# AFRICAN JOURNAL OF

# EDUCATIONAL MANAGEMENT

ISSN 0795 – 0063 Volume 24, Nos. 1&2, 2023

A JOURNAL OF THE DEPARTMENT OF EDUCATIONAL MANAGEMENT, UNIVERSITY OF IBADAN

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# EFFECT OF ENVIRONMENTAL FACTOR VARIATION ON ACADEMIC PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN ADAMAWA STATE, NIGERIA

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# Abstract

This study examined the effect of environmental factor variation on the academic performance of senior secondary school students in Adamawa State, Nigeria. The study used descriptive survey research design. The population of the study was 295 teachers and 547 students. Descriptive statistics of mean and standard deviation were used to answer the research questions while School Effect of Environmental Factor Questionnaire (EFQ) was used for data collection. The study revealed that inadequate classroom spaces, poor ventilation and inadequate laboratory affects students' academic performance. Inadequate provision of instructional, qualified teachers and location of school affected senior secondary school students' academic performance, attitude and accessibility to learning facilities negatively in Fufore L.G.A., Adamawa State. The study recommended among others that government and other relevant agencies should ensure that educational resources (human and material) are evenly distributed to schools. In addition, learning environment should be made safe for teaching and learning.

**Keywords:** Environmental factor variation, Accessibility, Attitude, Political influence, School location, Educational resources

# Introduction

The trend of poor results in external examinations such as the West African Examinations Council, National Examination Council and others in the Nigerian educational system is an issue that has raised the concerns of stakeholders as to the factors responsible for this unfortunate situation. Many a times attention was focused on teachers' job performance and students' non-commitment to their studies due to distractions that hamper learning but very little attention has been given to the learning environment. The environment in which the students learn and access instructional resources such as classrooms, libraries, technical workshops, laboratories, health, physical exercises, playgrounds and conveniences among others environmental factors that affects students' academic performance.

School environmental factors remains a cogent and an important phenomena in education that still calls for study and proper management in order to enhance students' academic performance. This is because the issue of poor academic performance of students has been of much concern to the government, parents, teachers and students. 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; Takwate, 2012). School environment according to Cesar, et al (2020) is a set of relationships that exist among members of a school community that are determined by structural, personal and functional factors of the educational institution, which is distinctiveness to schools. School environmental factor is an important factor in the evaluation of students' academic performance (Martin, 2016).

The extent to which students access education and learn in school depend on the location of school structure, availability of classroom and instructional facilities and other accessories. It is believed that a well-planned school environment should be geared up towards facilitating effective teaching and learning, good social, political and economic emancipation and students' academic performance.

Relating the significant effect of environmental factors on students' academic performance to international occurrences, Agugbuem (2002) revealed that safe and orderly classroom environment (aspect of instructional space), school facilities (accessories) are significantly related to students' academic performance. An accessible, comfortable and caring environment among other treatments too contributes to students' academic performance. Based on this, one needs to understand that education is a system that changes continually through different processes that involves imparting knowledge, generating interests, inculcating desirable attitudes and values that are essential skills required for independent study. This is important in the interest of the students in order for them to be competent and socially productive citizens. The uniqueness of this responsibility help students acquire scholastic skills as they are being influenced by several factors in which the school environment plays a dominant role. Cesar et al (2020) concluded that students with proper school environment was found to make a greater effort for academic performance.

The physical characteristics of the school have a variety of effects on teachers, students and the learning process. Poor lighting, noise, high levels of carbon dioxide in classrooms and inconsistent temperatures make teaching and learning difficult. Poor maintenance and ineffective ventilation systems lead to poor health among students as well as teachers, which culminate into poor academic performance and students' higher rate of absenteeism (Frazier, 2002). These factors in turn adversely affect students' behaviour and lead to high level of frustration among teachers, and poor learning attitude among students.

Beyond the direct effects, that poor school environment have on students' ability to learn, the combination of poor facilities, create an uncomfortable and uninviting workplace for teachers, combined with frustrating behaviour by students including poor concentration and apathy, hyperactivity, stressful set of working conditions for teachers. In connection to these, stress and job dissatisfaction due to poor environmental factors are common pre-cursors to lowered teacher enthusiasm and thereby its resultant effect on the academic performance of secondary school students.

Studies by Nnoli (2003); Han, Moon and Lee (2019); Cesat et al (2020) revealed that the physical, social and academic conditions of schools are related to school environment. It is more common to find empirical studies that identify the relationship between these variables, but not much on the effect of the variables on students' academic performance in the area of this study. Hence, the crux of the study is geared towards investigating the effect of environmental factor variation on senior secondary school students' academic performance in Adamawa State, Nigeria.

#### Statement of the Problem

School environmental factor variation's influence on students' academic performance in secondary school before now have not been considered by researchers as a result it has little or no attention in educational discourse and consideration for long. Over the years some remarkable indicators reveals a correlation between school environment and students' academic performance and that variation in these factors plays major role in the life of every student though, some are yet to believe that school environment brings about better performance.

Some identified unhealthy practices in schools to include poor classroom sitting and overcrowdings, inadequate instructional facilities, poor ventilation, poor lighting facility, dilapidated buildings. Under these conditions, teaching and learning is adversely affected and in turn reflect on students' academic performance. Therefore, for the students' effective and efficient learning, it is necessary that learning takes place in conducive school environment. Hence, it is pertinent to critically look at the effect of school environmental factor variations on academic performance of secondary school students which has being assumed to a large extent affect both the physical and psychological potentials of students in order to help improve and make some recommendations. However, some environmental factors such as students' home background, inadequate school facilities, misuse of technology (internet access) and school climate (poor teacher-student relationship) are assumed to likely contribute to poor students' performance. Therefore, there is the need to investigate the effect of environmental factor variation on senior secondary school students' academic performance in Adamawa State, Nigeria.

#### **Theoretical Framework**

Theoretical framework for the study was based on Skinnerian Environmental Theory by John Locke (1917). The theory stated that experience and learning are basic and very essential to understanding of human behaviour. The environmental approaches conceived human behaviour as product of interactions with the environment, rather than inherited. According to this model, behavioral development is controlled by and is a function of the physical and psycho-social environment (Ngwoke in Eze, 2010).The theory is based on the fact that environment factors are vital for the achievement of educational goal and that child's development is believed to be shaped by the pattern of reinforcement it receives from the environment.

The theory was adopted for the study based on the fact that teaching and learning is interactional in nature, it involves the interaction of the learner and the learner's behaviour with the environment. It is believed that a child's progress in the school is influenced by the attitude he develops towards not only the subjects he is to learn but also the school environment. Based on the underlining principles and assumptions guiding the above discussed theories, the current study is therefore, being anchored on the Bandura's social learning theory.

## **Research Questions**

- 1. How does school environment affect the students' academic performance in Fufore Local Government Area, Adamawa State?
- 2. To what extent do school facilities affect students' academic performance in secondary school in Fufore Local Government Area, Adamawa State?
- 3. What is the effect of class size on the academic performance of students in secondary school in Fufore Local Government Area, Adamawa State?
- 4. How does school location influence academic achievement of secondary school students in Fufore Local Government Area, Adamawa State?

# Methodology

Descriptive survey research design was adopted for the study by using a total population of 295 teachers and 547 senior secondary three students of the 16 Government Senior Secondary Schools in Fufore Local Government Area, Adamawa State. The Local Government Area was purposively sampled due to location alienation from other Local Government Areas (its closeness to the Cameroon boarder). School Environment Factor and Students' Academic Performance Questionnaire (SEFSAPQ) was used for data collection after validation and reliability test using Cronbach alpha statistic which yielded 0.60. The research questions were answered using descriptive statistics of

mean and standard deviation. Any mean response  $\geq 2.50$  indicates positive effect of environmental factors on students' academic performance in the study area and any mean response  $\leq 2.49$  indicates that the factors under review do not have significant effect on students' academic performance in Adamawa State, Nigeria.

# Results

**Research Question One:** How does school environment affects the students' academic performance in Fufore Local Government Area, Adamawa State?

Students Academic Performance									
S/N	Statement	Teachers		Students		Gx	Remark		
		$\bar{x}_1$	δ	$\bar{x}_2$	δ	$\frac{\bar{x}_1 + \bar{x}_2}{2}$			
1.	Unqualified teachers are employed to teach the students	3.19	0.73	2.56	0.65	2.88	Agreed		
2	Classrooms are not adequate for instructions	3.13	0.79	3.21	0.75	3.21	Agreed		
3	Schools are located near market areas	3.41	0.77	3.02	0.66	2.95	Agreed		
4	Lack of classrooms ventilation	2.87	0.75	2.87	0.63	2.87	Agreed		
5	Lack of school science laboratories	3.30	0.74	2.86	0.58	3.00	Agreed		
	Gx	3.18	0.76	2.90	0.65	2.98	Agreed		

Table 1:	Mean	Response	on	how	School	Environment	affect
	Studen	its' Academi					

Table 1 shows the opinions of respondents on how school environment affects the students' academic performance in Fufore L.G.A, Adamawa State. With grand mean 3.18±0.76 and 2.90±0.65 respectively for teachers and students indicate that school poor school environment have negative effect on students' academic performance in the study area.

**Research Question Two:** To what extent do school facilities affect students' academic performance in secondary school in Fufore Local Government Area, Adamawa State?

	performance						
S/N	Statement	Teachers		Students		G <i>x</i>	Remark
		$\bar{x}_1$	δ	$\bar{x}_2$	δ	$\frac{\bar{x}_1 + \bar{x}_2}{2}$	
6	Lack of desk	3.20	0.86	2.53	0.56	2.87	High
7.	Lack chairs	3.21	0.65	2.14	0.70	2.68	High
8	Instructional materials	2.87	0.93	2.19	0.62	2.53	High
9	Insufficient power supply	2.87	0.84	3.10	0.74	2.99	High
10	Poor blackboard for classroom	3.13	0.94	3.01	0.55	3.07	High
11	Lack of using ICT Facilities	2.84	0.69	2.67	0.84	2.78	High
12	Lack of calculators	2.92	0.58	2.53	0.24	2,73	High
13	Lack of specimens	3.15	0.94	2.64	0.19	2.90	High
14	Poor laboratory equipment.	3.20	0.86	2.72	0.48	2.96	High
15	Lack of sport facilities	2.82	0.88	2.15	0.74	2.49	High
16	Poor school health facilities	2.84	0.69	2.50	0.66	2.67	High
17	Poor/lack of fencing of the school	3.19	0.65	2.24	0.14	2.72	High
	$G\bar{x}$	3.02	0.79	2.54	0.54	2.78	High

Table 2: Mean on the Effect of School Facilities on Students' performance

Table 2 represents the opinions of the respondents (teachers and students) on the extent to which school facilities affect the students'

academic performance. The respondents all agreed that availability school facilities highly affects students' academic performance with grand mean 3.02±0.79 and 2.54±0.54 respectively.

**Research question three:** What effect does class size have on the academic performance of students in secondary school in Fufore Local Government Area, Adamawa State?

3:	Academic Performance									
		Teachers		Students		Gx				
S/N	High populated class leads to:	$\bar{x}_1$	δ	$\bar{x}_2$	δ	$\frac{\bar{x}_1 + \bar{x}_2}{2}$	Remark			
18	Noise making during lessons	3.08	0.96	3.19	0.73	3.14	Agreed			
19	Lack of concentration during lessons	2.94	0.80	3.13	0.79	3/04	Agreed			
20	Improper seating arrangement	2.81	0.82	3.41	0.77	3.11	Agreed			
21	Poor Instructional delivery	3.13	0.94	2.87	0.75	3.00	Agreed			
22	Increased the possibility for mass failure	3.21	0.65	3.30	0.74	3.26	Agreed			
23	Poor reading habit.	2.87	0.84	2.51	0.65	2.69	Agreed			
	Gx	3.01	0.84	3.07	0.74	3.04				

TableMean Response on the Effect of Class Size on the Students'3:Academic Performance

Table 3 presents the views of the respondents with regard to the effects of class size on the academic performance of secondary school students. The result in the table revealed that all the items 18-23, represented the views of the respondents with regard to how they affect the academic performance of students. The mean scores of the respondents 3.21, 3.13, and 3.08 with their corresponding standard deviations respectively, represented the major areas that to great extent affect, the academic achievement of the students in the school

as regards class size. The result also shows that items 19, 23 and 20 represented indicated that the items to a great extent affected the students' performance of students in the schools. These include high possibility of mass failure, high noise making during lesson and poor instructional delivery.

**Research question four:** How does school location influences academic achievement of secondary school students in Fufore Local Government Area, Adamawa State?

4:	Performance						
S/N	The following are	Teachers S		Stude	nts	Gx	Remark
	factors that affect students' academic performance	$\bar{x}_1$	δ	$\bar{x}_2$	δ	$\frac{\bar{x}_1 + \bar{x}_2}{2}$	
24	Poor accessible roads to school	2.54	0.53	3.21	0.65	2.88	Agreed
25	Late coming to school	3.41	0.77	2.87	0.93	3.14	Agreed
26	Irregular attendance in school	3.19	0.73	2.87	0.84	3.03	Agreed
27	Inadequate provision of teaching materials	2.49	0.30	3.13	0.94	2.81	Agreed
28	The school is close to where they sale intoxicating substances	3.07	0.49	2.87	0.75	2.97	Agreed
29	Inadequate provision of study materials for students	2.87	0.55	3.30	0.74	3.01	Agreed
30	High rate of noise pollution in school	2.20	0.61	2.78	0.65	2.49	Disagreed
	$G\bar{x}$	2.82	0.57	3.00	0.78	2.91	Agreed

TableMean Response on the Effect of School Location Students' Academic4:Performance

Table 4 has shown that school location affected the academic performance of secondary school students in the study area with

2.82±0.57 and 3.00±0.78 mean ratings of the respondents responses respectively. The result from the table indicated that the mean scores of the respondents with their corresponding standard deviations showed that items 25, 26 and 28 listed to a to a great extent constituted the major areas the school location affects the academic achievement of the students in public secondary schools.

# **Discussion of Results**

The result in Table 1 indicated that the respondents agreed that unqualified teachers, insufficient classroom, school location, lack of classroom ventilation and lack of school science laboratory had great effect on students' academic performance. The above views are in agreement with the views of Agugbuem (2002) and Okafor (2006) that school environment, classroom accommodation for teaching and learning, promote the academic performance of students in the school. The result also indicated that inadequate examination hall in the school affected the students' academic performance. The finding above underscores the importance of the provision of qualified teachers, adequate classroom accommodation as well as reading spaces in the school, so as to enhance students' academic performance. This will also promote effective teaching and learning as teachers' performance will also be enhanced.

The result in Table 2 indicated that respondents have agreed that inadequate desks, chairs, teaching aids, laboratory equipment, sports facilities, school health services and fencing affected the academic performance of students largely. However, the opinion of the respondents indicated that the following variables desks, chairs, fencing of the school/security, school health facilities and electricity have great effect on the academic performance of students. The findings agreed with the opinions of Okafor (2006), Ibiam (2004) and Takwate (2018), that adequate provision of facilities to schools promotes effective students' academic achievement and also ensures the effective teachers performance in teaching and learning activities. It was the opinion of this researcher that the stakeholders in the education industry should emphasize the need for unbiased provision and allocation of teaching and learning facilities to secondary schools in Adamawa State. This will not only encourage students' academic achievement, but goes a long way in enhancing teachers' productivity as well as healthy academic environment. The respondents are also in agreement that adequate security in the schools can promote effective students' academic performance. This was because with peace and security, the school environment will be conducive for effective teaching and learning.

The result of the research in Table 3 revealed that a populated class may encounter, high noise making, lack of proper concentration, improper seating arrangement, increased mass failure, poor reading habit and that these factors greatly affected the academic performance of students. This was in line with the study carried out by Imarhiagbe and Igbineweka (2022) which revealed that when students are placed in smaller classes, they become more engaged both academically and socially and further argued that with strong social academic engagement, academic achievement improves. However, the researcher equally revealed that small class size can greatly improve the performance of study as the smaller the size the teacher can control the noise and seating arrangement.

The findings from research question four in Table 4 revealed that late coming as a result of location, irregular attendance, has great effect on academic performance. However, in the opinion of the respondents, closeness to school or nearness to school can enhance the academic performance of the study. The further the school is located, the more student comes late, and also the irregular they are to school. This agreed with the opinion of Samuel (2003) and Cesar, et al (2020) that school location influences the academic achievement of the students. The researcher supported the view that students are to be made to attend schools that are located close to their places of residence. Hence, there is the need to ensure that students are given access to admission to schools based on nearness to their places of residence. This will not only promote student participation in the school activities but reduce cost of transportation to parents.

#### Conclusion

This study examined the effect of environmental factor variation on the academic performance of senior secondary school students in Adamawa State, Nigeria. The conclusion was drawn that the respondents do not differ significantly in their mean ratings with regard to the negative effect of school environment, availability of school

facilities, classroom size and school location on students' academic achievement in the study area. Findings from the study identified inadequate offices for teachers, laboratories and classroom space for teaching and learning as the major areas that largely affect the academic achievement of students. The study also identified school location as factor that caused students' limited access to senior secondary schools and it affects the academic achievement of the students.

#### Recommendations

From the results of the study, the following recommendations are made:

- 1. Government and other relevant agencies should ensure that educational resources (human and material) are evenly distributed to schools.
- 2. Adequate classroom according to standard specifications to be provided in the schools to help promote and improve effective teaching and learning.
- 3. Government and communities to ensure that schools are located where students can have access to them.
- 4. Qualified teachers to be posted to schools and relevant authorities should ensure their stay in those areas.
- 5. Learning environment should be made safe for teaching and learning by posting security agents to guard schools against invasion.

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