

Effect of ICT on Secondary School Students' Academic Performance in Christian Religious Studies in Oshimili North Local Government Area

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Abstract

The study examined the effect of Information Communication Technology on secondary school students' academic performance in Christian Religious Studies in Oshimili North Local Government Area. A quasi experimental pre-test, post-test control group design was adopted for the study using intact class. Two research questions were raised and two hypotheses tested at 0.05 level of significance. The population of the study comprised 1,483 students from 14 public secondary schools in Oshimili North Local Government Area of Delta State. The sample comprised 73, SS2 students selected from two out of the 14 public secondary schools in Oshimili North Local Government Area, using intact class. The instrument used for data collection was Christian Religious Studies Achievement Test (CRSAT) and the data were analyzed using mean for the research questions, and t-test for the hypotheses. The results showed that students who were taught with ICT had better academic performance on CRS and that the gender has no significant effect in the academic performance of students who were taught CRS with ICT instructional package. Based on the findings, it was recommended among other things that Christian Religious Studies' teachers should use ICT for teaching CRS in secondary schools.

Introduction

Information and Communication Technology (ICT) has become an important part of most educational organizations all over the world. There is no doubt that Information and Communication Technology (ICT) provides productive teaching and learning in order to increase learners' creative and intellectual resources especially in today's information society. Jones (2010) has it that technology travels with people. Information and Communication Technology (ICT) can be defined as a diverse set of electronic technologies and technological tools and resources used to communicate, create, store, disseminate and manage information. Ubaru (2005) sees it as the combination of technologies for collecting, storing, processing, communicating and delivering information. Information Communication Technology is regarded as an engine for growth and tool for empowerment with profound implications for education, change and socio-economic development. Information Communication Technology such as videos, televisions, multimedia and computer software which combines text, sound, and colorful moving images can be used to provide challenging and authentic content that will engage the students in the learning process (Akude & Ajuzie, 2011).

Researches done by Adamu (2007), Ibrahim (2009) and Ikwuka (2013) explain that instructional materials are things or devices which in themselves have educational value used to facilitate teaching and learning and culminate in the achievement of educational goals and objectives. This might explain why the National Policy on Education (NPE, 2013) stated that all schools should be properly equipped with instructional materials for teaching to be very effective.

Christian Religious Studies is the subject that embraces morals, virtues, norms and mutual fellowship with people in the society. It can be called the subject of humanity. It also promotes godly relationship with God and man. It has been one of the subjects that try to foster peace and unity among diverse cultures in the society as well as enhance growth and development in general. Under the educational curriculum, Christian Religious Studies is a core subject for all art students at the senior secondary school level (NPE, 2013). It is a compulsory subject for students who wish to study humanity at the Senior School Certificate Examination (SSCE). In trying to emphasize the importance of Christian Religious Studies, Okon (2010) said that it is used to regulate the behavioral activities in the society as to what is good and godly, which the society uses to foster peace and maintain law and order as well. As a result of the importance attached to the subject, teachers make conscious effort using relevant teaching strategies to teach the subject. But their efforts are not encouraged due to the poor performance of students in Christian Religious Studies in WAEC and NECO examinations. Thus, there is the need to try some other ways of teaching Christian Religious Studies in secondary schools, hence, the introduction of ICT.

Information and communication technology is a term that means different things to different people. Wertlen (2014) defines ICT as a general term that describes any technology that helps to produce, manipulate, store, communicate, and or disseminate information. Teaching with ICT have been reported yielding positive results by the way of improving academic performance nearly in all subject areas; and Christian Religious Studies will not be left out. It is also widely acknowledged that Information and Communication Technology (ICT) can be used to improve the quality of teaching and learning at all levels of education. In fact, ICTs are becoming natural part of man's daily life; thus their use in education by teachers and students is becoming a necessity.

Presently in Nigeria, Christian Religious Studies teachers at secondary school level still retain the old conservative teaching approach, with the teacher acting as the repertoire of knowledge and the students, the dominant recipients. Traditionally, educational practices no longer provide students with all the necessary skills to survive economically in today's workplace. The use of ICT tools in teaching Christian Religious Studies will enable the creation of new and effective learning environment which may quicken the pace of learning by students. Proper teaching and learning with ICT in our secondary school will invigorate the secondary schools' educational process and hold the promise of excitement for the students. Nwokenna (2007) states that ICT can help students understand other curricula by helping them to think in new ways and thus improve intellectual power. Nowadays, schools or learning institutions provide computer and information technology as the learning materials to gain knowledge and experience. Students now have more understanding during teaching process. Besides, teachers can attract the students' interest in learning process and they understand more if they learn by using something that will attract their interest (Lubis, Embi, Yunus, & Wekke, 2009). Therefore, by implementing ICT technologies in Christian Religious Studies' teaching process, it can improve the students' interest and also creative thinking; ICT plays some important roles in Christian Religious Studies which are to assist teachers in teaching, provide them with tools to illustrate some points or processes as well as to enable the students to learn effectively. Despite the new approach to teaching and learning at the senior secondary school level in Nigeria, the Christian Religious Studies has witnessed poor academic performance. Annual result from West African Examination Council (WAEC) reveals poor performance of students who sat for Christian Religious Studies Examination, as shown in Table 1

TABLE 1: ENROLMENT OF STUDENTS AND PERFORMANCE IN CRS IN WAEC/SSCE IN NIGERIA BETWEEN 2012- 2014

YEAR	NO. Of Candidates Enrolled	TOTAL NUMBER OF PASSES TO GRADES								
		A1	B2	B3	C4	C5	C6	D7	E8	F9
2012	354729	41	98	143	745	701	5765	44431	21973	217536
%	93.00	0.1	0.2	0.8	1.3	1.2	8.9	12.4	21.3	59.3
2013	476392	21	142	587	614	1233	2214	48138	94387	188456
%	97.00	6.0	6.6	1.4	1.7	7.5	12.1	35.8	41.1	63.7
2014	546175	7	108	97	121	567	713	433491	22195	14399
%	98.9	0.0	0.7	0.5	0.8	1.3	2.9	13.1	41.3	51.7

Source: West Africa Examination Council, Asaba, Delta State (August, 2015)

The result of Delta State WASSCE for three consecutive years from 2012 to 2014 as shown in table 1 proved that a lot of students performed rather poorly in Christian Religious Studies at the Senior School Certificate Examination (SSCE). This has posed many challenges to teachers as people have leveled accusation ranging from poor teaching method of Christian Religious Studies to so many other similar accusations, all pointing to teachers not doing their work properly (Ikwuka, 2013). Sometimes, students blame the government for neglecting the educational sector. These accusations brought from different angles do not offer any solution for improving the situation.

Lack of use of ICT, poor teaching method and lack of competent teachers to teach the subject is reported as problem leading to poor performance in CRS. Also, lack of practical activities and constant use of the conventional (traditional) method are some of the factors contributing to poor academic achievement of students in CRS. To make learning more meaningful, teachers should select suitable teaching strategies and provide instructional materials as well as adopt the teaching methods that make use of students’ previous knowledge and transfer such knowledge to the publicly accepted one (Ikwuka, 2010). Therefore, the problem of this study is to examine the effect of Information and Communication Technology on secondary school students’ academic performance in Christian Religious Studies in Oshimili North Local Government Area of Delta State.

Statement of the Problem

The use of Information Communication Technology in education and training, teaching and instructional delivery has been a priority in most African countries during the last few years, but much progress has not been made. A small percentage of schools in some countries have embedded ICT into the curriculum, and demonstrated high levels of effective and appropriate ICT use to support

and transform teaching and learning across a wide range of subject areas. While many secondary school teachers are making use of ICT to improve their teaching; many still lack awareness about the available ICT tools suitable for instructional delivery. This is particularly true of the secondary school (CRS) teachers in Nigeria generally, and in Oshimili North Local Government Area of Delta State, in particular, who most of the times adopt conventional method as a way of teaching Christian Religious Studies.

Christian Religious Studies though interesting and popular amongst students, is still very sad to note that students still perform poorly in WAEC as presented in analysis of CRS in WAEC result from 2012 to 2014. The poor academic achievement of students, particularly in Christian Religious Studies has been a matter of great concern to many educators and may be attributed to the abstract nature of the subject as a result of repetition involved, poor teaching methods, and lack of adequate instructional materials. For the teaching of Christian Religious Studies to be effective, teachers as well as students should embrace the technological development of ICT to concretize teaching and learning of Christian Religious Studies to physical feeling, seeing and touching, thereby having personal experience of the subject.

To meet up with the present educational technological challenges, it is therefore imperative that teachers and students rise to these challenges. It is also on this light that the study focused attention on the effect of Information and Communication Technology on secondary school students' academic performance in Christian Religious Studies.

Purpose of the Study

The main purpose of this study was to investigate the effect of ICT on secondary school students' academic performance in Christian Religious Studies in Oshimili North Local Government Area of Delta State.

Specifically, the purpose of this study was to:

1. Investigate the effect of ICT on the academic performance of secondary school students in Christian Religious Studies.
2. Investigate the effect of ICT on the academic performance of male and female students in Christian Religious Studies.

Research Questions

The study specifically sought answers to the following questions:

1. Is there any difference in the academic performance of SS2 students who were taught CRS using ICT and those taught with conventional method?
2. Is there any difference in the academic performance of SS2 male and female students taught CRS with ICT?

Hypotheses

Based on the research questions, the following hypotheses were formulated and tested at 0.05 level of significance.

1. There is no significant difference in the academic performance of students who were taught CRS with ICT and those taught with conventional method.
2. There is no significant difference in the academic performance of male and female students who were taught CRS with ICT.

Method

The study adopted quasi-experimental pre-test, post-test, control group design in determining the effect of ICT on students’ academic performance in Christian Religious Studies. The study adopted the use of intact class. The population of the study comprised of 1,483 SS2 students from 14 public secondary schools in Oshimili North Local Government Area of Delta State. The sample for the study was 73 SS2 students selected from two out of the 14 public secondary schools in Oshimili North Local Government Area. Simple random sampling technique was used to select the two schools from which the two intact classes were selected. The two intact classes comprised one experimental group of 35 students and one control group of 38 students, making it 73 students which is the sample for the study.

The two intact classes were first pre-tested to determine their academic equivalence before they were taught and post-tested. The instrument used for data collection was the Christian Religious Studies Achievement Test (CRSAT), which was made up of 20 multiple choice questions. The questions were drawn from the four Christian Religious Studies topics, which include: Creation, God and mankind, Life of Jesus Christ and Christians relationships. The instrument Christian Religious Studies Achievement Test (CRSAT) and the treatment, ICT instructional package were validated by one Christian Religious Studies expert, one Educational Technology expert and one Measurement and Evaluation expert. The reliability of the instrument was determined using test-retest method, and the reliability coefficient of 0.82 was obtained using Pearson Product Moment Reliability Coefficient formula. The study covered a period of six weeks using normal school time table period allotted to CRS. The first week was used for pre-testing the two groups to ascertain the students’ entry behaviour before instruction began. The two groups were taught four periods of 40 minutes lesson by the two trained research assistants using lesson plan prepared by the researcher, and this lasted for four weeks. The experimental group was taught with ICT instructional package, while the control group was taught using conventional method of teaching. One week was used for revision, and the items used for the pre-test were rearranged and used for the post-test. The data obtained from the pre-test and post-test of the two groups were analyzed using means and standard deviation to answer the research questions, and t-test to test the hypotheses at 0.05 level of significance.

Results

Pre-test performance of experimental and control groups

Table 2: Mean and standard deviation scores of the academic performance of SS2 students in Christian Religious Studies for experimental and control groups.

Group	N	\bar{X}	SD
Experimental	35	13.14	2.28
Control	38	12.68	2.40

Table 2 shows the mean scores of 13.14 and 12.68 for the experimental and control groups and their standard deviation scores were 2.28 and 2.40 respectively for the pre-test. The pre-test was conducted to ascertain the academic equivalence of the experimental and control groups in Christian Religious Studies before the teaching commenced. This result showed

that the students in the two groups were equivalent in terms of their previous knowledge of the subject (Christian Religious Studies).

Research Question 1

Is there any difference in the academic performance of SS2 students who were taught CRS using ICT and those taught with conventional method?

Table 3: Mean and standard deviation scores of academic performance of SS2 students in Christian Religious Studies for experimental and control groups (Post-test).

Group	N	\bar{X}	SD
Experimental	35	16.20	1.89
Control	38	14.79	2.40

Table 3 shows the mean scores of 16.20 and 14.79 for experimental and control groups for post – test. The results indicated a higher mean score for experimental group than control group. The standard deviation score of 1.89 for experimental group was less than 2.40 for the control group; this shows a better rate of dispersion of the experimental group than the control group.

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Research Question 2

Is there any difference in the academic performance of SS2 male and female students taught CRS with ICT?

Table 4: Academic performance of SS2 male and female students in Christian Religious Studies for experimental group.

Gender	N	Pre-test \bar{X}	Post-test \bar{X}	Gain in Scores
Male	15	14.00	16.53	2.53
Female	20	12.50	15.95	3.45

Table 4 shows the mean scores of 14.00 and 12.50 for the male and female students in the experimental group for pre-test, and 16.53 and 15.95 for male and female students in the post-test. The mean gain in score shows 2.53 and 3.45 for the male and female students respectively, showing that both male and female students performed relatively better in Christian Religious Studies when taught with ICT instructional package. Hence, gender has no effect on the performance of male and female students who were taught CRS with ICT.

Hypothesis (Ho₁)

There is no significant difference in the academic performance of SS2 students who were taught CRS with ICT and those taught with conventional method.

Table 5: t-test comparison of the academic performance of SS2 students who were taught Christian Religious Studies with ICT and those taught with conventional method.

Source of Variation	N	\bar{X}	SD	Df	t-Cal	t-Crit	P>0.05
Experimental Group	35	16.20	1.89				
Control Group	38	14.79	2.40	71	3.14	1.93	Reject

Table 5 shows that the calculated t-value of 3.14 is greater than the critical t-value of 1.93 at 0.05 significant level, so, hypothesis 1 was rejected. Thus, there is a significant difference in the academic performance of SS2 students who were taught Christian Religious Studies with ICT instructional package with mean scores of 16.20 and those taught with conventional method with mean scores of 14.79. Those who were taught CRS with ICT performed better than those taught with conventional method.

Hypothesis (Ho₂)

There is no significant difference in the academic performance of SS2 male and female students who were taught Christian Religious Studies with ICT instructional package.

Table 6: t-test comparison of academic performance of SS2 male and female students who were taught Christian Religious Studies ICT.

Source of Variation	N	\bar{X}	SD	Df	t-Cal	t-Crit	P>0.05
Male	15	16.53	3.46				
Female	20	15.95	1.33	33	0.59	2.33	Not Rejected

Table 6 shows that the calculated t-value of 0.59 for male and female students of experimental group was less than the critical t-value of 2.33 at 0.05 significant level. So, hypothesis 2 is not rejected. Thus, there is no significant difference in the academic performance of SS2 male students with mean scores of 16.53 and female students with mean scores of 15.95 who were taught CRS with ICT. This means that gender has no effect on the experimental group who were taught CRS with ICT instructional package.

Discussion

The results of the study showed that students who were taught with ICT achieved better academic performance than those taught without it. The t-test analysis in table 5 showed better academic performance by the experimental group because of the use of ICT instructional package in teaching CRS. From the above result, it is clear that the use of ICT instructional package has enhanced the teaching and learning of Christian Religious Studies among senior secondary school students resulting in higher achievement gains by the learners. The findings of this study is in agreement with the assertion made by Miciano (2005), that the use of instructional materials in teaching Mathematics improved the academic performance of students in the subject.

The result of the study further showed that the male and female students who were taught with ICT achieved better academic performance in Christian Religious Studies. The calculated t-value in table 6 showed better academic performance in CRS for male and female students of the experimental group. This implied that there is no significant difference in the academic performance of male and female students who were taught CRS with ICT.

This means that gender has no effect on the performance of students in Christian Religious Studies when they are taught with ICT instructional package. This result is in agreement with the findings of Inyang and Ekpei (2007), which said that on the basis of gender, there was higher level of performance of the mixed grouping than male and female groups. Thus, they emphasized more on mixed grouping. This result however disagreed with the work of Niem (2000) who found out that the learning ability of boys in goal performance were more than the girls.

Conclusion

Based on the findings of the study, it was concluded that students who were taught using information and communication technology (ICT) instructional package performed better in CRS than the students taught without it. Also, male and female students who were taught using ICT performed better in CRS. Hence, the use of Information and Communication Technology instructional package helped to enhance the academic performance of students in Christian Religious Studies.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Government should be interested in providing funds to secondary schools to enable Christian Religious Studies' teachers provide Information and Communication Technology (ICT) tools for teaching CRS.
2. CRS teachers should try to use ICT materials in the teaching and learning of Christian Religious Studies in secondary schools, in order to encourage male and female students to always participate fully in the learning of CRS
3. School administrators should encourage CRS teachers to use relevant ICT materials in teaching of CRS lessons.
4. Christian Religious Studies' teachers should encourage both male and female students to always participate fully in the learning of CRS.

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