COMPARATIVE ANALYSIS OF STUDENTS' SCORES IN SOCIAL STUDIES AND INTEGRATED SCIENCE AT JUNIOR SECONDARY SCHOOL CERTIFICATE EXAMINATION IN EDU LOCAL GOVERNMENT AREA OF KWARA STATE, NIGERIA

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Abstract

The study compared the scores of students in Social Studies and Integrated Science at the Junior Secondary School Certificate Examination (JSSCE) in Edu Local Government Area (LGA) of Kwara State, Nigeria. The research design was correlational for which the t-test and one –way analysis of variance (ANOVA) were employed. The sample for the study consisted of all students who sat for the 2011, 2012 and 2013 JSSCE in six out of the eleven Junior Secondary Schools in the Local Government Area. The five schools were selected using the simple random sampling technique and all the 1,689 students who sat for the JSSCE in both subjects in the three years aforementioned were used for the study.The scores of students in both Social Studies and Integrated Science were obtained directly from the Junior Secondary School Certificate Examination result sheets from Principals of the selected schools. These were used as measures of academic performance. The data collected were analysed using the descriptive statistics, t-test and one way Analysis of Variance (ANOVA). The result revealed that there existed significant differences in the performances of male and female students in both Social Studies and Integrated Science in year 2011 with female students out performing their male counterparts however, there are no significant differences in male and female students' performance in the two subjects in years 2012 and 2013.The multiple comparisons revealed that the scores of students in Social Studies were significantly different between years 2011 and 2012, 2011 and 2013 as well as between 2012 and 2013. In

the same vein, the scores of students in Integrated Science for 2011and 2012 as well as 2011 and 2013 were found to be significant.

Keywords: Comparative Analysis, Social Studies, Integrated Science

Introduction

A significant aspect of the Nigerian National Policy on Education (1981) is the demarcation of the Junior Secondary School (JSS) Curriculuminto both academic and pre-vocational electives. The Academic (core) subjects include English, Mathematics, Nigerian Languages, Science, Social Studies, Music, Arts, Practical Agriculture, Religious and Moral Instructions, Physical Education and two Pre-vocational subjects. Science is however taught at the JSS level in an integrated form referred to as Integrated Science.

Social Studies and Integrated Science are therefore two core subjects taught at the JSS Level; the former is believed to be essential in laying a solid foundation for the teaching of subjects like Economics, Geography and History at the Senior Secondary School level and courses such as Anthropology, Philosophy, Political Science, Psychology and Sociology at higher institutions while the later provides foundations for the teaching of Biology, Chemistry and physics which are basic Science subjects taught at the Secondary School level in an integrated form.

From the above it is evident that Social Studies leads to the study of Art subjects while Integrated Science leads to the study of Science subjects at the Senior Secondary School level and beyond. The performance of Students in any of these two subjects at the JSS level could therefore influence their choice ofcareer. Literature in thefield revealedthat a number ofvariablesinteracttoinfluence academic performance. These variables include among others the way pupils perceive themselves (Self-concept),their socio-economic status and other environmental factors such as location of schools and opportunity or exposure to learn.The performances of students in Social Studies and Integrated Science could also be gender bias as there is a worldwide believe that boys are superior to girls in Science subjects while girls outperform boys in Arts.

The relationship between performances and gender has been investigated by many researchers, the most wider-ranging study probably being that of Comber and Keeves (1973) in Awoniyi (2001) who in their international studies in evaluation found that almost always the boys did better than girls in science subjects in the worldwide survey . Other studies including that of Kelly (1978) in Awoniyi (2001) have supported these general findings which also indicate a drift away from the

sciences in the middle year of Secondary Education as far as girls are concerned, together with a lowering of attainment compared with boys.

There have been a lot of researches on comparative studies of academic performance in various areas and subjects but that of Social Studies and Integrated Science have rarely been studied. It is against this background that the present study examined the relationship between students' scores in Social Studies and Integrated Science at JSS Level with a view of determining if there exist correlation between the scores of students in these two subjects as well as differences in the academic performance of boys and girls in the two subjects. The present study will compare the academic performance of students in Social Studies and Integrated Science at the Junior Secondary School level.

Statement of the Problem

Educators and researchers have expressed serious concern about the state of teaching and learning in schools all over the country. Social Studies and Integrated Science are not left out as these are often taught by non-specialist teachers. In most of the studies as seen in the literature review, quite a number of researches has been carried out on comparative studies on academic performance of students' scores but the relationship between students' scores in Social Studies and Integrated Science have rarely been considered. The focal point of this study therefore is to carry out a comparative analysis of students' scores in Social Studies and Integrated Science in Junior Secondary Schools in Edu Local Government area of Kwara State, Nigeria with particular reference to scores obtained by students in the two subjects for a period of three years (2011 to 2013).

Research Questions

The researchers sought answers to the following questions:

1. What are the academic performances of students in Social Studies and Integrated Science in years 2011, 2012 and 2013?
2. Are there significant differences in students' scores in Social Studies and Integrated Science in the three years studied?
3. Are there significant differences in the scores of male and female students in Social Studies and Integrated Science in the three years studied?

Hypothesis

HO1: There are no significant differences in students' scores in Social Studies and Integrated Science in the three years studied?

HO2: There are no significant differences in the scores of male and female students in Social Studies and Integrated Science in the three years studied?

Literature Review

In most of the studies as will be seen in the review of relevant literature, quite a number of researches has been carried out on comparative studies of academic performance, but the relationship between students' scores in Social Studies and Integrated Science have rarely been studied.

Hussain, Khan, Latif, Amin and Sibtain (2011) carried out a study to compare the academic achievement of science and arts students in compulsory subjects at the secondary school level with particular reference to male and female students. The sample for the study comprised of a total of sixty students. Thirty students each were randomly selected from boys and girls (15 science and 15 arts students from each group). Four null hypothesis regarding the cross check of achievement between science and arts male and female were tested.The mean, standard deviation and variance and the difference between mean (t-test statistics) was used for data analysis. The result revealed that the female science students showed significant better result than female arts. Male science students showed significant better result than male arts while female science and female arts students were significantly better than their male counterparts.

Adeyemi (2011) investigated students' academic performance in public examination in Secondary Schools in Ondo and Ekiti States, Nigeria. The research design was descriptive. The population was composed of all 281 Secondary Schools in Ondo State and the 171 Secondary Schools in Ekiti State. The stratified random sampling technique was used for the selection of 240 and 146 Secondary Schools from Ondo and Ekiti State respectively. The instrument for data collection was an inventory and the data collected were analysed using percentages, Chi-square test and the t-test. Result of the analysis revealed that the performance of students at both Junior Secondary Certificate (JSC) and Senior Secondary Certificate (SSC) examinations were low. There was no significant difference in the performance of students from the two States in JSC but there exist significant differences in their performance at SSC level.

Igwesi (2003) compared the academic achievement of students from monogamous and polygamous families in Offa, Kwara State. The research design used was causal-comparative. The sample for the study was made up of 200 Senior Secondary one (SS1) students (100 from monogamous and 100 from polygamous families) selected from four schools in Offa using the stratified simple random sampling technique. A format was used for collecting data on academic achievement of students and the data analysed

using t-test statistics. The result of the analysis showed that a significant difference exist between the academic achievement of student from monogamous homes and those from polygamous homes with students from monogamous homes achieving higher mean scores than their polygamous counterparts.

In a study conducted by Okafo and Egbon (2011), it was hypothesized that no difference exists between male and female performance in undergraduate accounting courses. The subjects used for the study were first year male and female accounting undergraduate students of the University of Benin, Nigeria who sat for Introductory Financial Accounting Courses namely, Introduction to Financial Accounting I & II in 2004/2005 to 2007/2008 academic session. The letter grades of A, B, C, D, E & F with a weight of five, four, three, two, one and zero respectively were used as measures of academic performance. The t-test statistics for the difference between two independent samples was adopted for the study. The study revealed that there is no significant difference between academic performance of male and female Accounting students in undergraduate accounting courses.

Ogundele (2012) compared students' academic performance in Mathematics and Principles of Account using scores obtained by students in the subjects in two academic sessions 2008/2009 and 2009/2010. The outcome of the study showed that the relationship between academic performance in Mathematics and Principles of Account was in significant.

Research Methodology

The purpose of this study was to compare the scores of students in Social Studies and Integrated Science at the Junior Secondary School Certificate Examination (JSSCE) in Edu Local Government Area (LGA) of Kwara State, Nigeria. The research design was correlational for which the t-test and one –way analysis of variance (ANOVA) were employed. The sample for the study consisted of all students who sat for the 2011, 2012 and 2013 JSSCE in six out of the eleven Junior Secondary Schools in Edu LGA of Kwara State. The five schools were selected using the simple random sampling technique and all the 1,689 students who sat for the JSSCE in both Social Studies and Integrated Science in the three years aforementioned. The sub-sample was made up of 524, 603 and 562 for years 2011, 2012 and 2013 respectively.

A format designed by the researches was used for the collection of scores of students in the two subjects. The scores of students in both Social Studies and Integrated Science were obtained directly from the Junior Secondary School Certificate Examination result sheets from Principals of the selected schools. These were used as measures of academic performance.

The letter grades of A, B, C, P and F were converted to numerical grade points of 5, 4, 3, 2, and 1 respectively. The interpretation of these are 5 – Distinction, 4 – Merit, 3 – Credit, 2 – Pass and 1- Fail.. The data collected were coded and analysed using the Statistical Packages for Social Sciences (SPSS). The descriptive statistics, t-test and one way Analysis of Variance (ANOVA) were used.

Results

The results of the analysis are discussed below:

Research Question one

What are the academic performances of students in Social Studies and Integrated Science in years 2011, 2012 and 2013?

Table 1 shows the performances of students in Social Studies and Integrated Science in years 2011, 2012 and 2013.

Table 1: Performance

		N	Mean	Std. Deviation	Remarks
Students Performance in Social Studies	Year 2011	464	2.3125	.76320	Pass
	Year 2012	603	3.0498	.64508	Credit
	Year 2013	561	3.9198	1.19328	Merit
	Total	1628	3.1394	1.10354	Credit
Students Performance in Integrated Science	Year 2011	521	2.2553	.59331	Pass
	Year 2012	552	3.0199	.82693	Credit
	Year 2013	561	2.9251	1.03411	Credit
	Total	1634	2.7436	.90706	Credit

From the table, it is evident that the mean performance in Social Studies in year 2011 was pass with a mean of 2.3125. The standard deviation of .76320 shows that students were homogeneous in their performance. In year 2012 the performance was credit (Mean =3.0493) and the students were homogeneous in their performance. Students performance in year 2013 was merit (Mean = 3.1394), the students were however heterogeneous in their performance with standard deviation of 1.19328. These results indicated that the performance of the students improved over the years. The over mean of 3.1394 for the three years shows that the performance of the students was credit and the students were heterogeneous in their performance.

In Integrated Science the performance of student in year 2011 was pass with a mean of 2.2553. The standard deviation of .59331 shows that students were homogeneous in their performance. In year 2012 the

performance was credit (Mean =3.0199) and the students were homogeneous in their performance. Students performance in year 2013 was credit (Mean = 3.1394), the students were however heterogeneous in their performance with standard deviation of 1.03411. These results indicated that the performance of the students in Integrated Science was more or less stable in years 2012 and 2013. The over mean of 2.7436 for the three years shows that the performance of the students was credit and the students were homogeneous in their performance with standard deviation of .90706.

Research Question two

Are there significant differences in students' scores in Social Studies and Integrated Science in the three years studied?

Tables 2 and 3 show the result of the one way Analysis of Variance (ANOVA).The ANOVA table below shows that there existed significant differences in the performance of students in Social Studies and Integrated Science in the three years studied

Table 2: ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Students Performance in Social Studies	Between Groups	663.763	2	331.881	409.315	.000
	Within Groups	1317.585	1625	.811		
	Total	1981.348	1627			
Students Performance in Integrated Science	Between Groups	184.873	2	92.437	130.117	.000
	Within Groups	1158.684	1631	.710		
	Total	1343.558	1633			

Table 3 shows the multiple comparisons of the Post Hoc Tests.

Table 3: Multiple Comparisons

Bonferroni

Dependent Variable	(I) Year	(J) Year	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Students Performance in Social Studies	Year 2011	Year 2012	-.73725*	.05561	.000	-.8705	-.6040
		Year 2013	-1.60729*	.05650	.000	-1.7427	-1.4719
	Year 2012	Year 2011	.73725*	.05561	.000	.6040	.8705
		Year 2013	-.87003*	.05282	.000	-.9966	-.7435
	Year 2013	Year 2011	1.60729*	.05650	.000	1.4719	1.7427
		Year 2012	.87003*	.05282	.000	.7435	.9966
Students Performance in	Year 2011	Year 2012	-.76465*	.05148	.000	-.8880	-.6413

Integrated Science		Year 2013	-.66986*	.05128	.000	-.7928	-.5470
	Year 2012	Year 2011	.76465*	.05148	.000	.6413	.8880
		Year 2013	.09479	.05053	.183	-.0263	.2159
	Year 2013	Year 2011	.66986*	.05128	.000	.5470	.7928
		Year 2012	-.09479	.05053	.183	-.2159	.0263

*. The mean difference is significant at the 0.05 level.

The multiple comparisons table revealed that the scores of students in Social Studies were significantly different between years 2011 and 2012, 2011 and 2013 as well as between 2012 and 2013. In the same vein, the scores of students in Integrated Science for 2011and 2012 as well as 2011 and 2013 were found to be significant; however there was no significant difference in the performance of students in Integrated Science between years 2012 and 2013.

Research Question Three

Are there significant differences in the scores of male and female students in Social Studies and Integrated Science in the three years studied?

Tables 4 and 5 Show the result of the independent sample t-test for the differences in the performance of male and female students in Social Studies and Integrated Science in years 2011, 2012 and 2013. Table 4 shows the descriptive statistics.

Table 4: Performance based on Gender

		2011		**2012**		**2013**	
	Gender	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**
Students Performance in Social Studies	Male	2.1971	.53537	3.0433	.62999	3.9103	1.19879
	Female	2.6471	1.13934	3.0763	.70598	3.9615	1.17352
Students Performance in Integrated Science	Male	2.2191	.51231	3.0115	.80263	2.9322	1.05016
	Female	2.3710	.79088	3.0508	.91378	2.8942	.96460

From the mean scores on Table 4, the female students performed better in Social Studies than their male counterparts in the three years studied. Females also performed better in Integrated Science than the male students in years 2011 and 2012 while males outperformed their female counterparts in Integrated Science in year 2013.This finding is in disagreement with the other studies includingthat of Kelly (1978) in Awoniyi (2001) who indicated that girls tended to drift away from sciences in the middle year of Secondary Education with a lowering attainment compared with boys.

Table 5: Independent Samples Test

		2011		2012		2013	
		F	**Sig.**	**F**	**Sig.**	**F**	**Sig.**
Students Performance in Social Studies	Equal variances assumed Equal variances not assumed	117.962	.000	1.687	.194	.548	.460
Students Performance in Integrated Science	Equal variances assumed Equal variances not assumed	25.337	.000	3.818	.051	1.040	.308

From Table 5, the F values of 117.962 and 25.337 for year 2011 for the differences between male and female students were found to be significant an indication that there existed significant differences in the performances of male and female students in both Social Studies and Integrated Science in year 2011. The table also revealed that there are no significant differences in male and female students' performance in the two subjects in years 2012 and 2013.

Conclusion

From the result obtained from the study it is evident that students' performance in Social Studies was slightly better than that of Integrated Science.The multiple comparisons revealed that the scores of students in Social Studies were significantly different between years 2011 and 2012, 2011 and 2013 as well as between 2012 and 2013. In the same vein, the scores of students in Integrated Science for 2011and 2012 as well as 2011 and 2013 were found to be significant; however there was no significant difference in the performance of students in Integrated Science between years 2012 and 2013.There existed significant differences in the performances of male and female students in both Social Studies and Integrated Science in year 2011 with female students out performing their male counterparts however, there are no significant differences in male and female students' performance in the two subjects in years 2012 and 2013.

In view of the students' performance both Social Studies and Integrated Science which were credits (average), it was recommended that the teaching of both subjects which serves as basis for any career be improved, this could be achieved through the use teachers who are specialists in the subjects.

References:

Adeyemi, T. O. (2010). A Comparative Study of Students' Academic Performance in PublicExaminations in Secondary Schools in Ondo and Ekiti State, Nigeria.Current Research Journal of Economic Theory. 3(2), 36-42

Awoniyi, S. A. (2001)**.** Influence of Sex and Sex Composition of Schools on Secondary School Students' Achievement in Biology in Kwara State.*Nigerian Journal of Gender and Development.2 (2), 220-225*

Hussain, L., Khan, A. N., Latif. M., Amin, I &Sibtain, M (2011).Comparative Study of Academic Achievement of Science and Arts Students in Compulsory Subjects at Secondary School Level. *Interdisciplinary Journal of Contemporary Research in Business*. 2 (12), 752

Igwesi, B. N. (2003). Comparative Study of the Academic Achievement of Students fromMonogamous and Polygamous Families in Offa, Kwara State. A Thesis Submitted to the Department of Educational Foundation, University of Ilorin, Nigeria

Nigerian National Policy on Education (1981). Federal Republic of Nigeria

Ogundele (2012).Comparative study of students' Academic Performance between Mathematics and Principles of Accounts in Secondary Schools in Asa Local Government Area of Kwara State.*Lafiagi Journal of Education Science and Technology* 6(1), 151-157

Okafo, C. A. &Egbon, O. (2011). Academic performance of Male versus Female Accounting Undergraduate Students: Evidence from Nigeria. Higher Education Studies 1 (1). Retrieved 27 November, 2013 from www.ccsenet.org/hes.