COMPARATIVE STUDY OF PUPILS' BASIC SCIENCE ACADEMIC PERFORMANCE IN ILORIN METROPOLIS, KWARA STATE

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Abstract
*The study investigated pupils' academic performance in basic science among public and private primary schools in the Ilorin metropolis of Kwara State. Descriptive research design was used for the study. The study population was comprised of all sixty-four (64) public and fifty-eight (58) private primary schools that fell within the three (3) local governments that form the study area. The stratified random technique was used to select twelve primary schools, and twenty (20) primary four pupils were randomly selected in each of the schools, yielding a total of two hundred and forty (240) respondents. A 20-item basic science test (*0.83*) was administered to primary-four pupils in the selected schools for the purpose of gathering data for the study. Three research questions and three null hypotheses were tested using the t-test. The findings revealed that the academic performance level of male and female pupils in basic science in public primary schools is low, while that of private primary schools in Ilorin metropolis is high. Based on the findings of the study, it was recommended that there should be adequate retraining programs for all the class teachers on improvisation of instructional materials and appropriate teaching strategies in basic science, and there is also the need to employ qualified science teachers for the teaching of only basic science in primary schools, as it is done in some subjects like religion, French, etc., for effective learning of the subject. Also, there should be adequate and proper monitoring of teachers and school administrators by relevant educational agencies for them to live up to their responsibilities, especially the science teachers.*

Keywords: Academic performance, basic science, public schools, and private schools

Introduction

The major objective of every teaching and learning activity is to bring about in children the desired development and acquisition of knowledge, skills, and values so as to make them functional members of society. For these objectives to be achieved, adequate consideration must be given to the implementation of the syllabus and curriculum. Therefore, when the curriculum is properly implemented in every school, there is likely to be positive development and changes in skills and behavior in pupils, thereby bringing about economic and technological development as well as improving the quality of life for individuals and the society at large. This is also implied in the learning of basic science as a school subject.

Basic science is one of the core subjects in basic 1–9 classes in Nigeria. The 9-year basic education program emphasizes value re-orientation, poverty eradication, and employment generation capacity in learners. In this program, all the subjects, including basic science, are

specifically designed to provide the learning experiences and skills needed for the socio-economic and technological transformation of Nigeria. Some of the objectives of teaching science in primary schools as contained in the revised edition of the Nigeria National Core Curriculum for primary school science are: for the child to be able to explain simple natural phenomena; to be able to observe and explore the environment; to develop self-confidence and self-reliance through problem-solving activities; also to apply the skills and knowledge gained in science to solve everyday problems; and to develop a functional knowledge of science concepts and principles, among others. This subject, which is considered to be the bedrock of the scientific and technological development of a nation, is often poorly taught and learned by pupils in primary schools. The persistently poor performance of students in basic science in recent public examinations such as Common Entrance raises concerns among stakeholders.

Alokan et al. (2013) observe that interest constitutes the major part of learning. Therefore, teachers should find a way of inculcating in pupils an interest in basic science so as to improve their performance, most importantly in basic science. Kuranga (2018) opined that pupils' interest in basic science can be developed through the use of appropriate teaching strategies, instructional materials, and learning environments, among others.

Science, as one of the primary school subjects, has over the years gained recognition in the national curriculum. In the last ten years, Nigeria has witnessed science curriculum innovations and several changes in the teaching of the content, most importantly at the primary level of education. The Science Teachers' Association of Nigeria (STAN) set some expectations for primary school science teachers in order for them to teach effectively. Some of these expectations include having a well-equipped laboratory, using appropriate teaching methods and instructional materials, attending regular in-service training, and regularly assessing pupils' work, among others. All these expectations, however, become problems in the classroom when teaching and learning science, especially in primary schools. Therefore, stakeholders in science education should make sure that teacher and pupils' needs are adequately catered for so as to excel in their educational pursuits, most importantly at the primary school level, which is referred to as the foundation level of education.

Across the world, government alone cannot provide the educational needs of its citizens; therefore, FRN (2013) encouraged the participation of private individuals, corporate organizations, and agencies in the establishment of private nursery and primary schools in Nigeria. Therefore, the establishment of a private primary school that has satisfied all the conditions for the establishment of private schools as stipulated by the Federal Republic of Nigeria is considered legal. Both public and private primary schools are bound by the same conditions as prescribed by the government and must be met by proprietors of private primary schools. Therefore, it is assumed that there should be little or no difference in the academic performance of pupils in basic science in both private and public primary schools.

There has been a rapid increase in the establishment of private educational institutions in Nigeria in recent time, especially nursery and primary schools, which many people viewed as a result of the liberalization policy of the federal government and, most importantly, for financial gain. Most parents are of the opinion that the standard of education in private schools is better than in public schools. This opinion was supported by the Federal Government of Nigeria, UNICEF, and UNESCO in 1977 when they monitored 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 those of their public counterparts.

Also, in the study carried out by Imam et al. (2016) comparing students' academic performance in public and privately managed schools in Lucknow, India. The results clearly indicate that there is a significant difference between the mean academic achievement scores of government and private school students. Results further revealed that the percentage performance trend of public schools was higher than that of private schools. In a related study carried out by William et al. (2016), they compared the academic performance of public and private primary school pupils in written English in Port Harcourt, Nigeria. The result of the study showed that the academic performance level of male and female pupils in written English in public primary schools in Port Harcourt metropolis is low. Adeyemi (2014) also compared students' academic performance in private and public schools in Osun State's Ilesa East and West Local Government Council Areas.The study covered three basic subjects, namely, English language, mathematics, and social studies. The result of the study showed that pupils in private primary schools perform better than their counterparts in public schools.

However, there seems to be no current empirical study to show the performance level of primary school pupils in basic science in both public and private primary schools in Kwara State, particularly in the Ilorin metropolis. Because there is a lack of evidence, the current study compares the performance level of primary school pupils in basic science between public and private primary schools in the Ilorin metropolis.

Statement of the Problem

In recent times, there has been serious concern about the poor academic performance of primary school pupils, particularly in basic science. This problem has been observed in both government and privately owned primary schools in Kwara State, despite the efforts of the government to encourage every citizen to study science. The need to popularize the study of sciences and produce an adequate number of scientists in order to inspire and support national development has always encouraged the government to promote and encourage every Nigerian child to be scientifically literate. This is evident in the National Policy on Education of the Federal Republic of Nigeria (FRN, 2013), which appreciates the role of science education in cultivating in children the skill of inquiry, knowledge, and a rational mind for the conduct of a good life and democracy, as well as the need to produce scientists for national development.

Despite the importance attached to science as a tool for national development, the performance level of primary school pupils seems to drop on a daily basis as many of them cannot give scientific meaning to some of the natural occurrences in their environment and have poor performance in science in the Common Entrance Examination. This has been so disturbing to members of academia and society. Some people are of the opinion that it is worse in public primary schools, while others believe that the performance level of science among primary school pupils is better in private schools. This disagreement necessitates some scholars to see the need for an empirical study such as this to find out the facts. To this end, this paper aimed to find out the level of academic performance of both public and private primary school pupils in basic science and the differences in academic performance between male and female pupils in public and private primary schools and compare the academic performance of pupils in public and private primary schools.

Research Hypotheses

1. There is no significant difference in the academic performance of male pupils in public and private primary schools in basic science.
2. There is no significant difference in the academic performance of female pupils in private and public primary schools.
3. There is no significant differences in the academic performance of both public and private primary school pupils in basic science.

Methodology

The research design used is a survey-type descriptive research design. The population for this study comprises all public and private primary school pupils in Ilorin Metropolis, Kwara State. The metropolis comprises three local government areas, namely, Ilorin East, Ilorin South, and Ilorin West, with sixty-four (64) public and fifty-eight (58) registered private primary schools. Meanwhile, twelve (12) primary schools, comprising six public and six private primary schools, were selected to cover the entire study area using the stratified random sampling technique. Twenty primary four pupils were chosen at random from each of the schools, yielding a total of two hundred and forty (240) respondents. The instrument for the study is the researcher designed twenty item performance test administered by researcher and research assistants selected from the sampled schools. The test items and the marking scheme were subjected to face validated by the primary science education experts from the Faculty of Education University of Ilorin. Also, most of the test items were drawn from the primary school common entrance examination past questions. The twenty items selected were administered to a group of pupils different from the sample to establish test retest reliability of the instrument and a value of 0.83 was established as the reliability index. The researcher sought the permission of the head teacher and the class teachers of the sample schools. The class teachers were asked to inform the pupils of the purpose of the proposed performance test two weeks before the test was conducted. The class teachers serving as research assistants in each of the selected schools were trained for the research activities. The scripts of respondents were collected and marked. The scores for the pupils on the test items were compiled and subjected to descriptive statistics (mean and standard deviation) while t-test was used to test the hypothesis making up the data used for the research.

Results

Research Question: *What is the level of primary school pupils' academic performance in both private and public schools in basic science in Ilorin Metropolis?*

In order to decide on the level of the pupils' academic performance, the total scores of each of the pupils were summed up to have a minimum of 59, a maximum of 79, and a range of 21. The range was divided into three categories (high, average, and low), and the cut-off was 7. Scores between 59 – 65, 66 – 72, and 73 – 79 are categorized as high, average, and low levels of performance, respectively. The result is presented in the table below:

Table 1: Summary of the level of pupils' academic performance in Basic Science.

Ranges	f	%	Remarks
59– 65	25	20.8	Low
66 – 72	57	47.5	Average
73 – 73	38	31.7	High

The above table revealed that 25 (20.8%) showed a low level of pupils' academic performance in basic science, 57 (47.5%) showed an average level of pupils' academic performance in basic science, and 38 (31.7%) showed a high level of pupils' academic performance in basic science. This revealed that the majority of the pupils' (47.5%) responses showed an average level of academic performance in basic science. This implies that primary school pupils in Ilorin Metropolis, Kwara State, have an average level of academic performance in basic science.

Research Hypothesis One

There is no significant difference in the academic performance of male pupils in public and private schools in basic science.

Table 1: Summary of t-test analysis on the difference between public and private primary schools' male pupils' Basic Science performance

School type	N	Mean	SD	Df	t-value	Sig.	Remark
Private	60	38.67	6.09				
				118	5.01	0.00	***Significant***
Public	60	36.67	4.40				

Table 1 shows that the t-value of 5.01 is significant at the 0.05 alpha level ($p < 0.05$). Hence, the stated null hypothesis is rejected. The table shows that the mean performance of male pupils in private schools (38.67) is greater than the mean performance of male pupils in public schools (36.67). It shows that male pupils from private and public primary schools differ significantly in their basic science performance.

Research Hypothesis Two

There is no significant difference in the academic performance of female pupils in public and private schools in basic science.

Table 2: Summary of t-test analysis on the difference between public and private primary schools' female pupils' Basic Science performance

School type	N	Mean	SD	Df	t-value	Sig.	Remark
Private	60	37.77	5.08	118	0.45	0.00	***Significant***
Public	60	37.59	5.74				

The result in Table 2 reveals that the t-value of 0.45 is significant at the 0.05 alpha level ($p < 0.05$). Hence, the null hypothesis is rejected. This showed that the mean performance of female pupils in private primary schools (37.77) was greater than the mean performance of female pupils in public primary schools (37.59). It means that female students in private and public primary schools perform significantly differently in Basic Science.

Research Hypothesis Three

There is no significant difference in the academic performance of both public and private primary school pupils in basic science.

Table 3: Summary of t-test analysis on private and public primary schools' performance in basic science.

School type	N	Mean	SD	Df	t-value	Sig.	Remark
Private	120	42.42	8.97	238	2.29	0.00	***Significant***
Public	120	41.01	7.64				

It was shown from Table 3 that the t-value of 2.29 is significant at the 0.05 alpha level ($p < 0.05$). Therefore, the null hypothesis is not accepted. It reveals that there is a significant difference between the performance of pupils in private and public primary schools in basic science.

Discussion of Findings

From the results presented above, it is obvious that there was a significant difference in the performance of male and female pupils in public and private primary schools. The result shows that pupils in the private primary schools performed better in basic science than their counterparts in the public schools. This supports the findings of Adeyemi (2014), who discovered that male and female pupils in private primary schools perform better than their counterparts in integrated science in public primary schools. The outcome of this study also agreed with the findings of Samuel (2017), whose work showed that students in private schools performed better than those in public schools in science subjects. This implies that school type has a significant influence on pupils' academic performance, especially in basic science. However, the result disagreed with the finding of Nwafor (2015), whose finding revealed that there is no significant difference in the academic performance of public and private schools in science. This finding could be due to chance.

This study's findings are consistent with those of Imam et al. (2016), who claimed that boys and girls in private schools outperformed their counterparts in government-run schools in all subjects. This could be attributed to a number of factors. Evidence showed that while both types of schools may be said to be similar in terms of quality of staff, provision of instructional materials, and absence of teachers' industrial action, the private school may be said to be better off in several other areas.

However, the private primary schools may be said to be better in some areas, such as frequent and thorough supervision, dynamic school administration, regular home assignments, mutual parent-school relationships, positive pupil-teacher interactions, the provision of adequate furniture, and the maintenance of the standard teacher-pupil ratio, among others, all of which stimulate effective learning in the children.

Conclusion

Based on the findings and results of this study, the researchers concluded that the academic performance level of male and female pupils in basic science in public primary schools is low, whereas it is high in private primary schools in Ilorin metropolis.Based on the results of this study, the researchers therefore conclude that male and female primary school pupils in private primary schools perform academically better in basic science than male and female pupils in public primary schools in the Ilorin metropolis.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. There is also the need to employ qualified science teachers for the teaching of only basic science in public primary schools, as is done in some subjects like religion, French, etc., for effective teaching and learning of science so as to be able to compete favorably with their counterparts in private schools.
2. There should be adequate and proper monitoring of public primary school teachers and school administrators by relevant educational agencies for them to live up to their responsibilities, especially the science teachers.

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