

Comparison Of Student Performance In Chemistry In Both Private And Public Selected Secondary Schools In The Kaduna South Local Government Area, Nigeria

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Abstract

This project examined the influence of both public and private secondary schools on the academic performance of students in chemistry and more so, compares their performance in this subject. The private school used here employs Danbo International School. The public School employs Command Secondary School as well. A sample of students offering chemistry was randomly selected from each of the school representing the total population of students offering chemistry. The study involved 67 students with 19 having come in from private (Danbo International) School and 48 students from public (Command Secondary) School. Scores from the student's West African Examination council (WAEC) result were obtained from respective schools and used for analysis. The data collected were subjected to student's t-test statistical analysis at 0.05 significant levels. The result of the study reveals that student in Danbo International School performed relatively better than their counterpart in public (Command Secondary) School. Recommendation was that subjects (science) should be thought with relevant instructional materials in primary schools in order to prepare the pupils for the learning task in secondary schools. Inspectors of education and proprietors should ensure that teachers use instructional materials to teach science subjects.

INTRODUCTION

The educational system in Nigeria suffered some serious upheaval in the 80s, because of the Structural Adjustment Program (SAP), which were set of policies recommended by the International Monetary Fund (IMF) aimed at "Poverty Reduction". Much of Nigeria's infrastructure collapsed. It was difficult for the government to pay salaries, which meant that many teachers in public schools went unpaid. Because the country was being controlled by a military regime, corrupt officials embezzled money from the educational coffers.

In comparing public and private schools, and in order to survive teachers began teaching private lessons and evening classes. Unemployed people with degrees saw these teachers' success and also started teaching to make money. Because of this and the fact that public schools are not free, there has been an increasing trend towards privatization of education in Nigeria since the mid 1980s. The government is trying to reverse these trends by offering good salaries and benefits to teachers and making public education free again, but private schools are still very prevalent.

Today, there are many kinds of private schools in Nigeria:

expensive schools for the rich, more affordable schools for the middle class and cheap private schools that might run out of someone's house or some rented rooms.

According to research done at the University of Newcastle, in three of the poorest district they look at, "an estimated 75 percent of school children were enrolled in private schools.

There is a large Muslim population in Nigeria particularly in the North, and among these people there are some private Islamic schools. Additionally, some Muslims believe that sending a girl to school will make her a less appealing bride; so many girls are not allowed to go to school. This is reflected 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).

Education is much less prevalent in the Northern part of Nigeria partly because of the larger Muslim population. The problem is not the quality of schools but rather the lack of support for education in general, particularly Western education.

Schools start at 8:00 – 8:30 am and lasts until 1:30 or 2:00 pm, Monday through Thursday. On Friday, school ends at

1:00pm so that kids can go to the mosque. Some students might travel by bus or motor bike or just trek to school closest to them, so they might not have to travel far. Typically, classes have 35 – 40 students, although some times less. In the 80s there were 50 pupils in a class, sharing desks, but this is less common today. Public schools have utilities and toilets and play grounds, but this is not necessarily the case in private schools, which might be a group of small rented rooms each big enough for 10 students.

After schools, some students go to additional lessons, if their parents can afford it; others just play out and about, or go to after school programs. Some have to go and sell goods for their parents. They may carry oranges or bananas or locally made “Akamu” on their heads to markets where they can try to earn some money to support their families.

The standard for teachers in public schools is that they have a certificate in education, but this isn't necessarily the case in private schools if not now because private schools do not always pay good salaries, offer poor job security, and no benefits. But after the crisis in the 80s, there is still fear of non-payment of salary in public schools and this is visited by frequent strikes and demand for pay rise of all sorts.

Primary education is no doubt the foundation stage of the career in the education industry although some children go through the nursery. The experience gathered from the primary level will always influence the student's academic performance in the secondary schools especially at the early stage of the secondary school life (Afolabi, 2005).

Early childhood development classes especially the girl child is booming in areas of northern Nigeria, where local government authorities assisted by UNICEF, are using multiple strategies to get more girls into pre-schools. They hope that once girls get a taste of education, their interest in schooling will lead them to continue. This will boost their performance in later years (Valetine, 2007). Due to cultural barriers against educating girl child and resistance to Western form of education, participation of girls in formal schooling in Northern Nigeria has been extremely low.

However, the necessity for the use of instructional materials in the teaching/learning process has been mentioned in literature (Abimbade, 1999; Salawu, Afolabi, and Taiwo, 2001). When instructional materials are properly used in teaching, they help to concretized abstract concepts and put the elements of reality, into ideas that may seem

impracticable (Abimbade, 1999). It is also believed that they help the learner's memory such that he easily recollects what he was taught when the idea is needed. Instructional materials are useful more especially in the primary schools because according to Afolabi, (1998), the children at this level naturally have short attention span, love to play a lot (active) and love to touch things and see pictures. Literature has confirmed that instructional materials of all types and forms enhance student's academic performance in various subjects' areas (Adeyaju, 1991, Salawu, 1999). The decay or decadence of academic performance in primary, secondary and tertiary schools in Nigeria is alarming mainly in Science subjects. This study seeks to determine the performance of students in science subjects especially in Chemistry. Some children from primary school or at the end of their primary education may be academically good but in their West African Examination Council (WAEC) or National Examination Council (NECO) their performance may be poor or average. On the other hand others may be poor from the onset of their secondary education but their WAEC or NECO results may be poor or average.

However in some instances, teachers may have high academic qualification either in private or a public school either in private or public schools but student's performances This study seeks to find out the performance of students in private and public secondary schools and how this translate to their enrolment into tertiary institution through various examination conducted by Joint Admission and Matriculation Board (JAMB) and other bodies considering the problems highlighted above.

METHODOLOGY

In this study, a survey research design was chosen because large and small population can be studied. This was done by selecting and studying samples chosen from the population chosen to discover as with this present study the relative performance of selected private and public schools in Kaduna south Local Government Area. The present study was designed in such away that the sample size represents the population of the study.

All the SS3 students of Danbo International School and Command Secondary School, Kaduna, who sat for the West African Examination Council (WAEC), constitute the population of study. The population of SS3 students of Danbo International school who sat for WAEC spanning 2006- 2008 is 192. The total population of SS3 students of Command Secondary School who sat for WAEC spanning

2006- 2008 is 491.

From the total population of the students who sat for WAEC from 2006-2008, 10% of the population from each of the private and public schools were randomly selected and were grouped into two categories i.e. the percentage performance between A₁-B₃ and between C₄-C₆.

The sample size for SS3 spanning 2006-2008 who sat for WAEC for Danbo International School is 19 and that for Command Secondary School is 48 for percentage performance between A₁-B₃ and between C₄-C₆.

West African Examination Council (WAEC) results of the students of the students from each of the school were obtained from the school. This spans from 2006 to 2008. Each of the students has a mark allotted to the subject (Chemistry), for this present study. The marks were selected randomly for both males and females and used for this study.

WAEC results are widely accepted as an entry qualification entry into higher institution in Nigeria. The federal government of Nigeria endorses it and all the universities in Nigeria accept it.

Data was collected from a record of WAEC master result directly from WAEC office to each of the school. From this record ... students' score in chemistry were selected for this study. The data collected were compressed into tables to enhance understanding and to manage the data efficiently for analysis.

The compressed data is subjected to student t- test. This is the t-test of the difference between the mean of the products of private and public schools' score in chemistry. The student t- test employed here involved the use of the formula as represented thus;

Figure 1

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{S_1^2 + S_2^2}{n_1 + n_2}}}$$

Where x_1 and x_2 = the means of group 1 and 2 respectively.

Group 1- Danbo International School Group 2-Command Secondary School S^2 = Standard deviation n = number of subjects in each group

An alpha level, $P < 0.05$ was considered significant.

RESULTS

The Null hypothesis states that;

Hypothesis 1: There is no significant difference in the performance in chemistry between the students of private school (DIS) and the students from public school (CSS).

Figure 3

Table 2: t-test of Difference between Means of Products of Danbo International School and Means of Products of Command Secondary School's Score in Chemistry between C-C

Type of School	N	Mean	S.D	Degree of Freedom	t-Cal.	t-Critical	Decision
Private School Product (DIS)	19	4.3	0.34	66	28.6*	1.98	Do not accept Ho ₁
Public School Product (CSS)	48	2.3	0.46				

N- Sample size
 S.D- Standard Deviation
 t-Cal. - Calculated Student t- test
 t-critical- table value of student t-test
 DIS- Danbo International School
 CSS- Command Secondary School

*- Significant at $P < 0.05$
 t-cal. 28.86 > t- critical 1.98

Since the calculated t- value (28.6) is greater than the table value of t- (1.98) at the alpha (α) level ($P < 0.05$) and degree of freedom, hypothesis 1 (Ho₁) is rejected. Hence, there is a significant difference in the scores of pupils from private schools in chemistry between A₁-B₃ and those from public schools as regards their performance.

Hypothesis 2: There is no significant difference in the performance in chemistry between the students of private school (DIS) and the students from public school (CSS)

{image:3}

Since the calculated t-value (-130) falls within the critical region or rejection region, at the alpha (α) level ($P < 0.05$) and degree of freedom, hypothesis 2 (H0₂) is rejected. Hence, there is a significant difference in the scores of pupils from private schools in chemistry between C₄-C₆ and those from public schools as regards their performance.

The findings of this research showed that;

With increasing number of student's enrolment in private school (Danbo International School), the less the performance and the more it tends towards average scores of between C₄-C₆ and passes or failures (F).

With sizeable e.g. 52-55 students as observed in chemistry here, the more the percentage performance tends towards range between A₁-B₃ and the more the enrolment, the less the performance.

Student's performance in Command Secondary School from these findings showed increased percentage in the range between C₄-C₆ than between A₁-B₃.

The result in this present study showed greater performance of students in private (Danbo international School) than the public (Command Secondary School) in ranges A₁-B₃. Public schools (Command Secondary School) on the other hand have more students falling into grades C₄-C₆.

In some instances, increased population of students e.g. in chemistry has contributed to poor performance in chemistry. Public school on the other hand enrolls more students than they can cope and that may have contributed in no small measure to poor performance of students compared to private schools.

Although, the results here were not all encompassing because it did not take into consideration many more other private schools, the results, no doubt, was an eye-opener to what may generally happen in other sister private and public schools either in Kaduna or other parts of Nigeria.

DISCUSSION

These finding seem to discredit, to some extent the standard of education in the public schools since their product could not compete favourably with the products of the private school.

Even though this present study cannot be used to generalize results from private and public schools, it serves as an eye-opener to some extent what may likely be the case with both schools. The falling standard as seen with more C₄-C₆ in public school (Command Secondary School) may be flashing the danger light as regards the future of the next generation of elders and the fate of educational industries in this country. The anticipated future problems become more evident when one considers the proportion of the Nigerian populace living below the poverty level vis-à-vis the financial involvement of sending ones child to private

schools where instructional materials are used (Afolabi, 2005). (Afolabi, 2005) further stressed that perhaps the recent innovative moves of some State Primary Education Boards where they now create special schools having educational resource centers and libraries may restore the lost glory to public primary schools.

Private schools on the other hand needs to down-size their enrolment because from what was observed in this present study, less success was recorded by Danbo international School with more enrolment and consequently, the result tends toward percentage performance range between C₄-C₆. According to public agenda publications, (2000), on morale of teachers in private schools compared to public schools, teachers want to work in schools with smaller classes and this will enhance performance.

Apparently, analysts are comfortable when more successes are recorded with percentage performance between A₁-B₃. With this, they can grade with certainty the performance of students who may likely succeed in higher institutions. Although this varies because they are some cases whereby students with results between C₄-C₆ are successful in higher institution and may even do better than those with between A₁-B₃. This is seen today where students results showed A's in the subjects but could not defend it. In any case, we still prefer performance ranges between A₁-B₃.

However, the flaws observed with private schools resulting in low performance may not be far from inadequate instructional, manpower to cope with increasing number of students.

Similarly, lack of instructional materials, qualified manpower bureaucratic bottle-necks, large population of students, and indiscipline on the part of both students and teachers and among others are responsible for the low performance of students in public schools.

Private schools play a crucial role in reaching the Millennium Development Goal standard by the United Nations in stamping out illiteracy and so their place cannot be over emphasized.

In some of the subjects offered by both private and public schools e.g. chemistry, biology, mathematics and so on, performance of students in biology from private schools may be better than that of public on one hand but in some other cases, the performance of students in mathematics from public schools may equate their counterparts from private

schools or even better. So the idea of which school (Private or Public) is better should not arise at this moment since this performance seems not well defined. Students from private schools with A's in some subjects may be academically poor in the universities but some students with C's in similar subjects from public schools may be academically good in the universities and vice versa. This idea was also shared by Thomas, (2006), who states that "The debate over which school do better is far from reaching'".

The overall assessment of performance in this present study showed that private school (Danbo International School) does better than the public school (Command Secondary School) in chemistry. This observation in this study agrees perfectly with the United States department of education, (2002).

There is no doubt, private school do pay attention to provision of instructional materials in their schools than do public schools. This expresses itself in the present study where the performance of Danbo international School is better than Command Secondary School, Kaduna. We cannot overemphasize the importance of instructional materials in schools. Afolabi, (2005), states that private schools spend substantial amount of money to provide instructional materials for the teaching and learning process and that schools even take their children out on field trips, excursions and so on of which are absent in most public schools.

Teachers that teach in private schools, find administrative side of the job confining and time consuming. Minimal bureaucracy was the biggest advantage of teaching in private schools (Robert, 2009). This no doubt, must have played a crucial role in seeing the performance of Danbo International School as compared to Command Secondary School seen in the present work.

CONCLUDING REMARKS

Pre-primary education is very important because once children get a taste of education; their interest in schooling will lead them to continue. This will boost their performance in later years.

Cultural barriers preventing children from acquiring Western form of education especially against girl-child should be vehemently discouraged.

The experience gathered from the primary level will always influence the student's academic performance

(Afolabi, 2005) many strategies can be put in place to enroll all children in school. Some of these include;

- Early year's development consultative communities, at all levels of government, for integrated early childhood development projects.
- Involvement of community members in planning, managing and monitoring schools.
- Parent education using local integrated management of childhood illness counseling guides.
- Literacy classes on the radio for adolescent girls and young mothers

The pre-school policy environment is expected to be further enhanced when a draft national policy for Early Childhood Development (ECD) using the integrated approach is finally approved by the government. In anticipation of this approval, ECD is currently being main-streamed into teacher pre-service training and offered as a specialization in all 65 colleges of education in Nigeria this will help meet the huge challenge of providing well-trained care givers and teachers for pre-school classes. Having an approved national curriculum and minimum standards, along with a pool of trained care givers nation wide to apply them, is also enriching the quality of service delivery. The challenge, however, is to provide adequate services and structures to make the learning environment child friendly and stimulating for children, in order to sustain their interest in school and enhance their performance as well (Valentina, 2007).

Children whose parents could not afford to patronize private primary schools should not be at disadvantage when they get to the secondary school. If the teachers in public primary schools are given the proper orientation about the necessity for instructional materials in the teaching-learning process, the products of public primary schools too will be adequately equipped for the secondary school education later in life.

The instructional materials could be in form of charts, models, and media and so on. It is not enough for the instructional materials to be available in schools. They must be put to use in order to enhance the facilitation of learning on the part of the students and learning on the part of the learners.

Agun and Imogie, (1988) among others have classified instructional materials based on the criteria of their choice. Other authors too have classified them using other criteria. However, the commonest and the cheapest of the instructional materials among visuals, audio visuals and audio are the visuals. These charts, posters, models, nearly, abacus, flash card, and so on.

Apparently, these findings will go a long way in assisting the parents, teachers, the school authority and students as well. To the parents, the student performance will tell them the type of school their children is attending, the teacher's performance, and how good is the policy and the administration of the school. The method of teaching of the teacher will definitely affect the performance of the students. From these findings, teachers will know whether their methods need to be improved upon or changed. The school authority may either improve upon their policies or abolish it in totality. The students on the other hand may need to either improve his or her performance or develop new strategies on how to go about their studies.

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References

- r-0. Abimbade, A. (1999): Principle and practice of educational technology. Ibadan, International Publishers Ltd.
- r-1. Adedapo, Y. A. (2000): Socio economic effect of increase in wages and salaries. Unpublished B.Ed Project of the Department of Educational Management, University of Ibadan, Nigeria.
- r-2. Adeyanju, J. J. (1991): Production of cheap instructional materials for 6- 3-3-4 system education with emphasis on primary school level". In I. Imogie (Ed). Trends in educational technology: Ibadan, Y- Books.
- r-3. Afolabi, A. O. (1998): Increasing children's attention span through technology. The Primary School Educator, 2 (1), 16 – 24
- r-4. Afolabi, A. O. (2005). Comparison of Private and Public schools products performance in Mathematics and English Language from educational technology perspective. Ilorin Journal of Education. PP. 1-5.
- r-5. Agun, I and Imogie, I. (Ed.) (1988): Fundamentals of educational technology. Ibadan, YBooks.
- r-6. Gilbert, D. C. (2008): Girls Primary school enrolment surges in Nigeria's northern Kano state. Voice of America News.com
- r-7. Jay, H. R. (2007): Marketing a private school in Nigeria. BBB online Reliability program.
- r-8. Kayode, K. (2009): Nigeria: What to do with public schools. ThisDay. All Africa.com
- r-9. Muhammed, (1984). Perception of unequal access to primary and secondary education: findings from Nigeria.
- r-10. Okey, N. (2008): Nigeria: Parents grumble over cut-throat fees charged by private schools. Vanguard. All African.com
- r-11. Olaniyan, O., Dixon, P. and Tooley, J. (2005): Private and public schooling in low-income areas of Lagos state, Nigeria: A census and comparative survey. International Journal of educational Research, 43: PP 125-146.
- r-12. Pauline, D. and James, T. (2005): Private education is good for the poor: A study of private schools serving the poor in low-income countries. Cato institute policy perspective, Massachusetts. Washington D. C
- r-13. Robert, K. (2009): Four reasons to teach in private schools. New York times company. Forbes.com-Best of Web in Education.
- r-14. Salawu, I. O. (1999): Introduction to teaching aids. In: M. Ogunsanya (Ed.), Basic in Processes education. Oyo: Andrian Publication Series. PP. 193-204.
- r-15. Salawu, I. O, Afolabi, A. O. and Taiwo, S. A. (2001): Essentials of educational Oyo, technology Kay Blessings Ventures.
- r-16. Salawu, I. O and Adedapo, Y. A. (2001): Perception of private secondary school teachers to the provision of teaching facilities in schools as is result of wage increase Journal of Professional Teacher Trainers (JPTET), 3 (1&2), 156-163.
- r-17. Sheehy, (2007): What is the purpose of school? An informal and very unscientific survey. <http://www.vanillamist.com>
- r-18. Sunal, C., Osa, and Gaba, (1989): Perception of unequal access to primary and secondary education: findings from Nigeria.
- r-19. Tooley, J. (1999): The global education industry: lesson from private education in developing countries. Peabody journal of Education, 76: 3 and 4. PP.122-140
- r-20. Tooley, J. (2007): From Adam Swift to Adam Smith: How the "invisible hand" overcomes middle class hypocrisy. Journal of Philosophy of Education, 41: 4. PP. 727-741.
- r-21. Tooley, J., Dixon, P. and Amuah, I. (2007): Private and public schooling in Ghana: A case census and comparative survey. International Review of education, 53:4, PP. 389-415
- r-22. Tooley, J., Dixon, P. and Starfield, J. (2008). Impact of free primary education in Kenya: A case study of private schools in Kibera. Educational management administration and leadership, 36: PP 449-469
- r-23. Valentina, C. (2006): Pre-school classes boost girl's enrolment in Northern Nigeria. United Nations Children's Fund (UNICEF).

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