School Variables and Internal Efficiency of Secondary Schools in Ondo State, Nigeria

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Abstract This paper investigated the relationship between school variables and internal efficiency of secondary schools in Ondo State, Nigeria. As an ex post facto and correlational research, the study population comprised all the 295 secondary schools in the State. Out of this population, a sample of 242 secondary schools was taken and selected through the simple random sampling technique. Two instruments were used to collect data for the study. These were the inventory and the questionnaire. The data collected were analyzed using frequency counts, percentages, the mean, Pearson Product Moment Correlation Analysis, Correlation Matrix, Regression Analysis of Variance and Multiple Regression. It was found that secondary schools in Ondo State, Nigeria were internally efficient. Teachers’ qualification was found to be the best predictor of internal efficiency in the schools. It was therefore recommended that increased efforts should be made by the State government in the recruitment of teachers with higher qualifications to all secondary schools in the State.

Keyword: School; Variables; Internal; Efficiency; Secondary; Nigeria

1. Introduction

The Nigerian educational system has witnessed a progressive change since independence in 1960. The Universal Basic Education (UBE) which was inaugurated in October, 1999 by the Federal Government of Nigeria has led to a considerable expansion of the school system. The free secondary education embarks upon by some States in the country including Ondo State has led to influx of students into secondary schools. Thus, the enrolment of students rose from 157,652 in 1999 to 210,520 in 2006 and to 244,712 in 2012 (Ondo State Nigeria Ministry of Education, 2012).

Considering the explosion in students’ enrolment in the schools, one is tempted to assume that the internal efficiency of the schools was at a high rate. Many variables tend to influence how a school system performs at a particular time. Some of these variables include school location, school size, class size, teacher student ratio, teachers’ qualifications and teachers’ teaching experience.

School location in Ondo State, Nigeria could be seen in terms of urban and rural location of schools. Rural areas accounts for 168 secondary schools (57%) in the State while Urban schools accounts for the remaining 127 secondary schools (43%) (Ondo State Government, 1994; Adeyemi, 2008).

The size of the school tends to vary from one place to another. In some places, there are schools with less than 1,000 students while in other places there are schools with more than 1,000 students. In Ondo State, Nigeria, schools having population of students of below 1,000 are regarded as small schools while schools having population of 1,000 and above are regarded as big schools (Ondo State Nigeria Ministry of Education, 2010).

Class-size is an educational tool that can be used to describe the average number of students per class in a given institution. Much variation has been discovered in class-size in many countries of the world. This variation was identified by Watson and Prieto (1994) who compared the class-size in England and Spain and found out that “class-sizes in Spain are significantly higher than England especially in the 17-18 age range.” According to them, the mean class-sizes in Spain for the age range 11-16 was about 34 while in England, it was about 26. They found that for the age 17-18 “the mean class-size in England reduced to 13 whereas in Spain, the mean class-size remained almost the same as for earlier years.”

Commenting on class-size in British secondary schools, Dean (1994) remarked that “small classes are a priority for parents.” According to her, the average size of one-teacher class was 23 in 1994 compared with 22.7 in 1993 for pupils under 16. She made a comparison of class-size in secondary schools in some OECD countries. Her findings revealed that four countries - Turkey, Norway, Netherlands and New Zealand had class-sizes of 20 or more; the UK, USA, Japan, Canada and Ireland had class-sizes of between 15 and 20 while eight countries - France, Australia, Sweden, Denmark, Austria, Italy, Luxembourg and Belgium had class-sizes of below 15.

In the African setting, the situation seems to be different. Ajayi, (2000) for example, found large class sizes of above
40 students per class in Nigerian schools. The student-teacher ratio is another tool that can be used to measure the performance of the education system (Adeyemi, 1998). Researchers have identified varying student-teacher ratios in many countries. Blatchford and Mortimore (1994) for example, compared the pupil-teacher ratios in the UK in 1991 and found that the number of pupils per teacher in secondary schools in 1991 was 15.5 in England, 15.4 in Wales, 12.2 in Scotland and 14.9 in Northern Ireland. They concluded that “the size of a class in school is one of the most important and basic ways that the school environment affects children’s learning and behaviour.” In Nigeria, student teacher ratios of 30:1 in secondary schools and 25:1 in primary schools have been reported (Ondo State Nigeria Ministry of Education, 2010).

The teaching force in schools has been a major variable in determining the quality of a school. Towards this end, the nature of the teaching force in schools is examined in two different ways namely, teachers’ qualifications and teaching experience. Teachers as one of the inputs into the educational process constitute an important aspect in students’ learning. Considering this point, Umeasiegbu (1991) argued that “the level of performance in any school is intimately related to the quality of its teachers” while “the quality of any school system is a function of the aggregate quality of teachers who operate it.” Mullens (1993) also supported the argument and remarked that the level of a teacher’s subject matter competence is a prime predictor of student learning. He argued that it is not simply the completion of schooling that could contribute to a teacher’s effectiveness in the classroom but actual achievement in terms of subject matter competence.

In the same vein, the length of teaching experience of a teacher has been an important factor determining how effectively the teaching-learning process in a school has been achieved. Researchers have found that “experience improves teaching skills” while “students’ tend to learn better at the hands of a teacher who has taught them continuously over a period of years” (Waiching, 1994; McClelland, 1995).

Considering the aforementioned variables, it is pertinent to examine how efficient the school system is in Ondo State, Nigeria. Efficiency refers to the ratio between the output of an organization and the inputs used in producing the output. In efficiency, the attempt is to see how outputs produced could be kept at the same level even when input level is reduced (Owolabi & Akinwumiju, 1992). Efficiency is the ability to produce the desired effect with minimum of effort, expense or waste. The criterion of efficiency demands that, of two alternatives having the same cost, one might be chosen which will lead to a greater attainment of the organizational objectives. It also demands that, of two alternatives leading to the same degree of attainment, one might be chosen which entails the lesser cost. On one hand, efficiency involves the maximization of output if inputs are considered as fixed; and on the other hand, the minimization of inputs, if outputs are considered as fixed. It is concerned with the maintenance of a positive balanced of output over input (Babalola, 1991).

In Economics, efficiency is the optimal relations between inputs and outputs. An activity is being performed efficiently if a given quantity of outputs is obtained with a minimum of inputs or, alternatively, if a given quantity of inputs yield maximum outputs. The concept of efficiency is used to analyze production, which in economic terms is defined as a process of transformation in which a kind of goods or service is transformed into another. Efficiency could be measured in two ways. These are External efficiency and Internal efficiency. External efficiency means the extent to which the educational system meets the broad social, economic, cultural and political objectives of the community of which it is a part.

Internal efficiency is the relationship between the outputs and inputs of an education system. The internally efficient educational system is one, which turns out graduates without wasting any student-year or without dropouts and repeaters (Akinwumiju, 1995). The inputs of education can be summarized as teachers, materials, and buildings and these are all used to transform one set of outputs (say primary school leavers) into another set of output (i.e. secondary school graduates) (Olubor, 2004).

Efficiency in education, otherwise called internal efficiency, is the relationship between the outputs and inputs of an education system. Output of an education system is the number of successful completers of the course of study while an input to an education system is the number of students-years used by all students who passed through the system.

Internal efficiency is the extent to which resources made available to the educational system are being used to achieve the objectives for which the educational system has been set up. In this regard, the input into the system and the output from it needs to me measured.

The inputs include classroom teachers, furniture, textbooks, etc and all these can be quantified as the cost per student per year. Thus, the input has to be in terms of student years. The outputs of the educational system are the graduates from that system. In order to measure internal efficiency in education, a researcher needs to do a cohort analysis. The cohort analysis simply tells the history of a particular level of education to the time the group of students left the level. As such, it can show to what extent the educational system is able to use its raw materials (students) in the production of output (graduates). In this regard, the cohort analysis would show the flow rate in the system such as the
promotion rate, repetition rate and the drop out rate of students. If the system is able to see the students through the system in the shortest possible period, then the system is efficient. In another form, a system is efficient if the wastage rate of the system is low. The smaller the wastage rate, the more efficient the system (Babalola, 2003).

In view of the foregoing, this study was set-up to determine whether or not secondary schools in Ondo State, Nigeria were internally efficient. It was also to determine whether or not a relationship exist between school variables and internal efficiency of the schools in order to correct erroneous impressions.

1.1. Statement of the problem

The influx of students to secondary schools in Ondo State, Nigeria has been a matter of concern to stakeholders in education (Ondo State Nigeria Ministry of Education, 2010, Ondo State Teaching Service Commission, 2012). Common observation in the school system shows that input into the system were being provided by government at increasing numbers. Although, the output seems to be increasing, the quality of output however was perhaps at a fluctuating trend. The problem of this study was to determine what relationships actually exist between school variables and internal efficiency of secondary schools in Ondo State, Nigeria. In addressing this problem, the following research questions were raised:

1.1.1. Research Questions

1. What are the promotion rate, repetition rate and dropout rate in secondary schools in Ondo State, Nigeria between 2002 and 2007?
2. Are secondary schools in Ondo State, Nigeria internally efficient?
3. Is there any significant relationship between school variables and internal efficiency of secondary schools in Ondo State, Nigeria?
4. Which of the school variables best predict internal efficiency of secondary schools in Ondo State, Nigeria?

1.2. Method

This study adopted the ex-post facto and correlational research design. It was ex-post facto as it was an after fact or after event research (Gay, 1996). It was also “a correlational research as it involved the calculation of a correlation coefficient which is a measure of the extent to which variables vary in the same way” (Anderson, 1998). The study population comprised all the 295 secondary schools in Ondo State, Nigeria. Out of this population, a sample of 242 secondary schools was taken and selected through the simple random sampling technique. The principals of the schools were the respondents in the study. A cohort of 75,360 students who entered the 295 secondary schools in 2002 and graduated in 2007 were purposively selected for the study. This was to enable the researcher to examine the flow rate of the students through the six-year school system in terms of the promotion rate, repetition rate and drop out rate.

Two instruments were used to collect data for the study. These were an inventory and a questionnaire. The inventory titled ‘secondary school Data and students’ flow rate inventory’ (SSDSFRI) consisted of two parts A and B. Part A was demographic. It elicited information on the name of the school, its location, year founded, type of school and number of classes. Part B required information on the school size, class size, student-teacher-ratio, teacher qualifications and teacher experience in all the schools. It also requested data on a cohort of students who entered the schools in JSS 1 in 2002 and graduated in SS 3 in 2007. He then required data on the number of promotees, number of repeaters and the number of dropout in each of the years.

The questionnaire titled ‘school variables and internal efficiency questionnaire (SVIEQ) also consisted of two parts A and B. Part A elicited demographic information about each school such as the name of the school, its location, year founded and number of classes. Part B requested information about school variables and internal efficiency.

The content validity of the instruments was determined by experts in Tests and Measurement who matched each item of the instruments with the research questions in order to determine whether or not the instruments actually measured what they were suppose to measure. Their observations were used to effect necessary corrections on the instrument. Only the questionnaire was exposed to a test of reliability. Reliability test was not conducted on the inventory because the data collected through the inventory were already in the schools. In conducting the reliability for the questionnaire, the test re-test reliability technique was used. In doing this, the questionnaires were administered to 40 respondents outside the study area. After a period of two weeks, the questionnaires were re-administered to the same respondents. The data collected on the two tests were collated and analyzed using the Pearson Product Moment
Correlation Technique. A correlation coefficient of 0.82 was obtained indicating that the instruments were reliable and consistent for the study.

The instruments were administered by the researcher and research assistants. After a period of 2 weeks, the completed instruments were retrieved from the respondents. All the respondents duly completed the instruments indicating 100% response rate. The data collected were analyzed using frequency counts, percentages, Pearson Product Moment Correlation, Correlation Matrix, Regression Analysis of Variance and Multiple Regression. All the null-hypotheses formulated for the study were tested for significance at 0.05 alpha level using the two-tailed test.

1.2.1 Results

**Question 1: What are the promotion rate, repetition rate and dropout rate in secondary schools in Ondo State, Nigeria between 2002 and 2007?**

In computing the promotion rate, repetition rate and drop out rate of students in secondary schools in Ondo State, Nigeria between 2002 and 2007, data on the number of promotees, number of repeaters and number of drop out were collected from the responses of the respondents to the inventory. A cohort of 75,360 students in JSS 1 in 2002 who graduated in SS3 in 2007 from all the schools was used. The data collected were analyzed using frequency count and percentages. The findings are presented in table 1.1.

**Table 1.1: Promotion: Repetition and Dropout Rate in Secondary School in Ondo State, Nigeria**

<table>
<thead>
<tr>
<th></th>
<th>JSS 1</th>
<th>JSS 2</th>
<th>JSS 3</th>
<th>SS 1</th>
<th>SS 2</th>
<th>SS 3</th>
<th>SS 4</th>
<th>SS 5</th>
<th>SS 6</th>
<th>SS 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of Student examinated</td>
<td>75,360</td>
<td>73,460</td>
<td>71,280</td>
<td>69,330</td>
<td>67,540</td>
<td>65,502</td>
<td>8,903</td>
<td>388</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>No of Repeaters</td>
<td>3,200</td>
<td>2,800</td>
<td>2,255</td>
<td>2,095</td>
<td>1,962</td>
<td>1,840</td>
<td>250</td>
<td>30</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>No of dropouts</td>
<td>1,800</td>
<td>2,180</td>
<td>1,950</td>
<td>1,790</td>
<td>2008</td>
<td>2,519</td>
<td>1,280</td>
<td>210</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>No of promotes</td>
<td>70,260</td>
<td>68,400</td>
<td>67,075</td>
<td>65,445</td>
<td>63,540</td>
<td>61,143</td>
<td>7,343</td>
<td>148</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Graduates</td>
<td>54,080</td>
<td>7,235</td>
<td>110</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As indicated in table 1.1, the number of promotees in secondary schools in Ondo State, Nigeria was high in each of the years. Although, the cohort of 75,360 students started JSS 1 in 2002, the number of students reduced in 2003 to 73,460 as a result of repetition and drop out. The number of repeaters reduced from 3,200 in JSS 1 in 2002 to 1,840 in SS 3 in 2007. The number of drop was at a fluctuating trend in each of the years from JSS 1 in 2002 to SS 3 in 2007. The years 2008 to 2010 accounted for the extra years spent by the repeaters and drop out who were yet to leave the school system.

In computing the promotion rate, repetition rate and drop out rate among students in the schools, the following formulas were used (Akinwumiju, 1995):

(1). **Promotion Rate**

The promotion rate (pt) is the number promoted divided by the enrolment in the previous year. In equation form, the promotion rate is:

\[
P_t = \frac{P_{t+1}}{E_t} \times 100
\]

Where:

- \(P_t\) = promotion rate.
- \(P_{t+1}\) = Number of students promoted (promotees) to grade i+1 in year t+1.
- \(E_t\) = Enrolment in grade 1 in year t. (Previous year)
(2). Repetition Rate

\[ R_t = \frac{R_{i,t+1} \times 100}{E_{i,t}} \]

Where:
- \( R_t \) = repetition rate
- \( R_{i,t+1} \) = number of repeaters in year \( t+1 \) in a given class \( i \)
- \( E_{i,t} \) = total student enrolment in the former year in class \( i \).

(3). Drop out rate

\[ d_t = \frac{E_{i,t} - (P_{i,t+1} + R_{i,t+1}) \times 100}{E_{i,t}} \]

\[ d_t = \frac{D_{i,t+1} \times 100}{E_{i,t} \times 1} \]

Where
- \( d_t \) = dropout rate
- \( E_{i,t} \) = Enrolment in present year
- \( P_{i,t} \) = Promotion rate, and
- \( r_t \) = repetition rate

Using the formulas, the promotion rate, repetition rate and drop out rate for the cohort of 75,360 students of secondary schools in Ondo State, Nigeria were computed. The findings are shown in table 1.2.

Table 1.2: Promotion, Repetition and Dropout Rates in Secondary Schools in Ondo State, Nigeria

<table>
<thead>
<tr>
<th></th>
<th>JSS 1</th>
<th>JSS 2</th>
<th>JSS 3</th>
<th>SS 1</th>
<th>SS 2</th>
<th>SS 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cohort</td>
<td>75360</td>
<td>73460</td>
<td>71280</td>
<td>69330</td>
<td>67540</td>
<td>65502</td>
</tr>
<tr>
<td>No of promotees</td>
<td>93.2</td>
<td>93.1</td>
<td>94.1</td>
<td>94.4</td>
<td>94.1</td>
<td>93.3</td>
</tr>
<tr>
<td>No of Repeater</td>
<td>4.2</td>
<td>3.8</td>
<td>3.2</td>
<td>3.0</td>
<td>2.9</td>
<td>2.8</td>
</tr>
<tr>
<td>No of Dropout</td>
<td>2.4</td>
<td>2.9</td>
<td>2.7</td>
<td>2.6</td>
<td>2.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Graduates</td>
<td>82.6</td>
<td>81.3</td>
<td>82.4</td>
<td>81.3</td>
<td>82.4</td>
<td>86.2</td>
</tr>
</tbody>
</table>

In table 1.2, the promotion rate shows a fluctuating trend from JSS 1 in 2002 to SS 3 in 2007. The repetition rate reduced through out the 6years of schooling from 4.2% in JSS 1 in 2002 to 2.8% in SS 3 in 2007. It repetition rate also reduce to 2.8% in 2008, that is, the first year of the extra years of schooling while it increased to 7.7% in 2009, that is, the second year of the extra years of schooling.

The dropout rate was at a fluctuating trend throughout the schooling period from 2002 to 2007. In the overall analysis, the table shows that the promotion rate was high throughout the schooling period while the repetition and dropout rates were at a low level.

**Question 2: Are secondary schools in Ondo State, Nigeria internally efficient?**

In answering this question, data on the number of promtees, number of repeaters and drop out in the cohort of 75,360 students of secondary schools in Ondo State Nigeria were collected from the responses of the respondents to the inventory. The data were analyzed in a cohort showing the number of promtees, number of repeaters and drop out on yearly basis from JSS 1 in 2002 to SS 3 in 2007. The findings are presented in figure 1.
Figure 1: Cohort Analysis showing the flow rate of students in secondary school Ondo State, Nigeria

Total input = 431,831
Total output = 61,470
Actual input/output = \( \frac{\text{Input}}{\text{Output}} = \frac{431,831}{614760} = 7.02 \)

Ideal input-output ratio = \( \frac{6}{1} = 6 \)

Where 6 is the actual number of years to be spent by a student in the schools.

Wastage ratio = \( \frac{\text{Actual input-output ratio}}{\text{Ideal input-output ratio}} = \frac{7.02}{6} = 1.17 \)

Wastage ratio = 1.17

In interpreting the wastage ratio, it means that one successful completer of secondary school in Ondo State, Nigeria on the average spent 7.02 student-years as against the ideal (optimum) student years of 6 years. A perfect situation will give a wastage ratio of 1 which is not possible in reality. As such, the nearer the wastage ratio is to 1, the more efficient is the system and vice-versa (Akinwumiju, 1995).

Thus, in order to determine the internal efficiency, otherwise known as the coefficient of efficiency, the reciprocal of the wastage ratio was determined. As such, the coefficient of efficiency is equal to 1 divided by the wastage ratio and multiply by 100 (Ayodele, 2005). This was represented as follows:

\[
\text{Coefficient of Efficiency} = \frac{1}{\text{wastage ratio}} \times 100
\]

In this regard, the coefficient of efficiency in respect of this study was computed as follows:

\[
\text{Coefficient of Efficiency} = \frac{1}{1.17} \times 100 = 85.5%
\]

The finding indicates that secondary schools in Ondo State, Nigeria are 85.5% internally efficient. This high coefficient of efficiency shows that secondary schools in the State are internally efficient.
Question 3: Is there any significant relationship between school variables and internal efficiency of secondary schools in Ondo State, Nigeria?

In answering this question, data on teacher quality and internal efficiency of secondary schools in Ondo State, Nigeria were collected from the responses of the respondents to the inventory. The data collected were analyzed using frequency counts and percentages while the hypothesis was tested using the Pearson Product Moment Correlation technique. The findings are presented in table 3.

Table 3: Correlation between School Variable and Internal Efficiency of Secondary Schools in Ondo State, Nigeria.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Df</th>
<th>r-calculated</th>
<th>r-table</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Variables</td>
<td>242</td>
<td>92.71</td>
<td>27.45</td>
<td>482</td>
<td>0.461</td>
<td>0.195</td>
</tr>
<tr>
<td>Internal Efficiency</td>
<td>242</td>
<td>62.57</td>
<td>23.74</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

p< 0.05

As indicated in table 3, the r-calculated (0.461) was greater than the r-table (0.195) at 0.05 alpha level. Hence, the null-hypothesis was rejected. This shows that there was a significant relationship between school variables and internal efficiency of secondary schools in Ondo State, Nigeria. This was reflected in the mean value (92.71) for school variables as against the mean value (62.57) for internal efficiency of the schools.

Question 4: Which of the school variables best predict internal efficiency of secondary schools in Ondo State, Nigeria?

In testing this hypothesis, the multiple regression analysis was computed. The school variables namely school location, school size, class size, student teacher ratio, teachers’ qualifications and teacher teaching experience were the independent of predictor variables while internal efficiency was the dependent or criterion variable.

Since one of the first steps in calculating a multiple regression equation with several variables is to calculate a correlation matrix for all the variables (Norusis/SPSS Inc, 1993), correlation analysis was computed while a correlation matrix was derived showing the coefficient of correlation for each pair of variables. The findings are presented in table 4.1.

Table 4.1 Correlation Matrix between School Variables and Internal Efficiency of Secondary Schools in Ondo State, Nigeria

<table>
<thead>
<tr>
<th>Variables</th>
<th>Internal Efficiency</th>
<th>School Location</th>
<th>School Size</th>
<th>Class Size</th>
<th>Student Teacher Ratio</th>
<th>Teachers’ Qualification</th>
<th>Teacher Teaching Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Internal Efficiency</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 School Location</td>
<td>0.342</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 School Size</td>
<td>-0.231</td>
<td>-0.201</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Class Size</td>
<td>0.524</td>
<td>0.254</td>
<td>-0.202</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Student Teacher Ratio</td>
<td>0.453</td>
<td>0.241</td>
<td>-0.214</td>
<td>0.321</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Teachers’ Qualification</td>
<td>0.612</td>
<td>0.471</td>
<td>-0.242</td>
<td>0.374</td>
<td>0.352</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>7 Teacher Teaching Experience</td>
<td>0.602</td>
<td>0.381</td>
<td>-0.243</td>
<td>0.362</td>
<td>0.341</td>
<td>0.542</td>
<td>1.00</td>
</tr>
</tbody>
</table>

P< 0.05

Table 4.1 shows the relationship between each pair of variables examined in the study. The school variables show significant relationship with each other and with the internal efficiency of secondary schools in Ondo State, Nigeria. The value of ‘r’ shows the correlation coefficient between each pair of variables. The finding shows that each pair of variables was significant at 0.05 alpha level while the relationship between each pair of the school variables was value added. It needs to be mentioned however that the correlation analysis determines only the relationship between each pair of variables, it could not show the relationship among all the variables put together.
Hence, the multiple regression analysis was computed so as to determine the intercorrelation among the variables. In determining the multiple regression analysis, it is necessary to first determine the regression analysis of variance. As such, the sum of square, the mean square, the F Ratio and the significant F were computed. The findings are presented in table 4.2.

Table 4.2: Regression Analysis of Variance

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Df</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F</th>
<th>Sign. F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>5</td>
<td>6.5742</td>
<td>2.3478</td>
<td>141.742</td>
<td>0.0001</td>
</tr>
<tr>
<td>Residual</td>
<td>236</td>
<td>5.8674</td>
<td>1.0052</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As indicated in table 4.2, the F ratio = 141.742 while Sign. F = 0.0001.

In order to determine the intercorrelation among the variables put together and to determine which of the predictor variables could best predict the values of the criterion variable, all the variables were put into the regression model. The findings are shown in table 4.3.

Table 4.3: Multiple Regression Analysis of Predictor variables with the Criterion Variable

<table>
<thead>
<tr>
<th>Predictive variables</th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>T</th>
<th>Signif. T</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Location</td>
<td>0.35741</td>
<td>0.04723</td>
<td>0.32458</td>
<td>1.45821</td>
<td>0.0000</td>
</tr>
<tr>
<td>School Size</td>
<td>0.25943</td>
<td>0.02124</td>
<td>0.21784</td>
<td>1.37487</td>
<td>0.0004</td>
</tr>
<tr>
<td>Class Size</td>
<td>0.54724</td>
<td>0.24327</td>
<td>0.52372</td>
<td>-1.27451</td>
<td>0.0002</td>
</tr>
<tr>
<td>Student Teacher Ratio</td>
<td>0.46272</td>
<td>0.01472</td>
<td>0.42149</td>
<td>-1.01745</td>
<td>0.0002</td>
</tr>
<tr>
<td>Teachers’ Qualification</td>
<td>0.62781</td>
<td>0.25841</td>
<td>0.60943</td>
<td>1.58471</td>
<td>0.0000</td>
</tr>
<tr>
<td>Teacher Teaching Experience</td>
<td>0.61434</td>
<td>0.23786</td>
<td>0.59721</td>
<td>1.47922</td>
<td>0.0000</td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.74152</td>
<td>0.04671</td>
<td>1.10754</td>
<td>0.0001</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3 shows the output of the regression model. The findings also revealed the following output:

Multiple R =0.81743
R Square =0.72641
Adjusted R Square =0.65784
Standard Error =0.06157

Y = 3.74152 + 0.62781 (Teachers’ Qualification) + 0.61434 (Teachers’ Teaching Experience) + 0.54724 (Class Size) + 0.46272 (Students Teacher Ratio) + 0.35741 (School Location) + 0.25943 (School Size).

As indicated in table 4.3, all the predictor variables enter the regression equation. The significant t were less than 0.05 for all the variables. This shows a significant relationship between the predictor variables (school variables) and the criterion variables (internal efficiency). The best predictor of internal efficiency of the schools was teachers’ qualification which contributed 62.78% to the regression equation. This was followed by teachers’ teaching experience which contributed 61.43% to the regression equation. The contribution of other school variables to the regression equation include the following namely class size (54.72%), students teacher ratio (46.27%), school location (35.74%) and school size (25.94%).

The R² of 0.72641 found in this study shows that 72.64% of variations in internal efficiency are accounted for by the variations in school variables. The total balance of 27.36% might have been accounted for by the variations in the variables that were not examined in this study.

The adjusted R² of 0.65784 attempts to correct the R² in order to closely reflect the goodness of fit. It shows how well the data fit into the regression model. If the data fits into the model very well, the adjusted R² will have a value of 1 but if it does not fit into the model, the value will be 0. As such, the value of the adjusted R² is between 0 and 1 (Moore, 1994). Although it attempts to correct the optimistic bias of the sample R², the adjusted R² does not necessarily increase as more variables are added to an equation. The adjusted R² 0.65784 is thus the preferred measure of goodness of fit because it is not subject to the bias of the unadjusted R².
1.3. Discussion

In the foregoing, the analysis of data collected for this study was made. The promotion rate was high throughout the 6 years of schooling by the cohort of students while the repetition rate and drop out rate were low.

The finding was consistent with findings made by Babalola (2003) who found high promotion rate and low repetition and dropout rates in secondary schools in Ekiti State, Nigeria. The finding was also in consonance with those of other researchers (Afolabi, 2006; Adeleke, 2011). This finding suggests that the wastage rate in the schools was at a low level. Although, the level of internal efficiency of the schools was high (85.5%), the fact that there was repetition in the system suggest that some students still spend additional years in the schools beyond the normal 6 years period of secondary education in the State. This finding agreed with the findings made in earlier studies (Giwa, 1993; Mcmoshou, 1993; Fadipe, 1999).

The contribution made by the school variables to the regression equation depicts that school variables had significant relationship with the internal efficiency of schools in Ondo State, Nigeria. The findings of this study that isolated teachers' qualifications as the best predictor of internal efficiency of secondary schools in the State suggest that teachers' with higher qualifications contribute substantially to the internal efficiency of schools. This finding was consistent with the findings made by (Wilson & Pearson, 1993; Rice, 2004; Adeyemi, 2007). This finding suggests that the larger the number of teachers' with higher qualifications in schools the higher would be the internal efficiency of the schools.

1.3.1. Conclusion

Considering the finding of this study, it was concluded that school variables are critical variables in the internal efficiency of secondary schools in Ondo State, Nigeria. Although, teachers' qualification was the best predictor of internal efficiency in the schools. The findings of the study led the researcher to conclude that school variables are the function of internal efficiency of secondary schools in the State.

1.4. Recommendation

In view of the finding of this study, it was recommended that there should be a prudent and continuous recruitment of teachers' with higher qualifications into all secondary schools in the State. The State government should endeavour to effect proper management of teachers' to make them stay on the job in a bid to improve the internal efficiency of the schools.

References


**APPENDIX 1**

**Psychological Characteristics and Demographic Questionnaire**

**Instruction:** Read through the following and tick (✓) where appropriate.

1. Indicate your gender: Male [ ] Female [ ]
2. My age is: Between 17 and 23 years [ ]
   My age is above 23 or below 17 [ ]
3. I entered the University with GCE or WAEC grades as follows:
   (i) Distinctions in not less than 3 subjects among other credits and merits [ ]
   (ii) Distinctions in less than 3 subjects among other credits and merits [ ]
   (iii) No distinction at all but credits and merits [ ]
4. I entered the University in (a) One attempt at JAMB examination [ ]
   (b) Two attempts at JAMB [ ] (c) More than two attempts at JAMB [ ]
5. I entered the University through (a) JAMB [ ] (b) The University Examination [ ]
6. As a C.E. student, I had made (a) attempts at JAMB examination [ ] (b) No attempts at all at JAMB examination [ ]
7. My score of the last JAMB examination was (a) Above 300 (b) between 200 and 299 (c) Below 200

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