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Influence of school plant variables on the performance of technical education students in Nigeria University (A case study of ambrose Alli University)

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ABSTRACT

This study observed the effects of school plant variables on the performance of technical education students. The correlational survey research design was adopted for the study. The study sampled is Ambrose Alli University (AAU), Ekpoma. 50 technical education students in the department of vocational and technical education were used, no sampling method was used as all the technical education students were used for the study. A researcher-designed questionnaire titled 'School Plant Variables Questionnaire' (SPVQ) was used to collect data on relative organization and utilization of school plant facilities in the schools. The construct and content validity of the instrument was done by experts in research. The questions items were reviewed by the specialists and corrections were affected as suggested by them. After a test-retest treatment within two weeks interval, the scale recorded a cronbach alpha of 0.75. The study found out that school plant facilities (Classrooms, workshops, relaxation centres) were located considerable distance from where students resides thus requiring longer time for students to move into or from them for teaching and learning. Also, a significant relationship was established between school plant organization and utilization on academic performance with F- value (0.36) > critical F- value (0.19) at 05 level of significance. School plant organization and utilization on student attendance/punctuality at lessons were found to be significantly related with F-value (0.7921) > critical F- value (0.16) at .05 level of significance. The study concluded that school plant organization and utilization have a role to play on the effectiveness of instruction and the ultimate performance of students in their examinations. It thus recommended the construction of 'Integrated Classrooms' that can house almost all teaching and learning activities, with relaxation centres under one big roof and hostel accommodation to accommodates all students closer to the big roof building.

1. Introduction

One of the objectives of educational institutions in Nigeria is to produce the required manpower for all sectors of the economy. In order to actualize this objective, school plant variables play an important role in our educational system. Adeboyeje (2000) describes school plants as the school

site, buildings, classrooms, corridors, relaxation centres, sanitary facilities, furniture and other equipment minus the consumable materials. The school management should consider not the staff and students alone but the suitability of the site, situation, organization and utilization of the school itself. The appropriate location of the classrooms, laboratories, conveniences, relaxation centres, etc; in relation to one another and with consideration for easy access and co-ordination of all school activities should be the concern of all school management. School plant organization involves the arrangement and location of classroom blocks, organization of school, hostel blocks, kitchen and dining hall, science laboratories and technology workshop, arts and typing rooms assembly hall, students' common room, academic and non-academic staff offices with administrative office, water supply, power supply, adequate supply of furniture and equipment to include seats and desks, laboratory equipment and audio-visual aids and as well as books on every subjects and toilets (Oladejo,2004).

Asiabaka (2008) defines school plant as an integral element in teaching and learning environment because of its direct and indirect roles. Olaniyan and Anthony (2013) asserted that school plants are facilities which physically and spatially enable teaching and learning, by extension help in producing desirable results as evidenced by good academic performance of products of an education. School facilities as school plants' permanent structures which include buildings, libraries, chairs, machines, technical workshops, relaxation centres and other non human resources that aid the actualization of teaching and learning objectives. School plant is an integral part of the learning environment which constitute major determinant towards ensuring quality educational system. The planning, organization, and location could be a decisive factor in achieving the goals of education.

Academic performance is the outcome of education. It is the extent to which a student, teacher or institution has attained a level of educational goals. Thus, students' academic performance is characterized by performance on tests associated with course work and the performance of students on other types of examinations which of course is guaranteed through effective provision and maintenance of school plants which involves school buildings, libraries and laboratories, ICT facilities, classrooms, etc

1.1. Statement of the Problem

The provision, organization and utilization of school plants variables is of concern to all stake holders in the educational sectors, because it could goes a long way to determine students' academic performance. When classrooms, workshops, libraries, relaxation centre are in a deplorable state, it could affect the academic performance of the students, where these school plant variables are not properly organize, attendance and punctuality on the part of teachers and students could be affected, the utilization of these school plant where available could impart on the performance of students in any field of study.

Most literature on school plant spent a lot of efforts connecting school plant provision with academic performance;(Owoeye, 2008, Emetaron, 2004), while many others harps on importance of school plant utilization in enhancing students achievement; (Ashioya, 2012, Akinsanya, 2010) . Some other scholars were concerned with school facilities maintenance as it affects students learning outcomes. Works of Akinsolu (2004) and Adeboyeje ,(2000) shows that school facilities maintenance were the most potent determinant of academic achievement. However, where school facilities were provided, utilized and regularly maintained, students learning outcomes are still below expectations, research efforts must be geared towards other aspects of school facilities that have not been fully explored and could significantly influence schools, teachers and students teaching and learning efforts

It is in this regard that the researcher examined the influence of school plant variables organization and utilization on students' academic performance in Nigeria Universities, Using Ambrose Alli University (AAU) Ekpoma as a case study in Edo State.

1.2. Purpose of the Study

The study investigated the influence of school plant variables organisation and utilization on students' academic performance in Nigeria Universities, Using Ambrose Alli University (AAU) Ekpoma as a case study in Edo State. Specifically, the researcher seek to :

1. Examine the influence of classroom, workshop and school relaxation centres organization and utilization has on student academic performances
2. Investigate whether organization and utilization of school plant has influence on students' punctuality and attendance of lessons.

1.3. Research Question

1. What is the influence of classroom, workshop, school relaxation centres organization and utilization has on students academic performances
2. Do organization and utilization of school plant variables has influence on students' punctuality and attendance of lesson.

1.4. Research Hypotheses

Ho₁: There is no significant influence of classroom, workshop, relaxation centres organization and utilization on Students' Academic Performance in Nigeria Universities.

Ho₂: There is no significant relationship between school plant variables organization and utilization on student attendance/punctuality at lessons in Nigeria Universities.

2. Method

The correlational survey research design was adopted for the study. This design was considered appropriate taking into consideration the focus of the study. The study sample consisted of 50 technical education students in vocational and technical education department, Ambrose Alli University, no sampling technique was used as all the students were used for the study. Data were obtained through the use of a 20-items, four points Likert-type questionnaires named School Plant Variables Questionnaire (SPVQ). The corresponding scores for rating the responses were: Strongly Agree (SA) 4points, agree(A) 3 points, Disagree (D) 2 points, Strongly Disagree (SA) 1 point.

The construct and content validity of the instrument was done by experts in research. The question items were reviewed by the specialists and corrections were affected as suggested by them. After a test- retest treatment within two weeks interval, the scale recorded a cronbach alpha of 0.75. "Students' Academic Performance (Results) were used to collect information on the performance of students in Vocational and Technical Education Department Of Ambrose Alli University (AAU) between 2018 and 2022 academic session. Performances were rated on four points Likert scale type. Results with 10 As and above (in all Technical Education Courses per academic session) were rated Very Good (VG);4 points, 6As to 9As (in all Technical Education Courses per academic session) were rated (Good) 3 points, those with 3As to 5As (in all Technical Education Courses per academic session) were rated Average (AV) 2 points, and performance below 2As (in all Technical Education Courses per academic session) were rated Poor(P) 1point. The data collected were analyzed using multiple regression analysis where the construct of the variable was regressed against academic performance.

3. Findings and Discussion

3.1. Findings

3.1.1. Research Question 1: what is the influence of classroom, workshop and school relaxation centres organization and utilization has on student academic performances

Table 1 Influence of Classroom, Workshop and Relaxation centres organization and Utilization on Students' Academic Performance

Variables	Beta	Standard error	t cal	t tab	Remark
X ₁	0.7502	0.1105	4.4321	1.42	X ₁ is significant
X ₂	3.6100	0.0121	3.8712	1.42	X ₁ is significant
X ₃	0.5402	0.1203	2.3128	1.42	X ₁ is significant
Constant	4.463112	4.3412			

Table 1 shows the influence of variables X₁, X₂, X₃ and on the dependent variable academic performance. The regression equation is

$$Y^1 = a + b_1X_1 + b_2X_2 + b_3X_3 + e \tag{1}$$

Where:

X₁ means Classroom

X₂ means Workshop

X₃ means School Relaxation Centres

β means beta and

e means standard error.

Substituting the values of constant (a), beta (β) and standard error (e) from the table in the regression equation gives:

$$Y^1 = 4.463112 + 0.7502X_1 + 3.6100X_2 + 0.5402X_3 + 4.3412$$

That is for every point increase in the prediction variables (X₁, X₂ and X₃), there will be a corresponding increase of 70.01%, 64.5% ,and 50.01% in the predicted variables (Y¹) respectively.

The significant test of variables (X₁, X₂, and X₃) shows that they all have a significant influence on academic performance because the calculated t (4.4321), is greater than table t (1.42) for class room and calculated t (3.8712), is greater than table t (1.42) for workshop. Also calculated t (2.3128) is greater than table t (1.42) for relaxation centres, respectively.

The implication of this is that if class rooms, workshops and school relaxation centres are adequately utilizes by teachers and students it will improve the academic performance of the students and by organization, it means locating close to where students conventionally resides, the time required by students to get to these rooms for lecture will reduce considerably and the students will be able to acquire the much need knowledge both theoretical and practical in technical education. Also, in situation where relaxation centres were located at considerable distance way from classrooms and workshop, the tendency for students to overstay on the relaxation centres is very high with many missing lectures that follow class interval. Therefore, school plants variables (classrooms, workshop and relaxation centres) must be adequately utilizes and located in a close knitted way that will facilitate effective teaching and learning and reduces time wastage required to move from one classroom to the other.

3.1.2. Research Question 2: Do organization and utilization of school plant variables has influence on students’ punctuality and attendance of lessons.

Table 2. Organization of School Plant Variables Influence on Students’ Punctuality and Attendance

Variables	Beta	Standard error	t cal	t tab	Remark
X ₁	0.5602	0.3213	3.7020	1.47	X ₁ is significant
X ₂	0.4765	0.1342	2.4143	1.47	X ₁ is significant
X ₃	0.2371	0.3470	1.7902	1.47	X ₁ is significant
Constant	4.2368	3.0721			

Table 2 shows the relative contributions of variables X₁, X₂, and X₃ on the dependent variable academic performance. The regression equation is

$$Y^1 = a + b_1X_1 + b_2X_2 + b_3X_3 + e \tag{1}$$

Where:

X₁ means Classroom

X₂ means Workshop

X₃ means Relaxation Centre

β means beta and

e means standard error.

Substituting the values of constant (a), beta (β) and standard error (e) from the table in the regression equation gives:

$$Y^1 = 4.2368 + 0.5602X_1 + 0.4765X_2 + 0.2371X_3 + 3.0721$$

That is for every point increase in the prediction variables (X₁, X₂ and X₃,), there will be a corresponding increase of 80.01%, 74.6%, and 66.0%, in the predicted variables (Y¹) respectively.

The significant test of variables (X₁, X₂ and X₃,) shows that they all have a significant impact on class attendance/ punctuality because the calculated t (3.7020 is greater than table t(1.47) for organization and utilization of classroom and calculated t (2.4143), is greater than table t(1.47) for organization and utilization of workshop and calculated t (1.7902) is greater than table t (1.47) for organization and utilization of relaxation centre. for lecture attendances and punctuality respectively.

The implication of this is that the organization and utilization of classrooms has the most significant influence on students punctuality and classroom attendance. Classrooms, workshops and relaxation should be utilizes and organized close to where students conventionally reside, so that the time required by students to get to these rooms for lecture will reduce considerably making attendance and punctuality at lessons very easy.

3.1.3. Hypotheses Testing

The research hypothesis states that, “there is no significant relationship among school plant organization, utilization and students’ academic performance in Ambrose Alli University, the hypothesis was tested using multiple regression statistical analysis the results are shown below

Table 3. Matrix Coefficient of Relationship Among School Plant Organization, Utilization and Academic Performance Ambrose Alli University.

X ₁	1.000			
X ₂	0.4312	1.000		
X ₃	0.3480	0.5160		0.6851
X ₄	0.3421	0.4751	0.0781	
Y ¹	0.8261	0.3837	0.4381	1.000

Where:

X₁ means classroom organization and utilization

X₂ means Workshop organization and utilization

X₃ means Relaxation Centres
 X₄ means lesson attendance/ Punctuality
 Y¹ means academic performance

Table 3 shows the zero-order correlation coefficient matrix of the relationship among all the components of the independent variables and the dependent variable. School plant class room organization and utilization (X₁) had the highest correlation of (.8261) with academic performance (Y¹), while workshop organization and utilization ranked second (.7558). relation centres organization and utilization ranked third (.5811), with positive correlation with academic performance. The result indicates that school plant variables (classrooms) and (workshop) organization and utilization had strong and positive relationship with academic performance with r = .8261 and r = .7558 respectively. Furthermore, relaxation centres had moderate positive relationship with academic performance with r = .5811

Table 4. Relationship Between School Plant Organization, Utilization On Students' Attendance/ Punctuality at Lessons.

Source	Df	Sum of Square	Mean of Square	Calculated F-value	Table F-value	Decision
Regression	1	35.07467	35.07467	0.7921	0.16	H ₀ Rejected
Residual	100	4457.12217	44.57			

R² =0.5926

The result of the significant test between school plant organization, utilization on student attendance /punctuality in the class as shown. Table 2 indicates a positive significant relationship between the two variables. The calculated F-value (0.7921) is greater than the critical F- value (0.16) at .05 level of significance.

The R² of 0.5926 shows that 59% of the school plant organization and utilization can be explained by the regularity of student attendance/ punctuality at lessons

3.2. Discussion of the Finding

The first hypothesis tested postulated that there is no significant relationship among school plant organization, utilization on students' academic performance. The analysis showed established a significant relationship among the variables. This finding aligns with Atolagbe, etal (2017) which revealed that realization of school goals and objectives is connected with location of school, the organization and arrangement of the physical structures and other educational facilities. Adequate organization and utilization of classrooms, workshop and relaxation centres will enhance increased academic performance of the students, by complementing theoretical knowledge with practical skills. The second hypothesis established a significant relationship between school plant organization, utilization on student attendance/punctuality at lessons.

This aligns with the submission of (Gottfried, 2010; Akinsolu, 2017) that there is a statistically significant relationship between student attendance and academic achievement of both elementary and middle school students in Philadelphia school district. When school buildings are adequately organize and utilize in a way that academic time and space are maximized by guaranteeing prompt access and location of school plants by both teachers and students' delivery of instruction will be fast and regular. When school plants are closely located reducing access time students may be prompt in attending lessons. Students will also save a lot of time when returning to their classes from the hostels after observing different breaks. Time saved as a result of effective school plant organization and utilization will students' punctuality in class which may have positive influence on their performance.

4. Conclusion

The researcher observed from this work that school plants variables such as classrooms, workshop, relaxation centres, organization and utilization help to improve students attendance/punctuality in class lesson, these impart positively on the academic performance of the students. This is so, because there is a reasonable distance between students hostel, classroom, workshop and relaxation centres. Though the workshop in technical education departments is totally separated from the classroom buildings, but still located closely to the student's hostel, thereby making it easy for students to access it. This further help to improve the attendance/punctuality to lesson by the students.

5. Recommendations

1. Adequate effort should be made to re-design most Nigeria universities in the country in a way that all school teaching/learning activities could be centralized/housed within a school building as faculty as currently been done in the faculty of education in Ambrose Alli University.
2. Classrooms, workshops, relaxation centers organization and utilization location should be taken into consideration, distances and time required for students to shift from them to regular classes or vice- versa.
3. School recreations/relaxation centers should also be re-designed in a way that all sporting activities are centralized. It will be easier for students' to promptly return to their classes after class interval break periods or at the end of school activities.

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