

## School Variables as Determinants of Students' Academic Performance in Public Secondary Schools in Ebonyi State, Nigeria.

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### ABSTRACT

The study investigated school variables as determinants of students' academic performance in public secondary schools in Ebonyi 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 5,676 teachers in public secondary schools in Ebonyi State. Four hundred (400) teachers in public 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 Variables Questionnaire (SVQ)", was constructed by the researcher 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 ( $\chi^2$ ) test statistic was used to test the hypotheses at 0.005 level of significance. The study revealed that there was a significant influence of infrastructural facilities, class-size and school location on students' academic performance in public secondary schools in Ebonyi State, Nigeria. It was recommended among other things that there should be schools and communities partnership and collaborations in the provision and maintenance of infrastructural facilities as there would complement the efforts of the government in enhancing quality education.

Keywords: School variable; Infrastructural Facilities, Class-size and School Location.

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### INTRODUCTION

There has been a steady decline in the quality of education in Nigeria in recent years, despite the fact that prospect and progress of a country depends on standards of education at all levels [1]. The most alarming aspect besides ideological confusion and moral degradation is the falling standard of education. For instance, parents and teachers tend to blame the government for poor standard of education due to poor funding. However, achieving quality in secondary school education is a factor of many variables including providing serene school environment where teaching and learning can occur [2]. The environment where the child learns contributes to his overall academic performance. The physical, social and psychological environments provide the mental readiness of the learner and for effective learning to take place. School

environment encompasses all the physical, social and psychological factors influencing the life and activities of people in a particular place [3]. The environment is not only the place in which the child lives (physically), but also includes the people with who he/she comes in contact with (socially). The environment is therefore a place where the child functions; the home, the school, the peer group, the classroom among others [4].

School environment comprises all the components of the school system that contribute positively or negatively towards effective teaching and learning. A good school environment, consists of 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 are combined to encourage teachers and students for effective teaching and learning [5]. [6] assert that a supportive and favourable school environment enriched with enough learning facilities, and favourable climate makes students more comfortable, and help them to concentrate better on their academic programmes. [7] also postulates that learning is influenced by the nature of the environment, be it at home or school. An environment, free from threat, stress and tension with adequate infrastructural facilities, and with quality and dedicated teachers guarantee desired results. However, the focus of this study was to find out the influence of school environment in the areas of infrastructural facilities, class-size and school location on students' academic performance.

According to [8], infrastructural facilities refer to the physical and spatial enablers of teaching and learning. These include classrooms, libraries, laboratories, workshops, playfields, school farms and gardens among others. 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, [9] adds that these facilities are lacking in most secondary schools, thereby making teaching and learning more difficult for students to comprehend. A research by [10] reveals 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. 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.

[11] also notes that beside the insufficiency of both infrastructural and instructional facilities in 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. [12] notes that class size is an important determinant of a variety of students' outcomes, ranging from test scores to broader life outcomes. [13] 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%. [14] notes that the teacher-student ratio of about sixty to one makes effective teaching and learning almost impossible as students' outgrow the teacher's control. [6] 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 overcrowded class size and that the academic performance of such students would likely drop. When a class is overpopulated, 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 [9].

School location which is the site of a school too can be one of the hurdles to students' academic output and that where students undertake long trekking distance to get to school it may affect their interest and understanding [10]. Okoh stretches further that, schools located in an environment where there is noise (traffic)

and noise (sound of machine) from play-wood industry it may also affect students' academic performance negatively because, the noisy environment may disturb students from concentrating while studying. In another development, [5] reveals that there is a significant difference between the academic achievement of students in rural and urban secondary schools as measured by

#### Statement of the Problem

Ebonyi State through the efforts by government and other stakeholders have been making considerable efforts towards improving the quality of education. However, it appears adequate efforts have not been directed at providing and ensuring the maintenance of conducive teaching and learning environment in many schools. The problems associated with un-conducive school environment seem to hamper and overwhelm other 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

#### Purpose of the Study

The purpose of this study was to investigate the school variables and students' academic performance in public secondary schools in Ebonyi State. Specifically, the study sought to:

1. find out the influence of infrastructural facilities on students' academic performance in public secondary schools in Ebonyi State.

#### Research Questions

The study was guided by the following research questions:

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

#### 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 influence on students'

senior school certificate examinations. This findings show that, the geographical location of schools has a significant influence on the academic achievement of students. Oworye, notes that schools located in rural areas lack qualified teachers. This is because teachers may not be willing to go to work. They prefer to stay in urban schools.

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 apparently fail to follow laid down procedures for the establishment of schools, as they are located in a noisy and long trekking distances. One wonders how effective teaching and learning may take place in such school environments. It was against this background that this study hinges; to investigate the influence of school variables on students' academic performance in public secondary schools in Ebonyi State, Nigeria.

2. determine the influence of class-size on students' academic performance in public secondary schools.
3. identify the influence of school location on students' academic performance in public secondary schools

2. How does class-size influence students' academic performance in public secondary schools?
3. What is the influence school location on students' academic performance in public secondary schools?

- academic performance in public secondary schools in Ebonyi State.
2. Class-size has no significant influence on students' academic performance in public secondary schools in Ebonyi State.

3. School location has no significant influence on students' academic

performance in public secondary schools in Ebonyi State.

#### RESEARCH METHOD

The study adopted the descriptive survey design. The population comprised 5,676 teachers in public secondary schools in Ebonyi State. A sample of 400 teachers representing 8% from public secondary schools representing 7% of the population across the three educational zones were selected using proportionate stratified random sampling technique. This sample is considered adequate since it is in line with [1] 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 Variables Questionnaire (SVQ)" 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 public secondary schools. Cluster B contained items 6-10 on influence of class-size on students' academic performance in public secondary schools, while section C

contained items 11-15 on influence of school location on students' academic performance in 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 Foundations and Measurement and Evaluation from Science Education Departments, both from the Faculty of Education, Ebonyi State University, Abakaliki, Nigeria.

The questionnaire was trial-tested using 20 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 influence, but accepted if it was 2.50 and above. Chi-square test of goodness-of-fit was used to test the null hypotheses at 0.05 level of significance.

#### 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 Ebonyi State?

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

Item No	Item Description	SA	A	D	SD	$\bar{X}$	Std	Decision
6	Inadequate laboratories in schools may influences students' performance in science subject	99	152	79	70	2.70	1.03	Agreed
7	Inadequate library facilities in school may influence poor academic performance by students	89	179	99	33	2.81	0.88	Agreed
8	Inadequate classrooms in school may influence students comfort and their academic performance	141	186	35	38	3.08	0.90	Agreed
9	Inadequate hostel accommodation in school may influence students' academic performance	111	177	76	36	2.91	0.91	Agreed
10	Non-availability of recreational facilities in school may influence students' poor academic performance	138	148	35	79	2.86	1.18	Agreed
Cluster Mean and Standard Deviation						2.87	0.98	Agreed

Table 1 showed that the staff 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 and that 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 Ebonyi State.

Research Question Two

How does class size influence students' academic performance in

public secondary schools in Ebonyi State?

Table 2: Mean ratings and standard deviation on influence of class size on students' academic performance in 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 influences 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
11	School located in urban centres with better facilities may influence students' academic performance	89	169	102	40	2.77	0.91	Agreed
12	Rural schools with inadequate teachers may influence low students' performance in academic work	117	152	70	61	2.81	1.02	Agreed
13	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
14	School located in noisy areas may experience distraction which may influence negatively academic performance.	115	170	75	40	2.90	0.93	Agreed
15	School located in serene environment appears quiet and calm may influence positively students' academic performance.	141	188	33	38	3.08	0.90	Agreed
Cluster Mean and Standard Deviation						2.89	0.94	

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, 102, 0.94, 0.93 0.90. Based on the data, the respondents agreed that school located in urban centre 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 secondaryschools



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 <sup>2-cal</sup>	X <sup>2-tab</sup>	Decision
No influence	149 (37.25%)	200(50%)	3	0.05	40.460	7.815	Ho
Influence	251(62.75%)	200(50%)					Not Accepted

Values in parentheses are percentages (X<sup>2</sup> =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 Ebonyi State. The results showed that 62.75% of the respondents agreed that infrastructural facilities have positive influence on

students' academic performance in 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 0.05 level of significance and at 3degree of freedom. The null hypothesis was therefore not accepted. This implies that infrastructural facilities have significant influence on students' academic performance in public secondary schools in Ebonyi State

Hypothesis Two

Class-size has no significant influence on students' academic

performance in public secondary schools

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

Opinions	Observed frequency	Expected Frequency	df	Level of sig	X <sup>2-cal</sup>	X <sup>2-tab</sup>	Decision
No influence	111(27.75%)	200(50%)	3	0.05	89.900	7.815	Ho
Influence	289(72.25%)	200(50%)					Not Accepted

Values in parentheses are percentages (X<sup>2</sup> = 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 0.05 level of significance and at 3degree 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 influence	142(35.5%)	200(50%)	3	0.05	84.860	7.815	Ho
Influence	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 0.05 level of significance and at 3degree 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 Ebonyi State. The finding is in line with [5] 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. [9] 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 [11] who discovered that class size is an important determinant of a variety of students' outcomes, ranging from test scores to broader life outcomes. [9] 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 [10] 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 function 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:

1. All schools' communities should partner with their schools and provide infrastructural facilities that would complement the effort of the government in enhancing quality education.
2. 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.

3. 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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