact, hardly will one come across a public school where students' population in the class is regarded as normal. Worst of all, some schools seems not to be located in line with the laid down procedure for the establishment of schools, as they are located in a noisy and long trekking distance. One wonders how effective teaching and learning may take place in such school environment that may enhance students' academic performance especially in the public secondary schools. It was against this background that the researchers deemed it necessary to investigate the environmental effect on students' academic performance in both private/ public secondary schools in Adamawa state, Nigeria.

Purpose of the Study

The purpose of this study was to investigate the environmental effect on students' academic performance in private/ public secondary schools in Adamawa State. Specifically, the study sought to:

1. Find out the effect of infrastructural facilities on students' academic performance in public secondary schools in Adamawa State.
2. Determine the influence of class-size on students' academic performance in public/private secondary schools.
3. identify the effect of school location on students' academic performance in private/public secondary schools

Research Questions

The study was guided by the following research questions:

1. In what ways do infrastructural facilities affect students' academic performance in private/public secondary schools in Adamawa State?
2. How does class-size influence students' academic performance in public secondary schools?
3. What is the effect/school location on students' academic performance in private/public secondary schools?

Research Hypotheses

The following null hypotheses were formulated to guide the study and were tested at 0.05 level of significance:



1. Infrastructural facilities have no significant effect on students' academic performance in both private/public secondary schools in Adamawa State.
2. Class-size has no significant influence on students' academic performance in private/public secondary schools
3. School location has no significant influence on students' academic performance in public/private secondary schools

Research Method

The study adopted the descriptive survey design. The population comprised 5110 teachers from 297 public/private secondary schools in Adamawa State, Nigeria during the 2018/2019 academic session. A sample of 400 teachers representing 8% from 22 public/private secondary schools representing 7% of the population across the three senatorial district were selected using proportionate stratified random sampling technique. This sample is considered adequate since it is in line with Achor and Ejigbo's (2006) assertion that for a larger population, a sample of 10% of the population is adequate. Achor and Ejigbo, further stresses that the percentage could be higher or less depending on the population of the study. A self-structured questionnaire titled "School Environment Questionnaire (SEQ)" was used for data collection. The questionnaire was divided into Sections A and B. Section A contained information on the personal data of the respondents, while Section B was divided into three clusters-A, B and C. Cluster A contained items 1-5 that bordered on the influence infrastructural facilities on students' academic performance in private/public secondary schools. Cluster B contained items 6-10 on influence of class-size on students' academic performance in privat/public secondary schools, while section C contained items 11-15 on influence of school location on students' academic performance in private/public secondary schools. Responses were based on the modified 4-point likert scale. The respondents were requested to answer: Strongly Agree (SA), Agree (A), Disagree (D) or Strongly Disagree (SD). The questionnaire was validated by two experts in Educational Management and research Measurement and evaluation from the Faculty of Education, University of Jos. The questionnaire was trial-tested using 10 teachers who were not part of the sample but part of the population. The reliability of the instrument was measured using Cronbach Alpha. It yielded a reliability coefficient of 0.79. This indicated high internal consistency. The data collected were analyzed using mean and standard deviation to answer the research questions. Any item with less than 2.50 was rejected as not having the desired effect, but accepted if it was 2.50 and above. Chi-square test of goodness-of-fit was used to test the null hypotheses at level of significance 0.05.

RESULTS AND FINDINGS

The results are presented in line with the research questions and hypotheses as follows:

Research Question One:

In what ways do infrastructural facilities influence students' academic performance in public secondary schools in Adamawa State?



Table 1: Mean ratings and standard deviation on influence of infrastructural facilities on students' academic performance in public/private secondary schools in Adamawa State

Item	Item Description	SA	A	D	SD	X	Std	Decision
1.	Inadequate laboratories in school may Affect students' performance in science subject.	99	152	79	70	270	1.03	agreed
2.	Inadequate library facilities in schools may Affect academic performance of students.	89	179	99	33	281	0.88	agreed
3.	Inadequate classrooms in school may Influence students comfort and their academic performance.	14	118	63	53	83.0	80.90	Agreed
4.	Inadequate hostel accommodation in school may influence students' academic performance	111	177	76	36	2.91	0.91	Agreed
5.	Non-availability of recreational facilities in school may influence students' poor academic performance.	138	148	35	79	2.86	1.18	agreed
	mean and standard deviation					2.87	0.98	agreed

Table 1 showed that the staffs rating of items 1-5 were 2.70, 2.81, 3.08, 2.91 and 2.86 respectively with corresponding standard deviations of 1.03, 0.88, 0.90, 0.91, and 1.18. Based on the cut-off point of 2.50, the staff rated all the items as accepted indicating that, inadequate laboratories in schools may influences students' performance in science subject. Those inadequate library facilities in school may influence poor academic performance by students. The respondents also agreed that inadequate classrooms in school may influence students comfort and their academic performance. They also agreed that inadequate hostel accommodation in school may influence students' academic performance. More so, that non-availability of recreational facilities in school may influence students' poor academic performance. The cluster mean of 2.87 and standard deviation of 0.98 were rated above the cut-off point of 2.50. This implies that infrastructure facilities have influence students' academic performance in public secondary schools in Adamawa State.

Research Question Two:

How does class size influence students' academic performance in public secondary schools in Adamawa State?

Table 2: Mean ratings and standard deviation on influence of class size on students' academic performance in private/public secondary schools

Item No	Item Description	SA	A	D	SD	X	Std.	Decision
6.	Small class size creates better students-Teacher relationship which influences students' academic performance.	123	166	47	64	2.87	1.03	Agreed
7.	Large class size makes it difficult for teachers to have frequent contact with the students and this can lower their academic performance in schools	90	154	100	56	2.70	0.97	Agreed
8.	Over-crowded classes make classroom management difficult and this reduces students' academic performance	63	200	112	25	2.75	0.79	Agreed
9.	Normal class size provides better opportunities for students and teachers to interact and this affect students' performance	164	166	36	34	3.15	0.91	Agreed



10. Over-populated classes make teaching ineffective And this reduces students' academic performance.	120	190	41	49	2.95	0.95	Agreed
Cluster Mean and Standard Deviation					2.88	0.93	Agreed

Table 2 showed that staff rating of items, 6-10 were 2.87, 2.70, 2.75, 3.15 and 2.95 respectively with corresponding standard deviations of 1.03, 0.97, 0.79, 0.91 and 0.95. Based on the data, the respondents agreed that small class size creates better students-teacher relationship which influences students' academic performance. They also agreed that large class size makes it difficult for teachers to have frequent contact with the students and this can lower their academic performance in schools and that over-crowded classes make classroom management difficult and this reduces students' academic performance. The table also shows that normal class size provides better opportunities for students and teachers to interact and this influences students' performance. Moreover, the respondents indicated that over-populated classes make teaching ineffective and this reduces students' academic performance. The cluster mean of 2.88 with standard deviation of 0.93 were rated above the cut-off mark of 2.50. This implies that class-size influence students' academic performance in public secondary schools.

Research Question Three:

What is the influence of school location on students' academic performance in public secondary schools?

The data that provide answer to research question two are presented on Table 3.

Table 3: Mean ratings and standard deviation on influence of school location on students' academic performance in public secondary schools

Item No	Item Description	SA	A	D	SD	X	Std	Decision
	School located in urban centres with better facilities may influence students' academic performance	89	169	102	40	2.77	0.91	Agreed
11.	Rural schools with inadequate teachers may influences low students' performance in academic work	117	152	70	61	2.81	1.02	Agreed
12.	Schools located in the heart of the town may have quality teachers posted to them and this may lead to improvement in students' academic performance	116	162	81	41	2.88	0.94	Agreed
13.	School located in noisy areas may experience distraction which may influence low academic performance.	115	170	75	40	2.90	0.93	Agreed
14.	School located in serene environment Appears quiet and calm may influence high students' academic performance.	141	188	33	83	3.08	0.90	Agreed
	Cluster Mean and Standard Deviation					2.89	0.90	Agreed

Table 3 showed that staff rating of items, 11-15 were 2.77, 2.81, 2.88, 2.90 and 3.08 respectively with corresponding standard deviations of 0.91, 1.02, 0.94, 0.93 and 0.90. Based on the data, the respondents agreed that school located in urban centre's with better facilities may influence high students' performance in academics. They also agreed that rural schools with inadequate teachers may influences low students' performance in academic work. Schools located in the heart of the town may have quality teachers posted to them



and this may lead to improvement in students' academic performance. School located in noisy areas may experience distraction which may influence low academic performance. More so, School located in serene environment appears quiet and calm may influence high students' academic performance. The cluster mean of 2.89 with standard deviation of 0.94 were rated above the cut-off mark of 2.50. This implies that school location influence students' academic performance in public secondary school

Hypothesis One:

Infrastructural facilities have no significant influence on students' academic performance in public secondary schools

Table 4: Chi-square test of the influence of infrastructural facilities on students' academic performance in public secondary schools

Opinions	Observed frequency	Expected Frequency	df	Level of sig	X ₂ -cal	X ₂ _tab	Decision
No effect	149 (37.25%)	200(50%)	3	0.05	40.460	7.815	Ho
Effect	251(62.75%)	200(50%)					Not Accepted

Values in parentheses are percentages (X₂ = 40.460, df = 1, p = 0.05 > 0.00)

Table 4 showed that the descriptive statistics of percentages and the inferential statistics of chi-square were used to test the influence of infrastructural facilities on students' academic performance in public secondary schools in Adamawa State. The results showed that 62.75% of the respondents agreed that infrastructural facilities have positive influence on students' academic performance in private/public secondary schools as against 37.25% respondents who disagreed. Chi-square calculated value of 40.460 was greater than the chi-square table value of 7.815 checked at level of significance 0.05 and at 3 degree of freedom. The null hypothesis was therefore not accepted. This implies that infrastructural facilities have significant influence on students' academic performance in private/public secondary schools in Adamawa State

Hypothesis Two:

Class-size has no significant influence on students' academic performance in private/public secondary schools

Table 5: Chi-square test of the influence of class-size on students' academic performance in private/public secondary schools

Opinions	Observed frequency	Expected Frequency	df	Level of sig	X ₂ -cal	X ₂ _tab	Decision
No Effect	111(27.75%)	200(50%)	3	0.05	89.900	7.815	Ho
Effect	289(72.25%)	200(50%)					Not Accepted

Values in parentheses are percentages (X₂ = 89.900, df = 1, p = 0.05 > 0.00)

Table 5 showed that the descriptive statistics of percentages and the inferential statistics of chi-square were used to test the influence of class-size on students' academic performance in public secondary schools. The results showed that 72.25% of the respondents agreed that class-size has positive influence on students' academic performance in public secondary schools as against 27.75% respondents who disagreed.



Chi-square calculated value of 89.900 was greater than the chi-square table value of 7.815 checked at level of significance 0.05 and at 3 degree of freedom. The null hypothesis was therefore not accepted. This means that class-size has significant influence on students' academic performance in public secondary schools.

Hypothesis Three:

School location has no significant influence on students' academic performance in public secondary schools

Table 6: Chi-square test of the influence of school location on students' academic performance in public secondary schools

Opinions	Observed frequency	Expected Frequency	Df	Level of sig	X _{2-cal}	X _{2-tab}	Decision
No Effect	142(35.5%)	200(50%)	3	0.05	84.860	7.815	Ho
Effect	258(64.5%)	200(50%)					Not Accepted

Values in parentheses are percentages ($X_2 = 84.860, df = 1, p = 0.05 > 0.00$)

Table 6, showed that, the descriptive statistics of percentages and the inferential statistics of chi-square were used to test the influence of school location on student's academic performance in public secondary schools. The results showed that 64.5% of the respondents agreed that school location has positive influence on students' academic performance in public secondary schools as against 35.5% respondents who disagreed. Chi-square calculated value of 84.860 was greater than the chi-square table value of 7.815 checked at level of significance 0.05 and at 3 degree of freedom. The null hypothesis was therefore not accepted. The implication is that school location has significant influence on students' academic performance in public secondary schools.

DISCUSSION OF FINDINGS

The finding of this study revealed that infrastructural facilities have significant influence on students' academic performance in public secondary schools in Adamawa State. The finding is in line with Sunday (2012) which revealed that there is a significant relationship between physical school environment and students' academic performance in senior secondary schools. The result indicated that students with adequate library, laboratory, classrooms and other physical facilities perform better than those in school with less or without such facilities. Hassan (2006) added that infrastructural facilities are lacking in most secondary schools, thereby making teaching and learning more difficult for students to comprehend. The results further showed that class-size has significant influence on students' academic performance in public secondary schools. This finding is in line with that of Schanzenbach (2014) who discovered that class size is an important determinant of a variety of students' outcomes, ranging from test scores to broader life outcomes. Wisconsin (2000) also observes that the percentage of time devoted to instruction in smaller classes increased from 80% compared to large classes, while the percentage of time devoted to non-instructional activities such as discipline and classroom arrangement decreased from 20% to 14%.



The findings also showed that school location has significant influence on students' academic performance in public secondary schools. This finding is in consonance with Oworye, (2011) study which shows that there is a significant difference between the academic achievement of students in rural and urban secondary schools as measured by senior school certificate examinations. To the author, the geographical location of schools has a significant influence on the academic achievement of students. This could be seen in the uneven distribution of resources, poor school mapping, facilities, problem of qualified teachers refusing appointment or not willing to perform well in isolated villages, lack of good road, poor communication, and nonchalant attitude of some communities to school among others are some of the factors contributed to a wide gap between rural and urban secondary schools

CONCLUSION

Based on the result of this study, it was established that infrastructural facilities have significant influence on students' academic performance in public secondary schools. It was also found that class-size has significant influence on students' academic performance in public secondary schools and that school location has significant influence on students' academic performance in public secondary schools. From the findings of the study, one could discover that school environmental forces play a vital role in determining how students functions and perform academically in their varying schools. This affirms that in the school settings, the type and nature of the surrounding do have direct bearing on the learning and academic outcome of the students.

RECOMMENDATIONS

The following recommendations were made here under:

All schools communities should partner with their schools and provide infrastructural facilities that would complement the effort of the government in enhancing quality education. Government/ proprietors should build more classroom blocks to decongest over-populated classrooms. And when giving admission to students', school administrators should bear in mind the size, quality and staff strength of their schools. Ministries of education should intensify efforts to ensure that proprietors/ proprietress adhere to the guidelines on schools' sites selection to avoid unhealthy environment.

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