Infrastructural Facilities, Instructional Materials and Academic Performance of Secondary School Students in Niger State, Nigeria

Adekunle Samuel Adekunle

**Corresponding author: samuelkunle888@gmail.com*

Federal College of Education, Kontagora, Niger State

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Abstract *This study examined the relationship between infrastructural facilities, instructional materials and academic performance of secondary school students in Niger State, Nigeria. Two specific purposes, research questions and hypotheses were formulated in respect of the study. Descriptive correlational research design was adopted for the study. The population of the study comprised 49,983 SSS II students and 11,153 teachers. A sample of 381 and 357 for teachers and students respectively made up of 759 respondents was selected through the use of multi- stage sampling techniques. Questionnaire and Students' Academic Performance Proforma were used to collect data for the study. Questionnaire was duly validated with reliability coefficient of 0.85. Mean and standard deviation were used to analyse the data collected to answer the research questions while simple linear regression analysis was used to test the hypotheses at 0.05 level of significance. The findings revealed among others that infrastructural facilities have high level contribution to academic performance of secondary school students in external examinations and infrastructural facilities have significant positive relationship with students' academic performance in external examinations. Based on the findings, it was concluded that infrastructural facilities and instructional materials have significant positive relationship with students' academic performance in external examinations. It was recommended among others that The Ministry of Education and indeed all stakeholders in education sector should work towards the provision of adequate infrastructural facilities like classrooms, libraries and information centres, technical workshops, multipurpose halls Laboratories and others, to enhance or improve students' academic performance.*

Keywords: Infrastructural Facilities, Instructional Materials, Academic Performance

Introduction

There is no doubt that the importance of education cannot be underscored because there is no country that has succeeded without educating its people. According to Osokoya (2009), education helps to improve security, health, prosperity and ecological balance in the world. It encourages social, economic and cultural progress, tolerance, national and international cooperation. Akomolafe (2009) described education as a single, most effective, means of curbing population growth, reducing child mortality, eradicating poverty and ensuring democracy, peace and sustainable development. The primary purpose of teaching and learning process is to bring about, in the learners, desirable change in behaviour through critical thinking. This process, however, does not take place in a vacuum but in an environment structured to facilitate learning.

Farombi (2010), opined that school facilities are potent factors to quantitative education. The importance of the provision of teaching and learning facilities for education cannot be over-emphasized. The dictum that "teaching is inseparable from learning but learning is not separable from teaching" is that teachers do the teaching to make the students learn, but students can learn without the teachers.

Akande (2015) stated that learning can occur through one's interaction with one's environment. Environment here refers to facilities that are available to facilitate students learning outcome. It includes books, audio-visual, software and hardware of educational technology; so also, size of classroom, sitting position and arrangement, availability of tables, chairs, chalkboards, shelves on which instruments for practical are arranged are essential. Awule in Aliade (2009) stated that learning environment should have good infrastructural facilities, adequately trained teachers, good leadership and adequate instructional materials among others. Infrastructure plays a very important role in the growth process of an economy; thereby raising the level of productivity and also leads to a higher potential level of output for the future Infrastructure refers to the fundamental facilities and systems serving a country, city, or area, including the services and facilities necessary for its economy to function.

The school physical facilities are known as school plant and it includes the school buildings, classrooms, furniture, and equipment, instructional materials, laboratories, libraries, play grounds, among others. Lezotte and Passiroque in Torupere and Isaac (2016) carried out a study to find out the effect of school buildings on students' academic performance. They formulated hypotheses based on prior students' performance with study background, school building and students' performance as the dependent variables. A total of 2,500 randomly selected students from 20 schools were used as sample. Pearson product moment Correlation coefficient statistical tool was employed at 0.05 alpha level of significance. The result showed that school buildings accounts for significant variance in academic performance. It was noted that classrooms should be spacious to promote flexibility of usage for group and individual activities.

According to Nwachukwu, in Torupere and Isaac (2016) the physical setting for learning affects the learner. The setting must be attractive enough to make students wish to spend long hours there. What we have presently in

most secondary schools does not meet these requirements. The typical classroom is part of an unattractive building. The roof may still be in place or may have been blown off by wind. If the latter is the case, students are forced to study without being protected from the effects of the weather. This kind of situation as stated by Nwachukwu (1994) in which the physical comfort of the students cannot be guaranteed, is not ideal for learning and does not enhance academic achievement.

Farombi in Tety (2016) maintained that instructional materials include, books, audio-visual, software and hardware of educational technology. He further opined that the availability, adequacy and relevance of instructional materials in classrooms can influence quality teaching, which can have positive effect on students' learning and academic performance. Mbipom (2000) describes instructional materials as tools which the teacher uses to achieve his set objectives. The researcher observed that lack of educational resources in our schools has been a major problem in the instructional process, concluding that ideally no effective education can take place without equipment, facilities, materials, etc. In the researcher's observation, a school environment that is handicapped by the non-availability of teaching and learning facilities strongly affect the level of students' academic performance. This implies that learning equipment and materials have effects on the academic performance of the students. Instructional materials are channels through which contents stimuli are presented to the learner.

Bassey (2009) identified the following categories of instructional materials, visual, prints, graphics, electronic, projectiles and audio-visuals. According to him, when these materials are adequately made available for studies, they facilitate the teaching learning process, thereby increasing performance for both the students and teachers. Ajari and Robinson (2010) carried out a research on the importance of instructional materials on students. They sampled 200 respondents through the simple random sampling technique. An ex-post facto research design was adopted for the study. A four-point questionnaire was used for data collection. The data was analysed using one-way analysis of variance (ANOVA). From the result they observed that educational resources in the school environment are very important in the development of an ideal teaching and learning environment. They further revealed that poor teaching and learning resources result into poor academic performance. Egbona (2012), in his research to find out the extent of instructional materials provision available for the teaching-learning process in Ugep educational zonal district, discovered that the most common instructional materials made available for teaching is chalkboard, cardboard, and life specimen. His findings show that availability of instructional materials has no significant relationship with academic performance of students, he concluded that they should be made available as they facilitate the teaching – learning process.

Academic performance refers to the degree to which a student accomplishes his or her tasks and studies. The well-known indicator of academic performance is grades which reflect the student's "score" for particular subjects and overall grade. Success is measured by academic performance in most educational institutions. In

this case, how well a student meets standards set out by an institution itself or an external examination body, either set up by the government or an independent outfit. Before standardisation, teachers' observation makes up the bulk of the assessment and grading system, and was highly subjective as different teachers valued different aspects of learning more highly than others. However, standardisation function which is fulfilled by establishments outside the schools helped in putting this in check considerably (Duruji and Oviasogie, 2014). According to Pruett (2010), is the level of performance attain via the combination of inputs from student motivation and conduct. In views of Adediwura and Tayo (2007) academic performance is generally referred to how well a student is accomplishing his or her tasks and studies, but there are quite a number of factors that determine the level and quality of students" academic performance.

It is on this premise that this study examines the relationship between infrastructural facilities, instructional materials and academic performance of secondary school students in external examinations in Niger State, Nigeria.

Statement of the Problem

It has been observed in the recent past that secondary schools in Nigeria are not living up to expectation in delivering quality education expected of the system. A lot of problems seem to be bedevilling the secondary school system ranging from inadequate facilities, old and dilapidated structures, inadequate instructional materials and unqualified teachers, thereby making the system ineffective (Wanjobi, 2011). It has also been observed that there is persistent poor performance of students in both internal and external examinations, going by the results of examination bodies such as West African Examinations Council (WAEC) and National Examinations Council (NECO), which has resulted in schools getting involved in examination malpractices, with indiscipline and other social vices becoming prevalent in the society (Akande, 2015). These problems seem associated with the nature of the infrastructural facilities, instructional materials of the schools, among others.

Purpose of the Study

The main purpose of this study is to examine the relationship between infrastructural facilities, instructional materials and academic performance of secondary school students in external examinations in Niger State, Nigeria.

Research Questions

The following research questions guided the study:

1. What is the level of infrastructural facilities in secondary schools for external examinations in Niger State?
2. What is the level of usage of instructional materials in secondary schools for external examinations in Niger State?

Research Hypotheses

The following hypotheses were formulated for the study:

H_{01}: There is no significant relationship between infrastructural facilities and academic performance of secondary students in external examinations.

H_{02}: There is no significant relationship between instructional materials and academic performance of secondary students in external examinations.

Research Methodology

Descriptive correlational research design was adopted for the study. This is to enable researcher to measure the variables involved and interrelationship between them. The population of the study comprises 49,983 SSS II students and 11,153 teachers for 2018/2019 academic session out of which 759 respondents were selected through the use of multi stages sampling and proportionate random sampling technique. Two instruments were used to collect the data for the study; questionnaire and students' academic performance proforma. The questionnaire was duly validated with Cronbach Alpha reliability of 0.85. Mean and standard deviation were used to analyse the data to answer the research questions while the simple linear regression analysis was used to test the hypotheses at 0.05 level of significance.

Results

Table 1: Mean and standard deviation of responses on the level of infrastructural facilities in secondary schools for external examinations $N_L = 381$ and $N_s = 357$

S/N	Indicate the level of the following facilities in secondary schools for external examinations.	$\overline{X}$	SD	**Remark**
1.	Classrooms	3.29	0.77	High Level
2.	Libraries and information centres	3.22	0.77	High Level
3.	Technical workshops	3.17	0.85	High Level
4.	Multipurpose halls	2.89	0.72	High Level
5.	Laboratories	3.53	0.56	Very High Level
6.	Health centres	3.33	0.74	High Level
7.	Football pitch	3.23	0.63	High Level
8.	Good road	2.85	0.77	High Level
9.	Water supply	3.28	0.72	High Level

10.	Toilets	3.24	0.80	High Level
Weighted average		**3.20**	**0.73**	**High Level**

Source: Field Survey, 2020

Analysis of data in Table 1 shows the mean and standard deviation of responses on the level to which infrastructural facilities contribute to academic performance of secondary school students in external examinations. The Table reveals that all the items except one had high rating level. The respondents indicated that classrooms, libraries and information centres, technical workshops, multipurpose halls, laboratories, health centres, football pitch, good road, water supply and toilets, all contribute positively to the academic performance of secondary school students to high level with mean ranging from 2.85 to 3.53. All the 10 constructs have a standard deviation ranging from 0.56 to 0.85. This means that the responses of the respondents are not wide spread from the mean. The data in Table reveals that infrastructural facilities positively contribute to academic performance of secondary school students in external examinations because the Table has high level rating (mean = 3.20, SD = 0.72).

This finding is also in order with the findings obtained by Ntekpere (2008) who conducted a research on the influence of the school infrastructural facilities on students' academic performance and found out the unavailability and lack of school infrastructural facilities significantly influenced the academic performance of the students in Agriculture. Based on this, the null hypotheses were rejected and it was concluded that infrastructural facilities have significant relationship with academic performance of secondary school students in external examinations.

Table 2: Mean and standard deviation of responses on the level of usage of instructional materials in secondary schools for external examinations $N_L = 381$ and $N_s = 357$

S/N	Indicate the level of usage of the following instructional materials in secondary schools for external examinations.	$\overline{X}$	SD	**Remark**
1.	Projector	3.20	0.85	High Level
2.	Notice board	3.10	0.68	High Level
3.	Books	3.31	0.72	High Level
4.	Audio – Visual	3.38	0.79	High Level
5.	Tables	3.14	0.71	High Level
6.	Chairs	3.19	0.78	High Level
7.	Chalkboards	3.25	0.77	High Level

8.	Shelves	3.26	0.66	High Level
9.	Computer	2.84	0.79	High Level
10.	Calculator	3.28	0.68	High Level
Weighted average		**3.20**	**0.74**	**High Level**

Source: Field Survey, 2020

Analysis of data in Table 2 shows the mean and standard deviation of responses on the level of usage of instructional materials for secondary schools in external examinations. The Table reveals that all the items had high level rating. The respondents indicated that projectors, notice board, books, audio-visual, tables, chairs, chalk boards, shelves, computer and calculator are all instructional materials that contributes to the academic performance of secondary school students to high level with mean ranging from 2.84 to 3.38. All the 10 constructs have a standard deviation ranging from 0.66 to 0.85. This means that the responses of the respondents are not wide spread from the mean.

This finding is in agreement with the finding obtained by Egbona (2012) who in his research to find out to what extent instructional materials are made available for the teaching-learning process, in Ugep educational zonal district discovered that, the most common instructional materials made available for teaching is chalkboard, cardboard, and life specimen even though his findings shows that availability of instructional materials has no significant relationship with academic performance of students, he concluded that they should be made available as they facilitate the teaching-learning process. Based on this, the null hypothesis was rejected and it was concluded that instructional materials have significant relationship with academic performance of secondary school students in external examinations.

Table 3: Summary of Regression Analysis of relationship between infrastructural facilities and academic performance of secondary school students in external examinations

Model	R	R Square	Adjusted R Square
1	0.890	0.791	0.801

Dependent Variable: Academic Performance

Table 4 Test of significance

Model		Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval	
		B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound
1	(Constant)	48.056	12.892		10.805	.000	23.677	74.435
	Infrastructural facilities	2.361	4.302	.719	7.316	.005	7.108	9.830

Dependent Variable: Academic Performance

Table 3 summarizes the regression results of relationship between infrastructural facilities and secondary school students' academic performance. The result indicated that there is a positive correlation between infrastructural facilities and students' academic performance (R = 0.890) while R-squared is 0.791 which means that the independent variable (infrastructural facilities) explained 97.1% variations of the dependent variable (academic performance).

The test of significance results as presented in Table 4 shows that infrastructural facilities have significant relationship with students' academic performance (B = 2.361; t= 7.316, P = 0.005). It indicated that at 5% level of significance there is enough evidence that the regression equation is well specified that a significant relationship exists between infrastructural facilities and academic performance of secondary school students in external examinations. Based on this, the hypothesis was rejected and it was concluded that infrastructural facilities have significant relationship with academic performance of secondary school students in external examinations.

Table 5: Summary of Regression Analysis of relationship between instructional materials and academic performance of secondary students in external examinations

Model	R	R Square	Adjusted R Square
1	.824	.680	.679

Dependent Variable: Academic Performance

Table 6: Test of significance

Model	Unstandardized Coefficients		Standardized Coefficients			95% Confidence Interval	
	B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound
1 (Constant)	.160	.117		1.373	.171	-.069	.390
Instructional materials	.932	.037	.824	25.146	.000	.859	1.005

. Dependent Variable: Academic Performance

Table 5 summarizes the regression results of relationship between instructional materials and academic performance of secondary students. The result indicated that there is a positive correlation between instructional materials and secondary school students' academic performance (R = 0.824) while R-squared is 0.680 which means that the independent variable (instructional materials) explained 68.0% variations of the dependent variable (academic performance).

The test of significance results as presented in Table 6 shows that instructional materials significantly have relationship with students' academic performance (B = 0.932; t= 25.15, P <0.05). It indicated that at 5% level of significance there is enough evidence that the regression equation is well specified that a significant relationship exists between instructional materials and secondary school students' academic performance in external examination. Based on this, the null hypothesis was rejected.

Discussion of the Findings

Hypotheses one was tested to determine the relationship between infrastructural facilities and academic performance of secondary students in external examinations in Niger State. The finding of this study is in agreement with the findings arrived by Klafs and Amhein (1981) who conducted research to find out the influence of recreational facilities on students' academic performance in Lagos State and discovered that availability of recreational facilities do not only lead to increase practice in skill acquisition by individuals but also serve to encourage mass participation in sporting programmes, thereby promoting students' academic performance. This finding is also in order with the findings obtained by Ntekpere (2008) who conducted a research on the influence of the school infrastructural facilities on students' academic performance and found out the unavailability and lack of school infrastructural facilities significantly influenced the academic performance of the students in Agriculture. Based on this, the null hypotheses were rejected and it was concluded that infrastructural facilities have significant relationship with academic performance of secondary school students in external examinations.

The finding from Table 5 revealed that instructional materials positively contribute to academic performance of secondary school students in external examinations to high level (mean = 3.20, SD = 0.74). Bassey (2009)

identified the following categories of instructional materials, audio-visual, prints, graphics, electronic and projectiles. According to him, when these materials are adequately made available for studies, they facilitate the teaching learning process, thereby increasing academic performance of students. Hypotheses two was tested to determine the relationship between instructional materials and academic performance of secondary students in external examinations in Niger State. Table 5 and 6 revealed that Instructional materials significantly have relationship with students' academic performance ($B = 0.932$; $t = 25.15$, $P < 0.05$). This finding is in agreement with the finding obtained by Egbona (2012) who in his research to find out to what extent instructional materials are made available for the teaching-learning process, in Ugep educational zonal district discovered that, the most common instructional materials made available for teaching is chalkboard, cardboard, and life specimen even though his findings shows that availability of instructional materials has no significant relationship with academic performance of students, he concluded that they should be made available as they facilitate the teaching-learning process. Based on this, the null hypothesis was rejected and it was concluded that instructional materials have significant relationship with academic performance of secondary school students in external examinations.

Conclusion

Based on the findings of the study that: infrastructural facilities and instructional materials, contribute positively to students' academic performance of secondary schools in external examinations. The findings also revealed that these variables have significant positive relationship with students' academic performance in external examinations. The implication therefore is that, better infrastructural facilities and instructional materials will lead to better students' academic performance in external examinations.

Recommendations

Based on the findings of this study the following recommendations were made that:

1. The Ministry of Education and indeed all stakeholders in education sector should work towards the provision of adequate infrastructural facilities like classrooms, libraries and information centres, technical workshops, multipurpose halls Laboratories and others, to help students to perform better in external examinations.
2. School authorities should provide and teachers should utilize instructional materials in teaching to help students to perform better in external examinations. Teachers should try to improvise where there are no readily available instructional materials.

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