COMPARATIVE ANALYSIS OF THE ACADEMIC PERFORMANCE OF PUBLIC AND PRIVATE SENIOR SECONDARY SCHOOL STUDENTS IN SCIENCE IN BIRNIN KEBBI METROPOLIS, KEBBI STATE, NIGERIA

Mohammed Mijinyawa[1], Yakubu M. Yeldu[2], Zayyanu Umar and Habu Bala Hussaini[4]
[1]Department of Statistics, Modibbo Adama University of Technology, Yola, Nigeria
[2]Department of Statistics, Waziri Umaru Federal Polytechnic, Birnin Kebbi, Nigeria
[3]Department of Computer Science, Waziri Umaru Federal Polytechnic, Birnin Kebbi, Nigeria
[4]ICT Department, Ministry of Science and Technology, Taraba state
E-mail: 1<yeldouyakubu@gmail.com>, 2<yeldouykb@yahoo.com

ABSTRACT

This paper compares the academic performance between private and public secondary schools in science in Birnin Kebbi metropolis, Kebbi state. A random sample of 200 senior secondary school students was randomly selected from private and public Secondary schools in Birnin Kebbi metropolis of Kebbi State for the study. End of term examination results for three consecutive terms of the 2015/2016 academic session for the selected sample in three science subjects namely: Biology, Chemistry, and Physics were obtained from the selected secondary schools in the metropolis as the data for the study. The collected data were analyzed using t-test statistic. Results obtained showed that there is a significant differencebetween public and private secondary school students' performance in all the three science subjects studied. Private schools studentsperformed significantly better than their public school counterparts. It was however observed that there is no significant differencebetween the performance of public and private senior secondary school students between male and female students in science in both the private and public secondary schools in the metropolis. It was recommended among others that more supervisory roles be played on public schools teachers to make them work better on their science students.

Keywords: Public, private, secondary schools, Academic Performance, Birnin Kebbi.

INTRODUCTION

The educational system in Nigeria suffered some severe upheavals in the 1980s, because of the Structural Adjustment Program (SAP), which were set of policies recommended by the International Monetary Fund (IMF) focused at "Poverty Reduction." Much of Nigeria's infrastructure collapsed. It was difficult for the three tiers of government to pay salaries, which meant that teachers in public schools went unpaid.Because a military regime was controlling the country, corrupt officials embezzled money from the educational coffers.

To survive, teachers started teaching private lessons, part-time lessons, and evening classes. Unemployed people with degrees saw these teachers' successes and also began teaching to make earnings. Because of this bootleneck and the fact that public schools are not free, there has been an increasing call towards privatization of education in Nigeria since the mid-1980s.

The government tried to reverse these trends by offering good package of salaries and other benefits to thier teachers and making public education free again, but still private schools are excelling.

In recent times, there has been a sudden increase in the establishment of private secondary schools due to the liberalization policy of the Federal government. Most parents are of the opinion that the standard of education in private secondary schools is better than that in the public secondary schools. Regarding achievement, Ekundayo (2013) reported that performance is mostly affected by a range of statistical indicators including the student-staff ratio, qualification of teachers, years of experience of the teachers.

Today, there are many kinds of private schools in Nigeria: expensive schools for the rich, more affordable schools for the middle class and less cost private schools that might run out of someone's house or some rented rooms. According to survey conducted at the University of Newcastle, in three of the poorest districts they look at, "an estimated that 75 percent of school children were admitted in private schools. There is a large Muslim population in Nigeria particularly in the North, and part of these people, there are some private Islamic schools. Additionally, some Muslims believe that enrolling a girl to school will make that girl a less appealing bride; and make many girls not allowed to attend to to school". This is indicated in the literacy rates in the country: 72.5% for men, and 48.2% for women. In the North West, 55.7% of men are literate and only 20.9% of women (Mohammed, 1984) in Alewu *et al*. (2009). Education is not much accepted in the Northern part of Nigeria partly because of the above mentioned belief. The problem is not on the quality of schools but on the lack of support for education in general, mainly Western education.

Science Education is developed to guide the world towards a scientifically literate society. It is essential for an understanding of science as it offers personal fulfillment and excitements. The world is confronted daily with issues that require a scientific way of thinking for informed discussion, management, and sharing of resources such as air, water, and vegetation (Ellis, 2010).

The World Summit on Sustainable Development (WSSD) (2002), as reported in Akporehwe and Onwiodukit (2013) affirmed the role of Science and Technology Education as an enabler for sustainable development. Nigerian Government in acknowledging the strategic role science holds for national development has directed University as a matter of policy to admit candidates on a ratio of 60:40 in favor of science courses.

The primary index used for assessing scientific advancement through education is the performance of the students. Obemeata (1995) asserted that the achievement of technological development through education depends mostly on the performance of secondary school students in science and mathematics. Olatoye (2002) opined that science education lays a foundation for work in science-related fields by acquainting learners with specific knowledge skills and attitudes. Ogbonna (2007) observed that there had been a world-wide recognition of science and thereby science education has found a central place in the curricula school at all levels.

Public and private schools are institutions owned as the names denote. The public schools in Nigeria have Federal, State, and Local Governments as their proprietors while the private schools have individuals, associations or organizations as the owners. Berkeley Parent Network (2009) asserted that private schools vary widely and level of parental involvement varies from one private school to the other. What is important for a parent is to choose a private school that has characteristics that match what they are looking for as a family. Parents pay for the cost of educating their children in private schools and therefore tend to be more involved in dictating what the schools offer than parents whose children are attending public schools (Olatoye and Agbatogun, 2009).

Table1: Characteristics of Private and Public Schools

Private School	Public School
Mostly have small class size	Mostly have large class size
Lack accountability to the public	Accountability to the public
It is autonomous	It is not autonomous
Ignore recent curricular trends in education	Do not ignore curricular trends in education
Do not always hire certified teachers	Hire certified teachers
Most have religious inclinations	Do not have religious inclinations
Set no funds apart for teacher professional development	Set funds apart for teacher professional development
Set attraction to parents to show safe, neat and welcoming environment	Set no attraction beyond government provision
Do not use up to date teaching methods	Use up to date teaching methods

Source: Lubienski, Lubienski and Crane (2009).

Despite these characteristics, scholars (mostly educators) contest the superiority of the private schools over their Public counterparts. Lubienski and Crane, (2009) said after holding demographic factors constant, public schools performed just as well if not better than private schools. It is important to say that the characteristics listed in table 1 may not be entirely applicable for the various school types in some countries as education policy may differ. Olatoye and Agbatogun (2009) reported that there exists a significant difference in mathematics and science achievement of public and private school pupils in which private school pupils performed better than public school counterparts in mathematics and science. The discussions so far show that there is a need to compare private and public school student's performance in science. This study, therefore, sought to compare senior secondary school student's science performance in public and private schools in Birnin Kebbi Metropolis of Kebbi state, Nigeria.

The government and especially the parents are very much concerned with the quality and volume of learning acquired by their children, wards, and citizens as this are related to the quality and quantity of the contribution which the individual can make to his immediate family, community and the nation as a whole. (Thorndike, 1931).

Several studies by Sociologist, Psychologists, and Educationists showed that the type of schools a learner attends has a profound influence on his academic achievement. For instance,

Bibby and Peil (1974) noted that children who attended private primary schools performed better than pupils in public schools. This view is also supported by Lioyd (1966) as he contended further that the public schools which saw education as a good thing, tended to leave the question of educational success or failure in the hands of the public and their parents. This implies that the business of education is not taken with all the seriousness it demands in the public schools. This, of course, is what may be regarded as the general apathy of the citizenry to government's owned business or property. A situation that has resulted in a lackadaisical attitude of government's workers, including teachers in the public schools tend to believe that an intelligent child would succeed automatically at school without any active assistance coming from them.

In a study jointly carried out by the Federal Government of Nigeria, UNICEF and UNESCO in 1977 to monitor the learning achievement of primary school pupils throughout the Federation, it was shown that most of the private schools had means in the three areas tested higher than the national means and that of their public counterpart. Similarly, Yoloye (1998) while assessing the situation of education in Osun State compared the quality of education in five states of the Federation namely, Lagos, Ogun, Ondo, Osun, and Oyo. He compared performance between urban and rural schools; private and public schools, as well as between male and female primary school pupils. He concluded that while Osun State comes last in almost all the sub-sector analyzed, the only cheering exception is in the private schools where it performed better than other states and indeed exceeded the grand mean. He did not give reasons for low or high achievement.

In a study carried out in the U.S. by Lubienski and Lubienski (2006), they compared academic achievement among charter, private and public schools. One of the major findings from this study showed that private schools scored higher than charter and public schools. In a related research carried out also in the U.S. by Braun, Jenkins, and Grigg (2006), they compared the performance of pupils in private and public schools in both reading and mathematics involving grades 4 and 8, results showed that the private schools performed better than the public schools not only in reading and mathematics but also in the two grades (4th & 8th) involved in the study. Overall, findings indicated that the average private school mean score was higher than the average public school mean score, and that the difference was statistically significant.

However, in the study comparing students' academic performance in business studies in public and private Junior Secondary School Certificate Examinations (JSSCE) in Ovia South West Local Government Council Area of Edo State, Nigeria, conducted by Igbinedion and Epumepu (2011), it was revealed that there was significant difference in the academic performance in business studies between the public and private schools from 2008 to 2011. Results further showed that the percentage performance trend of public schools was higher than those of the private both males and females.

STATEMENT OF THE PROBLEM

There has been an increasing concern about the overall academic performance of public and private secondary school students as measuredby the results released by the National

Examination Council (NECO) and Senior Secondary School Certificate Examination (SSCCE). Poor academic performance is taken in this study to mean low scholastic achievement that falls short of expectation. Student performance in the West Africa Examination Certificate (WAEC) has revealed that many students are underperforming (Adu, 2006). Frequent incidence of leakages and examination malpractices on the part of the examination bodies may not be entirely unconnected with lack of dedication on the part of teachers, inadequate teaching materials, supervision, qualified staff, exponential enrolment, automatic promotion, low funding of education on the part of government, low level of commitment of students and inadequate provision, broken homes, emphasis on materialism on the part of parents, and incapability on the part of principals.

Some parents and other stakeholders in secondary education have argued that private schools have a more positive attitude towards intellectual development of students and therefore offer higher learning opportunities to their students' performance in academics. On the contrary, it is felt that governments (owners of public schools) provide little or no intellectual and motivational environment for their students, which in turn has an adverse effect on the students' academic performance. It was against this background that this study was carried out to compare the academic performance of senior secondary school students in public and private secondary schools in the key science subjects of Biology, Chemistry, and Physics.

OBJECTIVES OF THE STUDY

The principal purpose of this study is to compare the academic performance of students in public and private schools in science subjects. The specific objectives are to:

i. Compare the academic performance of public and private secondary school students in the core science subjects of Biology, Chemistry, and Physics in Birnin Kebbi Metropolis
ii. Compare the academic performance of male and female students in senior secondary school students in the core science subjects of Biology, Chemistry, and Physics in Birnin Kebbi Metropolis

RESEARCH QUESTIONS

The following research questions are to be answered by this study:

1. Is there any significant difference between senior secondary school student's academic performance between public and private schools in (i) Biology (ii) Chemistry (iii) Physics?
2. Is there any significant difference between male and female senior secondary school students' academic performance in science in public schools?
3. Is there any significant difference between male and female secondary school students' academic performance in science in public schools?

RESEARCH HYPOTHESIS

The following research hypotheses are formulated to answer the questions posed.

1. H_o: there is no significant difference in senior secondary school student's performance between public and private schools in Biology
2. H_o: there is no significant difference in senior secondary school student's performance between public and private schools in Chemistry
3. H_o: there is no significant difference in senior secondary school student's performance between public and private schools in Physics
4. Ho: there is no significant difference between male and female senior secondary school students' performance in science in public schools
5. Ho: there is no significant difference between male and female senior secondary school students' performance in science in private schools.

METHODOLOGY

Research Design

The design adopted for this study is the descriptive research design which is consistent with the nature of the problem being investigated, as it allows the researcher to reach out to a more substantial number of the target population.

Population and Sample

The population for this study is made up of all senior secondary school II students (SS2) in both private and public primary schools in Birnin Kebbi metropolis, Kebbi state studying the science subjects of Biology, Chemistry, and Physics. This is because most students transfer or join new schools at the senior secondary school I (SS1) level and many others leave the secondary school system at the end of SS2 without going through the senior secondary school III (SS3) stage, particularly at the private schools.

The sample for the study is drawn using the simple random sampling technique consisting of 200 senior secondary school students selected each from the private and public secondary schools with equal representation of males and females. The collected data on the performance of each of the sampled students for each of the three subjects for all the three terms of the 2015/2016 academic session under study were averaged for the three terms for each of the three subjects to form the data for the study.

Method of Data Analysis

The data collected were analyzed by the use of the test for difference between means (*t*-test) with the help of a statistical software package MINITAB for windows.

RESULTS

The following results were obtained from the MINITAB output window for the collected data:

Table 4.1: *t*-test comparison of Public and Private Secondary Schools Students Performance in Biology, Chemistry, and Physics

Variables	School Type	N	Mean	DF	α -value	*t*- critical	P-value	Remark
Biology Performance	Public Private	100 100	34.3 66.0	198	0.05	-7.14	0.000	Significant
Chemistry Performance	Public Private	100 100	42.00 51.5	198	0.05	-2.07	0.048	Significant
Physics Performance	Public Private	100 100	36.4 69.5	198	0.05	-5.82	0.002	Significant

Table 4.2: *t*-test comparison of Male and Female Students Performance in Public Schools in Biology, Chemistry, and Physics

Variables	School Type	N	Mean	DF	α - value	*t*- critical	P- value	Remark
Biology Performance	Male Female	50 50	29.25 30.40	98	0.05	-0.77	0.473	Not Significant
Chemistry Performance	Male Female	50 50	22.54 27.60	98	0.05	0.32	0.759	Not Significant
Physics Performance	Male Female	50 50	27.43 29.17	98	0.05	0.27	0.643	Not Significant

Table 4.3: *t*-test comparison of Male and Female Students Performance in Private Schools in Biology, Chemistry, and Physics

Variables	School Type	N	Mean	DF	α - value	*t*- critical	P- value	Remark
Biology Performance	Male Female	50 50	25.14 27.39	98	0.05	0.47	0.892	Not Significant
Chemistry Performance	Male Female	50 50	20.32 24.12	98	0.05	0.52	0.632	Not Significant
Physics Performance	Male Female	50 50	3152 29.27	98	0.05	0.30	0.721	Not Significant

DISCUSSION OF RESULTS

Results obtained from table 1 above that compares the academic performance of senior secondary school students in public and private schools for the three subjects of Biology, Chemistry and physics reveal that the p-values obtained are 0.000, 0.048 and 0.02 for Biology, Chemistry, and physics respectively. At 5% level of significance, i.e., α equals to 0.05, apparently the α –value is higher than the P- value. As a result, the null hypotheses will be rejected for all the three subjects suggesting that there are significant differences in the mean academic performance of public and private secondary school students in Birnin Kebbi metropolis in all the three subjects selected for this study.

The second table compared male and female student's academic performance in public schools in Biology, Chemistry, and Physics. Results obtained showed that academic performance of male and female senior secondary school students in public schools for the three subjects of Biology, Chemistry and physics reveals that the p-values obtained are 0.473, 0.759 and 0.643 for

Biology, Chemistry and physics respectively. At 5% level of significance, i.e., α equals to 0.05, the p-value is greater than the α- value. As a result, the null hypotheses will be accepted for all the three subjects suggesting that there is no significant difference in the mean academic performance of male and female secondary school students in public secondary school in Birnin Kebbi metropolis in all the three subjects selected for the study.

The same sort of remarks can be made about the results obtained in table 3 that compared male and female students' academic performance in private schools in Biology, Chemistry, and Physics. Results obtained gave the respective p-values as 0.892, 0.632 and 0.721 for Biology, Chemistry and physics respectively. At 5% level of significance, i.e., α equals to 0.05, the p – values obtained are greater than the α- value. As a result, the null hypotheses will be accepted for all the three subjects suggesting that there is no significant difference in the mean academic performance of male and female secondary school students in private secondary schools in Birnin Kebbi metropolis in all the three science subjects under study.

CONCLUSION

The findings of this study have been able to establish the fact that private secondary schools students in Birnin Kebbi metropolis, Kebbi state perform better in science than their counterparts in the public schools. Private school students are notably better in all the three science subjects. These findings tend to provide justification for parents who have found private schools as an alternative to government-owned public schools. The no significant difference in the academic performance by gender in both public and private schools is an assurance that there is hope that male and female students have the potential of benefiting from science teaching.

RECOMMENDATIONS

By the findings from this study, the following recommendations are made:

i. Government at all levels should support the running of both public and private schools.
ii. More supervision should be done on the public schools to make teachers work better on the students in science.
iii. Retraining of teachers in both school types to improve their science instructional strategies should be the concern of all education stakeholders.

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