School Size and Facilities as Correlates of Junior Secondary School Student's Performance in Oyo State, Nigeria

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Abstract: This study investigated school size and facilities as correlates of junior secondary student's academic performance in Oyo state, Nigeria. An ex-post-facto descriptive survey stra….. research design was adopted stratified random sampling technique was used to select 53 out of the 304 public secondary schools in Oyo state. A total of 371 respondents made up of 318 teachers and 53 principals were involved as samples for the study. Two instruments used were: principals' participating questionnaire and Teachers' Participating Questionnaire (TPQ). The data collected were subjected to multiple regression analysis. The study found that the two independent variables (school size and facilities) contributed 52.27% ($R^2 = 0.5227$) and 59.6% ($R^2 = 0.5967$), respectively to the variances of junior secondary school student's academic performance. Two of the variables of school size and six of the variables of facilities have significant ($p<0.05$) contributions to the explanation of junior secondary school student's performance. Based on the finding of this study, it was recommended that more buildings should be provided in the secondary schools. The dilapidated ones be renovated and the damaged furniture be repaired to provide accommodation and conducive learning environment for better performance of students.

Key words: Student's performance, junior secondary school, school size, facilities, Nigeria

INTRODUCTION

The essence of education is to be well educated. Education has not taken place if there is no change in the attitude, view and behaviour of the recipient. Performance, after one has been exposed to a series of learning, is the only way of knowing whether one has really learnt or not. No matter the level of education, examination and test still remain a way of identifying what measure of learning that has taken place in the learner.

Junior secondary school is an important level of our educational system in Nigeria. It is a transitional level between primary and senior secondary education. Promotion (placement) from junior to senior secondary school is dependent on student's performance in the final Junior Secondary School Certificate Examination (JSSCE) being conducted by the state ministry of education.

The public outcry on junior secondary school student's performance in the JSSCE is on the increase yearly. The situation seems to be getting worse and worst. There is no fire without a smoke. There has been no problem without a cause. And there can be no solution to a problem without identifying the root cause of a problem. Many factors have been responsible for the student's poor performance in the JSSCE. Ogunniyi cited

in Ogunwuyi (1996) identified the following among the factors that are responsible for student's poor performance.

Shortage of well trained teachers, inadequacy of teaching facilities, lack of funds to purchase necessary equipment, poor quality textbooks, large classes/over crowded classroom/laboratory/workshop, poorly motivated teachers, lack of laboratories and libraries.

Some other factors not mentioned in the above list may equally be responsible for student's poor performance. However, those mentioned above are very major and important. This study was embarked upon to examine school size and facilities influence on junior secondary school student's academic performance.

School size, facilities and student's academic performance: Many scholars have researched into the relative impact of school size and facilities on student's academic performance. One potent index for evaluating educational standard and quality is an examination of physical facilities available for learning experience (Adesina, 1990). The problem of lack of adequate facilities in Nigerian Schools is dated back to the beginning of

formal education in Nigeria. The provision of educational facilities was not given adequate and proper attention it deserved. The resultant effect was overcrowding of pupils in schools-leading to overstressing of the available spaces and facilities (Adesina, 1990).

Even up to 1960, when the country became independent and thereafter, the situation of the school plant provision did not improve. Many years after independence up till the present, the situation of poor facilities provision as well as overcrowding in school population has not been over-come. Remarking on this, Olutola (1981) says:

> Lack of foresight in determining school building needs has also found expression in the grossly inadequate provision of secondary educational facilities for the teeming graduates of primary schools in Lagos, Oyo, Ondo and Anambra States.

The teeming population of graduates of primary school is not unexpected. After all Fafunwa (1991) observes as follows:

> The phenomenal growth that characterized primary and higher education during the 1980s also affected Secondary education, as the increase in enrolment was in keeping with national education policy that says that secondary education should provide an increasing number of primary school with opportunity for education of a higher quality irrespective of sex, social, religious, or ethnic background.

As a matter of fact, it has been observed that one of the challenges in the 20th and 21st centuries is over-sized classes (Lassa, 1998).

The situation of inadequate school facilities as observed by Olutola (1981) should not be seen as a problem in only those 4 states mentioned. Rather, the situation should be seen as a national problem affecting all states secondary schools in the Federation for no state is as buoyant as the Federal Government that provides it with financial resources in terms of national allocation. Adequate provision of school facilities in relation to the student's population is important because the quality of education that our children receives is affected by the availability or non-availability of physical facilities (Adesina, 1990).

Furthermore, provision of necessary facilities in schools will provide a challenging environment for students to learn and for effective teaching by the teachers (Bolorunduro, 1998). On the other hand, lack of adequate facilities such as textbooks, ill-equipped classrooms, laboratories, workshops and library are among the probable causes of student's poor performance in examinations (Olubor, 1998).

Statement of the problem: Student's performance in any examination is conditioned on so many factors. The inter play of so many environmental factors give rise to student's academic performance in examinations. This study investigated the contributory effects of school size and facilities on the academic performances of students in junior public secondary schools in Oyo State, of Nigeria. The problem which the research tried to seek answer is the resultant effects of each of the variables and the inter play of the variables (school size and facilities) on the academic performance of junior secondary school students in Oyo State of Nigeria.

Research questions: The study sought answer to the following questions:

- What are the composite and relative effects of variables which made up school size on the junior secondary school student's performance?
- What are the composite and relative effects of variables which make up facilities on the junior secondary school student's performance?

MATERIALS AND METHODS

This study was an ex-post facto descriptive survey research. The population for the study consisted of all the 304 public secondary schools in Oyo State. However, the study sample was made up of 53 junior public secondary schools in Oyo State, Nigeria. Stratified sampling technique was used in selecting sampled schools for the study. The first level of stratification was based on the zonning of the secondary schools in the state. Schools were selected from each of the 6 zones on the basis of the total number of schools in the zone. At the second level of stratification were location (urban and rural) and population (large and small size). Two third of the schools selected in each zone were urban/large schools whereas the remaining one third were rural/small size schools. The selection on ratio 2:1 for large-size and small size was premised on the fact that urban large size schools were more in number than the rural (small-size) schools in the state.

Two sets of questionnaire: Participating Principals' Questionnaire and Participating Teachers' Questionnaire were used to collect data for the study.

Each of the questionnaire apart from requesting for the respondents' demographical data, also requested for the school size, available facilities, student's performance in internal and external examinations. The instruments were adequately validated by experts in educational administration and evaluation. Test-retest method was employed in order to ensure the reliability of the two instruments. The reliability co-efficient of the instruments were 0.85 and 0.87, respectively.

In each of the sampled schools, 6 teachers and the principal responded to the 2 sets of the questionnaire respectively. The teachers selected were either Heads of Departments/Schools or the most experienced hand in the following core subjects: English, Mathematics, Yoruba, Biology, Chemistry, Physics, Social Studies and Vocational/Technical subjects. In all, 371 teachers were involved in the study.

The researcher went personally to administer the questionnaires to the respondents. However, a research assistant employed made a second visit to the schools to collect the filled questionnaire back.

Multiple regression analysis was the major statistical tools used to determine the extent to which independent variables in the study explain the dependent variable in order to answer each of the research questions of the study. The level of significance chosen is $p < 0.05$.

RESULTS AND DISCUSSION

Research question 1:

What are the composite and relative effects of variables which make up school size on the junior secondary school student's performance?

The combined effect of the independent variables (school size) in explaining the dependent variable (junior secondary school student's performance) were used to answer this question. The independent variables were therefore regressed on junior secondary school student's performance. A summary of the multiple regression analysis of junior secondary school student's performance. Table 1 presents a summary of the multiple repression analysis of junior secondary school student's performance.

The results in Table 1 show that the combination of all the variables in independent variables have a multiple correlation of 0.73634 with the junior secondary school student's performance. The combination of these variables explained 54.22% of the variance in junior secondary school student's performances as shown by coefficient of determination R^2 (0.5422).

Table 1: Regression summary of school size explaining junior secondary school student's performance

Multiple R	0.73634
R^2	0.54220
Adjusted R square	0.52272
Standard error	0.22799

R square (R^2) = coefficient determination $R^2 \times 100$ = proportions of the variances that were explained in the dependent variable by the independent variables

Table 2: Analysis of variance

Source of variation	df	Sum of squares	Mean square	F-ratio	Significant F
Regression	5	9972.91739	1994.58348	11.20501	0000
Residual	46	8188.37492	178.00815		

The analysis of variance further shows that independent variables show dependency on junior secondary school student's performances with F-ratio of 11.20501 significant at $p < 0.05$ (Table 2).

The results in Table 3 shown under parameter estimate indicate that partial correlation coefficient of normal staff strength, normal class size and accommodation for more students have negative relationship with junior secondary school student's performance.

While the remaining two variables namely: abnormal class size and yearly increase in student's population have positive relationship with junior secondary school student's performance.

The standardized regression co-efficient (β) was used to determine the relative contributions of each of the variables in independent variable to the explanation of junior secondary school student's performance. The significance of each variable's contribution was also tested. Two of the variables: abnormal class size and yearly increase in student's population have significant ($p < 0.05$) contributions to the explanation of the junior secondary schools student's performance. However, yearly increase in student's population had the highest contribution to the explanation of junior secondary school student's performance.

The analysis above reveals that the population of the school and of the classes is not stagnant but on the increase year by year. It is also revealed from the analysis that further increase will spell doom for the viability of the classes and the school as well. In other words, further increase without adequate provision in terms of personnel and facilities will adversely affect personnel performance, facility utilization which eventually will lead to poor academic performance of secondary schools students.

The finding of this study on population, that is, school size, agrees with the earlier findings of Harold (1958) and Kolawole (1982) cited in Oweye (2000) which observed that the relationship between class size and

Table 3: Parameter estimate

	B	SEB	β	T	Sig. t
Abnormal class size	0.384618	6.735311	0.766913	3.223	0.0023*
Normal class size	4.249552	6.465879	0.09006	0.657	0.5143
Yearly increase in student's population	10.482089	7.082362	-0.544873	-9.780	0.0000*
Normal staff strength	-0.8120286	7.612369	-0.154892	-1.067	0.2917
Accommodation for more students	-10.874848	7.070512	-0.229672	-1.538	0.1309
Constant	102.309127	39.067261		2.619	0.0119

*Significant at p<0.05

student's academic performance was negative such that the larger the size, the lower the level of student's achievement.

However, the finding disagrees with the findings of Ajayi and Ogunyemi (1990) cited in Owoeye (2000) that school size whether large or small was not related to academic. However, the findings of Obi (1984) cited in Owoeye (2000) have really supported the explanation of this finding on school size. Obi (1984) cited in Owoeye (2000) found out that a lot of coaching was taking place after school hours in the urban schools where large classes abound. In other words, the coaching classes provide extra facilities and personnel to make up for the problem of large classes. And that is in consonance with the assertion of this study that unless extra provisions are made for the large classes, there will be adverse effect on student's academic performance.

Research question 2:

What are the composite and relative effects of variables which make up facilities on the junior secondary school student's academic performance?

The combined effect of the independent variables (facilities) in explaining the dependent variable (junior secondary school student's performance were used to answer this question. The independent variables were therefore regressed on junior secondary school student's performance. Table 4 presents a summary of the multiple regression analysis of junior secondary schools student's performance.

The result in Table 4 shows that the combination of all the variables in facility utilization have a multiple correlation of 0.87528 with the junior secondary school students performance. The combination of these variables explained 61.67% of the variance in junior secondary school students performance as shown by the coefficient of determination R^2 (0.61667).

The analysis of variance further shows that the independent variables show dependency on the junior secondary school student's performance as an f. ratio of 5.154 significant at p<0.05 was observed (Table 5).

The results shown under parameter estimate indicate that partial correlation coefficients of facilities in the

Table 4: Regressing summary of facility utilization explaining junior Secondary School student's performance

Multiple R	0.87528
R^2	0.61667
Adjusted R square	0.59672
Standard error	0.30575

R square (R^2) = coefficient of determination $R^2 \times 100$ = proportions of the variances that were explained in the dependent variable by the independent variables

Table 5: Analysis of variance

Source of variation	df	Sum of squares	Mean square	F-ratio	Significant F
Regression	11	199914.68603	1810.42606	5.154	0.0000
Residual	40	8246.60627	206.16516		

laboratory and workshop, teaching and learning facilities, workshop for introductory technology, laboratory and workshop for practicals and laboratory for Biology have negative relationship with junior secondary school student's performance while the rest variables have positive relationships with junior secondary schools student's performance (Table 6).

The standardized regression coefficient (β) was used to determine the relative contributions of each of the variables in independent variables to the explanation of junior secondary school student's performance. The significance of each variables contribution was also tested. Six of the variables namely: sitting and writing furniture for students, adequate library facilities and laboratory for physics have a significant (p<0.05) contribution to the explanation of the junior secondary school student's performance. However, sitting and writing furniture for students had the highest contribution to the explanation of junior secondary school student's performance.

These findings reveal that the provision and utilization of certain facilities contribute greatly to junior secondary student's performance than some other facilities. The findings also reveal that the provision of adequate staff room/office is an important factor towards the teachers' maximum performance which directly and positively influence the student's performance. It is equally realized from the findings that the provision of facilities that make for student's convenience and comfortability such as sitting and writing furniture go a long way in ensuring student's high academic performance. Likewise, it can be deduced from the finding

Table 6: Parameter estimate

	B	SEB	β	T	Sig. t
Adequate staff room/offices	0.8720763	7.982378	-0.571405	2.093	0.0421*
Facilities in workshop and laboratories	-4.3308220	8.169397	0.079992	-0.530	-0.5990
Laboratory for Chemistry	16.7450310	13.664927	0.533275	2.225	0.0376*
Teaching/learning facilities	-4.5707440	8.907961	-	-0.513	0.6107
Inadequate Library facilities	-1.3163170	6.241864	0.6336950	2.211	0.0380*
Workshop for Introductory Technology	6.5015080	7.169661	0.1417760	0.907	0.3699
Writing and sitting furniture for students	8.5578990	8.593040	0.6622580	2.996	0.0053*
Library facilities	-17.6667210	8.434090	-0.348117	-2.095	0.0426*
Laboratory and workshop for practicals	-4.0154010	5.930417	-0.109400	-0.677	0.5022
Laboratory for Physics	-29.6393830	14.090188	-0.607041	-2.104	0.0418
Laboratory for Biology	5.8531890	14.935611	0.116624	0.392	0.6972
Constant	121.1215010	51.949121		2.332	0.0248

that the provision of certain facilities have relevant contribution to student's academic performance depending on the academic status of the students. For example, the findings reveal that library facilities, laboratories for Chemistry and Physics are more needful at this level of education than facilities in workshop and Biology. However, the finding is in consonance with that of Popoola who find that library correlates with the academic achievement and that schools with well-equipped library normally maintain high academic performance. The study equally agrees with Bolorunduro (1998), who discovered from his studies that students with adequate laboratory facilities in Chemistry and Physics performed better than those in schools with less or without laboratory facilities.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are put forward.

The state government should expand each school by building more new structures in order to provide enough accommodation for the students.

The government should embark on massive repairs of all the dilapidated buildings, broken and damaged furniture in secondary schools. Such will go a long way to ease accommodation and furniture problems in the schools.

The state government effort in restructuring secondary schools to a maximum of thirty students per any stream of a class in a classroom is in good direction and a laudable step for that matter. The government should follow this exercise to a logical conclusion.

Last but not the least, new secondary schools should be set up to take care of excess population from other schools.

CONCLUSION

Indeed, education is a huge investment and a very costly venture. In order to provide a very conducive learning atmosphere that will promote academic performance among junior secondary school students, the government should be prepared to spend all it requires. No matter what the government spends, the end justifies the means. Well-educated young adults are a source of pride to any nation and an index of a glorious future of the country. As a matter of urgency, the government should do all things possible to ensure adequate provision of all needed facilities to all her junior secondary schools in the state.

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