

## **Comparative Study of Students Academic Performance in Junior Secondary School Certificate Basic Science In Public And Private Secondary Schools In Ebonyi State Nigeria**

**C. E. NWAFOR**

*Department of Science Education, Ebonyi State University, Abakaliki.*

---

### **Abstract**

A comparative study of students' academic performance in Junior Secondary School Certificate Examination (JSSCE) Basic Science in Public and Private Schools in Ebonyi State Nigeria from 2009 -2010 was investigated. The ex-post factor comparative research design was employed in the study. The study covered the 3 education zones in Ebonyi State. A stratified random sampling technique was used to select 24 public and private junior secondary schools from urban and rural areas of Ebonyi State for the study. The result obtained showed that private schools in both urban and rural areas performed better than those in public schools. Similarly, male students in both private and public junior secondary schools outperformed their female counterparts. Majority 57.3% and 46.44% of the male students in private and public schools outperformed their female counterpart with 41.19% and 44.82%. It was recommended that students should be actively involved in the learning process and that the state government should provide opportunities for Basic Science teachers to attend seminars, and workshops to avail them the opportunity to facilitate science instruction in schools.

---

Date of Submission: 26-04-2019

Date of acceptance: 11-05-2019

---

### **I. INTRODUCTION**

Public secondary schools are supported and controlled by the government of the state. Adeyinka (2010) stated that public schools are those schools that were established, managed, financed, as well as supervised by the government. He further opined that those schools were established with the tax payer's money in order to educate the generality of the people irrespective of their economic, social or political status in the society. Public secondary schools are neither controlled by individuals, private interest groups, or agencies but by the government. After the creation of Nigeria, all the schools that were established were under the management and control of either the federal and state government. All subjects were taught at the schools. But after some years most public schools started suffering repercussion of neglecting the teaching of some subjects in public secondary schools, subjects like French, history, computer science among others. Mojeeb Alabi in National mirror of September 23rd 2012 opined that History as a subject seems to be receiving less attention; he attributed the problem to constant changes in government policy. He stated that Nigeria's educational policy is seriously unfriendly to local contents in the curriculum, this notwithstanding, lack of adequate funding, poor teachers salary among others adversely affect the teaching and learning in most public schools. As a result of this, private individuals, private groups and organizations started to establish, manage and finance private schools to educate children and also make profit. The owners and proprietors of those private schools are profit earners due to the fact that they invested their money in building the schools, providing all the necessary facilities and equipment, employment of qualified and competent teachers for the purpose of giving good education to the children and also making profits. These private schools include in their curriculum all the subjects especially those not done in public schools. Nwangwu (2000) stated that the private schools offer what the public schools cannot provide and that they relieve parents the burden of having their children stay at home for long periods of time as a result of continuous strikes by teachers in the public schools. He stated that private schools run without disruption in the schools calendar thereby providing steady and quality education unlike the public schools. Okpara (2000) observed that in NECO Examinations, the performances of students in private schools are better than the performance of students in public schools. He also stated that private schools are closely monitored and supervised by the school management boards, as a result; they perform better in external examinations. Basic science formally known as Integrated Science is a subject taught at both public and private schools at Junior Secondary School level. The main reason for teaching basic science is that it widens the knowledge of the students which enables them to appreciate the unity among science subjects. Furthermore, the recipients may gain the commonality of approach to solve problems of scientific nature (Bajah, 1993). According to the Science Teachers Association of Nigeria (1970) Nigeria Integrated Science, now Basic

Science should enable students to be able to:

1. Observe carefully and thoroughly
2. Report completely and accurately
3. Organize information acquired
4. Generalize on the basis of acquired information
5. Predict as a result of the generalization
6. Design experiments (including controls, where necessary to check the prediction).
7. Use models to explain phenomena, where appropriate and
8. Continue the process of inquiry when new data do not conform to predictions.

To achieve these objectives, it is suggested that the teaching and learning of Basic Science should involve the use of innovative methods in teaching; methods like discovery, problem-solving, open ended field trip and laboratory method among others.

Results from previous researchers showed that the teaching and learning of Basic Science in Nigeria in general and Ebonyi State in particular have not been encouraging, (Nwafor, 2008) present day statistics on the students' performance tend to show that the teaching and learning of Basic Science as a subject at the Junior Secondary School is inadequate. For example, Table 1 shows the performance of students in Abakaliki, Ebonyi State in (2009/2010).

**Table 1: Results of Basic Science (2009/2010) Abakaliki, Ebonyi State**

Year	Distinction	Credit	Pass	Failed	Total
2009	81	501	1,071	69	1,722
2010	50	553	1,059	82	1,744

Source: Examination Development Center, Abakaliki 2011

It can be seen from the above data that the performance of the students in Basic Science in Ebonyi State in particular is not encouraging. This state of affairs may be attributed to performance of students in to either private or public schools. The research therefore sought to compare the academic achievement of Basic Science Junior Secondary School students in private and public schools in Ebonyi State. Statement of Problem The importance of Basic Science as the basics to other science disciplines cannot be over stated. It lays the foundation to other science subjects. However, a look at the Junior School Certificate Examination (JSSCE) results of some schools in Ebonyi State reveals that students' performance in Basic Science shows unimpressive performance of students in Basic Science. There is also the tendency of some parents to prefer private schools to public schools for their children. The problem of this study therefore is: What must be done to bring about comparatively high academic performance in Junior Secondary Certificate Basic Science Examination in Public and Private Schools in Ebonyi State.

### **Purpose of the Study**

The main purpose of this study is to compare the levels of performance of public and private school students in Basic Science in Junior Secondary School Certificate Examination (JSSCE) in Ebonyi State of Nigeria for 2009 and 2010 school years. Specifically, the study would compare the:

1. performance of students in public and private secondary schools in urban areas in Basic Science Junior Secondary School Certificate Examination for 2009 and 2010 school years
2. performance of students in public and private secondary schools in rural areas in Basic Science Junior Secondary School Certificate Examination for 2009 and 2010 school years
3. performance of male and female students in public and private secondary schools in Basic Science Junior Secondary School Certificate Examination for 2009 and 2010 school years

### **Scope of the Study**

The study is limited to only the public and private secondary schools in Ebonyi state. It is meant to find out the academic performance of students in Junior Secondary School Certificate Examination (JSSCE) in Basic Science in public and private schools in Ebonyi state for 2009/2010 school years.

### **Research Questions**

The following research questions guided the study:

1. How does students' academic performance in Junior Secondary School Certificate Basic Science Examination in public secondary schools compare with that of students in private secondary schools in Ebonyi State?
2. How does students' academic performance in Junior Secondary School Certificate Basic Science Examination

in public secondary schools in urban areas compare with that of students in private secondary schools in urban areas in Ebonyi State?

3. How does students' academic performance in Junior Secondary School Certificate Basic Science Examination in public secondary schools in rural areas compare with that of student in private secondary schools in rural areas in Ebonyi State?

4. How does male and female students' academic performance in Junior Secondary Certificate Basic Science Examination in public secondary schools compare with that of male and female students' in private secondary schools in Ebonyi State?

### **Research Hypotheses**

The following null hypotheses have been formulated to guide the study. They were tested at 0.05 level of significance.

Ho<sub>1</sub> . There is no significant difference in the mean performance of students in Junior Secondary School Certificate Basic Science Examination in public and private secondary schools in urban areas in Ebonyi State from 2009 to 2010 academic year.

Ho<sub>2</sub>: There is no significant difference in the mean performance of male and female students in Junior Secondary School Certificate Basic Science Examination in public and private schools in Ebonyi State from 2009 to 2010 academic year.

Ho<sub>3</sub>: There is no significant difference in the mean performance of male and female students in Junior Secondary School Certificate Basic Science Examination in public and private secondary schools in Ebonyi State from 2009 to 2010 academic year.

### **Design of the Study**

The ex post facto/causal comparative research design was employed in the study. The research design is useful whenever two groups differ on independent variables of the groups and the hypothesis about differences on one or more dependent variables of the groups need to be tested. In this study the ex post facto design is deemed fit because the study attempted to test hypotheses on the performance of two groups which differ on characteristics such as ownership of schools, gender and school location.

### **Area of the Study**

The study covers Ebonyi state. Ebonyi state is made up of three (3) education zones namely Abakaliki, Onueke and Afikpo zones. Ebonyi state was created in 1996, the state inherited some schools from its parent states Enugu and Abia states.

However, there has been tremendous development in the educational sector of the state. New public and private schools have been established to meet the educational demand of its citizenry (1<sup>st</sup> Ebonyi State Education Summit, 2004). The researcher observed that there is unimpressive performance of students in Basic Science JSSCE in the area, the researcher therefore embarked on this study to find out whether there is actually any performance difference.

### **Population of the Study**

The population of the study consists of all the students that offered Basic Science in JSSCE from 2009 to 2010 academic sessions in Ebonyi State, there are 194 government approved public secondary schools and 45 government approved private secondary schools, giving a total of 239 registered secondary schools with the student population of about 394,065.

### **Sample and Sampling Technique**

A multi stage sampling technique involving stratified and systematic random sampling techniques were used for the study. The Junior Secondary Schools in the state were divided into four strata namely public urban, public rural, private urban and private rural schools.

Two (2) schools were selected from each strata giving rise to eight (8) schools from each education zone. These number selected gave a total of twenty four secondary schools in all the 3 education zones in Ebonyi state.

A total number of twenty three thousand (23,000) students were used from the population which served as a sample size for the study this is because the population is too large.

	<b>Abakaliki Education zone</b>	<b>Onueke Education Zone</b>	<b>Afikpo Education Zone</b>
Public Urban2	2	2	2
Public Rural	2	2	2
Private Urban	2	2	2
Private Rural			
<b>Total</b>	<b>8 School</b>	<b>8 School</b>	<b>8 School</b>
Total number of schools :	24 Secondary Schools		
Total number of students:	23,000 students		

**Instrument for Data Collection**

The instrument used for data collection was the students results in Basic Science Examination. Data was collected using a check list. This helped the researcher to extract comprehensive information on students' performance.

**Method of Data Collection**

Data used for the study were collected with the aid of checklist of students' results which indicated their performances in Basic Science in Various Junior Secondary Schools. This was gotten from Examination Development Centre (EDC) Abakaliki. The results of the eight (8) Junior Secondary Schools selected from the study area were collected. The eight (8) schools both private and public in urban and rural areas were selected in each of the 3 education zones in Ebonyi State namely; Abakaliki, Onueke and Afikpo zones. A total of twenty four (24) secondary schools were studied. The results of a total student population of twenty three thousand (23,000) who sat for Basic Science from 2009 to 2010 school years were compared to achieve the purpose of this study.

**Method of Data Analysis**

Descriptive statistics such as mean was used for research questions while t-test was used for the test of the stated hypothesis.

**Findings**

Performance of Students in Public and Private Secondary Schools in Urban Area: Data were collected on the performance of students in public and private secondary schools in urban areas from 2009 to 2010. The result obtained is shown in table 1 below.

**Table 1: Level of Students' Performance in JSSC Basic Science in Urban Public and Private Secondary Schools in Ebonyi State from 2009-2010**

<b>Grade</b>	<b>Urban Public</b>			<b>Urban Private</b>		
	<b>2009</b>	<b>2010</b>	<b>Mean</b>	<b>2009</b>	<b>2010</b>	<b>Mean</b>
D	10	18	14	40	34	37
C	30	22	26	20	26	23
P	40	32	36	34	32	33
F	20	28	24	6	8	7
<b>Total</b>	<b>100</b>	<b>100</b>		<b>100</b>	<b>100</b>	

Source: Field Survey, 2011  
 D - Distinction, C = Credit, P = Pass, F = Fail

**Table 2: Average Percentage Credit Pass in Urban Public and Private Schools**

<b>Subject</b>	<b>Percentage Credit Pass</b>	
	<b>Urban Public Schools</b>	<b>Urban Private Schools</b>
Basic Science	40%	60%

Source: Data Analysis, 2013

Table 1 and 2 showed that the performance of students in Basic Science in public secondary schools was lower than that of private secondary schools. The public secondary schools had 40% credit pass while those of private schools had 60%.

Performance of Students in Basic Science Examination in Public and Private Secondary Schools in Rural Areas in Ebonyi State: Data were collected on the performance of students in Basic Science in public and private secondary schools in rural areas, the result obtained is shown in Table 3 and 4.

**Table 3: Level of Students' Performance in JSSC Basic Science in Rural Public and Private Secondary Schools in Ebonyi State from 2 0 0 9 - 2 0 1 0**

Grade	Rural Public			Rural Private		
	2009	2010	Mean	2009	2010	Mean
D	5	7	0	15	21	18
C	30	28	29	40	34	37
P	25	23	24	20	20	20
F	40	42	41	25	25	25
Total	100	100		100	100	

Source: Field Survey, 2012

D = Distinction, C = Credit, P = Pass, F = Fail

**Table 4: Average Percentage Credit Pass in Rural Public and Private Schools**

Subject	Percentage Credit Pass	
	Rural Public Schools	Rural Private Schools
Basic Science	35%	55%

Source: Data Analysis, 2013

Performance of Students (Male and Female) in Junior Secondary School Basic Science in Private Secondary Schools in Ebonyi State: Data were collected on the performance of students in Basic Science in public and private secondary schools in rural areas from 2009 to 2010. The result obtained is shown in table 5 below.

**Table 5: Level of Male and Female Students' Performance in JSSC Basic Science in Private Secondary Schools in Ebonyi State from 2009 -2010**

Grade	Male Students in Private Schools			Female Students in Private Schools		
	2009	2010	Mean	2009	2010	Mean
D	20	22	21	18	20	19
C	37	35	36	23	21	22
P	36	38	37	49	47	48
F	7	5	6	10	12	11
Total	100	100		100	100	

Source: Field Survey, 2012

D = Distinction, C = Credit, P = Pass, F = Fail

**Table 6: Average Percentage Credit Pass among Male and Female Students in Private Junior Secondary Schools in Ebonyi State**

	Percentage Credit Pass	
	Male Students	Female Students
Basic Science	57.3%	41.19%

Source: Data Analysis, 2013

The result in Table 5 and 6 showed that majority (57.3%) of male students had credit pass in Basic Science in Private Secondary Schools while few (41.19%) of their fellow female counterparts obtained credit pass in Basic Science. This shows that male students performed better than female students in private secondary schools in Ebonyi State. Performance of Students (Male and Female) in JSSCE Basic Science in Public Secondary Schools in Ebonyi State: Data were collected on the performance of students in Basic Science in public and private secondary schools in rural areas from 2009 to 2010. The result obtained is shown in table 7 below.

**Table 7: Level of Male and Female Students' Performance in JSSC Basic Science in Public Secondary Schools in Ebonyi State from 2009 - 2010**

Grade	Male Students in Public Schools			Female Students in Public Schools		
	2009	2010	Mean	2009	2010	Mean
D	12	10	11	12	18	15
C	34	36	35	32	26	29
P	34	30	32	45	41	43
F	20	24	22	11	15	13
Total	100	100		100	100	

Source: Field Survey, 2012

D= Distinction, C - Credit, P = Pass, F = Fail

**Table 8: Average Percentage Credit Pass among Male and Female Students in Public Junior Secondary Schools in Ebonyi State**

Subject	Percentage Credit Pass	
	Male Students	Female Students
Basic Science	46.44%	44.82%

Source: Data Analysis, 2013

The result in Table 7 and 8 shows that male students in public Junior Secondary Schools performed better than female students. Majority (46.44%) of the male students had credit pass in Basic Science while only (44.82%) of the female students were able to obtain credit pass in Basic Science. Thus male students were higher with 1.62%.

**Test of Hypotheses**

**Table 9: t-Test between the Mean Performance of Students in Basic Science in Public and Private Junior Secondary Schools in Urban Areas in Ebonyi State**

School Type	X	SD	t-Cal	t-Critical
Rural Public Schools	34.92	3.69		
Rural Private Schools	31.93	3.75	30.54	3.92

Source: Field Survey, 2012

Decision Rule: if  $t\text{-cal} > t\text{-tab}$ , reject the null hypothesis otherwise accept. Since  $t\text{-cal} (30.54) > t\text{-tab} (3.92)$  at 5% level of significance, this implies that significant difference exists between the mean performance of students in public and private junior secondary schools in Basic Science.

**Table 10: t-Test between the Mean Performance of Students (Male and Female) in Basic Science in Public Junior Secondary Schools in Ebonyi State**

Gender	<i>X</i>	SD	t-Cal	t-Critical
Male Students	308	1.81		
Female Students	3022	1.79	31.42	3.92

Source: Field Survey, 2012

Since  $t\text{-cal} 51(31.42) > t\text{-tab} (3.92)$  at 5% level of significance, this implies significant difference exists between mean performance of male and female in Basic Science in public schools in Ebonyi State.

**Table 11: t-Test between the Mean Performance of Students (Male and Female) in Basic Science in Private Junior Secondary Schools in Ebonyi State**

School Type	<i>X</i>	SD	t-Cal	t-
Male Students	20.16	1.23		
Female Students	30.50	2.38	31.51	3.92

Source: Field Survey, 2012

Since  $t\text{-cal} (31.51) > t\text{-tab} (3.92)$  at 5% level of significance, the null hypothesis was rejected. This implies that there is significant difference between the mean performance of male and female Junior Secondary School students in Basic Science in Ebonyi State.

## II. DISCUSSION OF THE FINDINGS

The result of data analysis revealed that students in private Junior Secondary Schools in Ebonyi State performed better in Basic Science than their counterparts in public schools. A total credit pass of 60.0 and 40.0 percent respectively were obtained by students in private and public schools respectively. The overall result had indicated that private schools in Ebonyi state do better than public schools in terms of their student's performance in Basic Science. This result agrees with Afolabi (2005), that private schools spend substantial amount of money to provide instructional materials for teaching and learning processes hence they perform better than public schools. The finding also agrees with Robert (2009) that private schools allow for minimal bureaucracy in administration and more time in teaching and learning hence private school achieve good result than their public counterpart. The result obtained also revealed that students in private Junior Secondary schools in rural areas performed better in Basic Science than their public counterpart. The result obtained also revealed that students in private Junior Secondary schools in rural areas performed better in Basic Science than those in public junior secondary schools in rural areas this is because majority 55% had credit pass in private schools whereas few 35% had credit pass in rural public schools. Generally, students in rural areas had low performance when compared to those in urban schools. The low level of students performances in rural public schools might perhaps be attributed to what Omotoso (1992) described as poor staffing in schools. Frequent withdrawal of children from school, truancy, the study also agrees with Oke (1992), Adeyemi (1998) and Onipede (2003) that private schools in rural areas perform better. The result of the analysis had shown that male students in both public and private junior secondary schools in Ebonyi state outperformed their female counterparts. The result revealed a credit pass of 46.44% and 44.82% male and female students respectively. The result of this study is in line with those of Adhimabi and Heneveld (1995) who observed that male students outperformed the female students academically. However, result of this study disagrees with the study of Yahaya (2005) who opined that gender analysis of performance is not on biological differences.



### III. CONCLUSION

The study concludes that:

1. Students in private junior secondary schools in urban areas in Ebonyi state performed better in Basic Science Examinations than those in public Junior Secondary Schools from 2009 to 2010 school years
2. Students in private Junior Secondary Schools in rural areas performed better in Basic Science than those in rural Junior Secondary Schools from 2009 to 2010 school years.
3. Male students in private schools in Ebonyi State performed better in Basic Science than female students from 2009 to 2010 school years.
4. Male students in public Junior Secondary Schools in Ebonyi State performed better in Basic Science than their fellow female students from 2009 - 2010 school years.

### IV. RECOMMENDATION

Based on the findings of the study, the researcher recommends that:

1. The state government should provide opportunities for Basic Science teachers and Science teachers of other science subjects to attend seminars, service courses and workshops to avail them the opportunity of keeping abreast with effective and current methods of teaching Basic Science to facilitate science teaching in schools.
2. Qualified Integrated Science teachers with NCE, BSc (ed) must be employed to teach Basic Science in schools and not single science subject teachers.
3. The salary of science teachers should be enhanced and science allowances paid promptly to encourage and motivate them to work hard.
4. The use of internet and information communication technology (ICT) is strongly recommended for the teaching of Basic Science in Junior Secondary Schools.

### REFERENCES

- [1]. Adeyemi, T.O. (1998) School and Teacher Variables Associated with the Performance of Students in the Senior Secondary Certificate Examination in Ondo State, Nigeria. Unpublished Ph.D thesis. University of Hull, UK, Pp. 153-210.
- [2]. Adeyinka, C.O. (2010) "A comparative study of male and female students in Agriculture Science and Biology in Kwara State College of Education, Ilorin, Proceedings of the 2nd National Engineering Conference Federal Polytechnic, Offa, held between 13th - 15th July. P p 111 - 113 .
- [3]. Adlumabi, O. and Henered, W. (1995) Girls and Schools in Sub-Saharan Africa, Tornio, Nairobi. Pp 33 - 36.
- [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.
- [5]. Bajah, T.S. (1993) Teaching Integrated Science Creativity, Ibadan, Ibadan University Press.
- [6]. Nwafor, C.E. (2008). Effect of Jurisprudential Model of Instruction on the Achievement of Junior Secondary School Students in Integrated Science. Unpublished Ph.D.
- [7]. Thesis Ebonyi State University, Abakaliki.
- [8]. Nwangwu, C. (2000) Public Schools Loss Private Schools, Gain the Guardian Newspaper May 4, p 35.
- [9]. Oke, E.A. (1992) Raising the Standard of Performance in Public Examinations, Ibadan, paper presented at the WAEC Symposium on Raising the Standard of Performance in Public Examinations, University of Ibadan, April 2-5.
- [10]. Omotoso, D. (1992) How to make 3 - 3 Secondary school component of the new system of education work in Ondo State. Paper presented to the all Nigeria Conference of Principles of Secondary Schools Pp. 2 - 12.
- [11]. Onipele, H. (2003) National Development Hinges on Quality Education. The Comet p 21.
- [12]. Robert, K. (2009) Four reasons to teach in private schools. New York times company Forbes. Corn-best of web in education.

C. E. NWAFOR. " Comparative Study of Students Academic Performance in Junior Secondary School Certificate Basic Science In Public And Private Secondary Schools In Ebonyi State Nigeria". IOSR Journal of Humanities and Social Science (IOSR-JHSS). vol. 24 no. 05, 2019, pp. 64-71.