EFFECTS OF COMPUTER ASSISTED INSTRUCTIONAL PACKAGE ON THE PERFORMANCE OF SENIOR SECONDARY SCHOOL STUDENTS IN HISTORY

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Abstract

This study investigated the Effects of a Computer Assisted Instructional (CAI) package on the performance of Secondary School Students in History. The design adopted for the study was the pretest-posttest experimental control group design. 120 students from senior secondary class one (SSI) were randomly selected from six secondary schools in Niger State. The instrument for data collection was the History Achievement Test (HAT). The data were analysed using the t-test statistics. Two hypotheses were formulated and tested at 0.05 level of significance. From the analysis the following findings were reached; (i) the use of CAI package significantly improved students' performance in history, as the mean scores of the experimental group on posttest was more than that of pretest scores (t=13.83, df= 118, p<0.05). (ii) There was no gender difference in the performance of students that were exposed to the CAI package (t=0.34, df=58, p<0.05). Based on these findings, it was recommended that, the use of computers for teaching history at Senior Secondary Schools should be encouraged.

Introduction

History is a discipline that studies the chronological record of events as it affects a nation or people based on a critical examination of source materials and usually presenting an explanation of their causes. Encyclopedia Britannica (2010). History is a subject that develops peoples interest in the past by allowing students to appreciate human achievements and aspirations. It is also a subject that teaches students about the major issues and events in the history of their own country as well as the world at large (Osokoya 2007). Also, it teaches us how these events have influenced each other. Therefore for any nation to develop a sound basis of solving its present societal problems and issues, the study of history is necessary because it provides information on how similar issues and problems had been resolved in the past. History also establishes how issues and problems of the past have been different from the present ones. As a discipline, history contributes immensely to personal and social education of the people. It develops in the students attitudes and values necessary for tolerating a wide range of opinions needed in unifying a nation with diverse socio-cultural, political and religious differences such as Nigeria (Okai, 2010 & Osokoya 2006).

Richard (2010) stated that the major aim of teaching history is to promote understanding of the concepts which foster peace, patriotism and stability in the country. By its

nature, history tells us more than just about the past, as it argues for an ideology or a world view, which involves explanation and the study of the interconnections between events. The study and writing of history involve evidences from available data which can be gathered orally, written or through archeological excavation (Okai 2010). History as a subject remains very important in the educational system of any country, and Nigeria in particular. The National Policy on Education (2004) has placed history in group A among the core subjects to be offered at Senior Secondary School. This is with a view to achieving the goals of fostering National Unity with emphasis on the common ties that unite Nigerians in their diversity. And also to raise a general of people who can think for themselves, respect the views and feelings of others, respect the dignity of labour and live as good citizens. It was stated by Richard and Ugbe (2010) that lack of the knowledge of history would generate a feeling of chaos and insecurity, a development which would create a dilemma and crisis in the life of any society.

Gender has been identified as one of the factors influencing students academic achievement, yet no consistent result has emerged. Some researchers (Ash, 2005; Basturk, 2005; & Gambari, 2010) reported that gender has no significant influence on achievement.

Contrarily, Fagbemi (2004), and Osokoya (2007), reported otherwise. The non-conclusive researches on the influence of gender on students' performance sustains the curiousity of the researcher and make it necessary to understand how achievement may be influenced by gender and Computer Instructional Packages.

Statement of the Problem

Richard (2010) maintained that, despite the relevance of history to man, society and national development, the teaching and learning of history has become increasingly deplorable in Nigeria. Osokoya (2007), asserted that the subject has been replaced by social studies in Junior Secondary School, and at the Senior Secondary School level (SSI – SSIII) where it is taught, statistics have consistently shown low enrolment of students in history. Also the few students that enrolled in the subject over the years have demonstrated poor performance in the West African Examinations Council (WAEC) and National Examinations Council (NECO), Senior Secondary School Examinations, (Osokoya 2007, Richard and Ugbe 2010 and Richard 2010).

Table I gives the statistics of students enrolment and performance in history at the West African School Certificate Examination between 2004 – 2009.

Table I: Students enrolment and performance in WAEC/SSCE examinations in Niger State from 2004 - 2009

S/No	Year	Total Enrolment WAEC	History Total Enrolment	History Percentage	Credit A1– C6	Credit A1 - C6 Percent	Fail No. Percent (F9)
1	2004	61273	53615	87.50%	22363	41.71%	19347 36.08%
2	2005	64465	57335	88.94%	17188	29.98%	24680 43.05%
3	2006	63276	55718	88.05%	17445	31.30%	22980 41.24%
4	2007	65077	57543	88.42%	9055	15.73%	23044 40.04%
5	2008	11772	7052	59.90%	1075	15.24%	2447 34.70%
6	2009	63433	55127	86.91%	7390	13.41%	25594 46.43%

Source: WACE Office, Niger State 2011

From the above table it is clear that between 2004 – 2009, the percentage of candidates with Credit level (A1 – C6) in History is below 50%. While in 2004 only 41.71% obtained a Credit, in 2005 29.98%, in 2007 15.73%, in 2008 15.24% and in 2009 only 13.41% scored a Credit Pass.

Many reasons have been advanced for poor performance and low enrolment of students in history (Evuti, 2005; Nakaka, 2006; Osokoya, 2007; & Richard and Ugbe, 2010). It was observed by Richard (2010) that the low enrolment and deterioration in students' achievement in history must have been caused by the poor method of teaching the subject in Schools. Also many history teachers in Nigeria depend mostly on lecture method which makes learning boring and uninteresting (Osokoya, 2007). Adeyinka (2002) laments that the frequent use of lecture method for History teaching in Nigeria does not provide for effective teaching/learning experiences.

The aforementioned situation necessitated the need to explore other teaching and learning approaches that would enhance the learning of history, facilitate understanding of

concepts and possibly encourage higher enrolment of students. Educational Technologist are of the view that Computer Assisted Instructional Strategy (CAI) can be used to improve students performance, arouse their interest and motivate them to learn (Gambari 2010). Computer Assisted Instruction is an instructional technique by which a computer is used to present an instructional programme to the learner through an interactive process on the computer (Bakac, Tasoglu & Akbay, 2011). This functions on interactions, promotes instruction, help students to learn at their own pace, saves time, gives feedback, favours all categories of learners, enhances motivation and is highly learned centred. This study therefore investigated the effects of Computer Assisted Instructional package on the performance of Senior Secondary School students in history.

Research Questions

The study answered the following research questions:

(i) Is there any difference in the performance of secondary school students taught history using computer assisted instructional package?

(ii) Is there any difference in the performance of male and female students taught history using computer assisted instructional package?

Research Hypotheses

The following null hypotheses were formulated:

HO_1: There is no significant difference between the mean achievement scores of students taught history with Computer Assisted Instruction and those taught with conventional/traditional method.

HO_2: There is no significant difference between the mean achievement scores of male and female students taught history with Computer Assisted Instructional package.

Sample and Sampling Techniques

The target population for this study was all the Senior Secondary Class One (SSI) students in History in Niger State. The sample for the research study was made up of 120 students (60 males and 60 females) from six secondary schools randomly selected across the three educational zones of the State by means of stratified random sampling technique.

Research Instrument

The research instrument used in the study was the History Achievement Test (HAT), designed by the researcher and employed as a pretest and posttest in the study. The instrument is a 20-item multiple-choice objective question. The instrument was validated by Senior Lecturers in History Department in Niger State College of Education, Minna and Chief Examiner of History in National Examination Council, Headquarters, Minna.

Results

Two Research questions were raised in this study and two null hypotheses were formulated and tested to provide answers to the research questions. Analyses of the pretest and posttest data collected by means of the History Achievement Test (HAT) were used to answer the research questions using the two null hypotheses as guide. Means, standard deviations and the t-test were employed in analysing the pretest and posttest data.

A pretest was administered to both the experimental and control groups. The test was given to determine the academic equivalence of the experimental and control groups. The mean scores of students in the experimental and control groups on the pretest were calculated and the t-test computed for the two means. Table 1 shows the means, standard deviations and the result of the t-test analysis.

Table 1: t - test comparison of the mean scores of experimental and control groups on the pretest

Variable	N	df	$\bar{X}$	SD	t- value Cal	P	Remark
Experimental Group	60		4.13	1.42			
		118			0.26ns	0.73	Not significant
Control Group	60		4.07	1.34			

ns - Not significant at p> 0.05

The result of the t-test analysis in Table I shows that there was no significant difference in the pre-test means scores of Experimental ($\bar{x}$ = 4.13) and Control ($\bar{x}$ = 4.07) groups. The t-value of 0.26 not significant at 0.05 alpha level. This mean that students in the experimental and control groups were at the same entry level with regard to academic ability before the topics in History were presented to them. Their mean scores was not significant.

Hypothesis 1

There is no significant difference between the mean achievement scores of students taught history with Computer-Assisted Instructional (CAI) package and those taught without it.

To test this hypothesis the posttest means scores of the experimental and control groups were computed and compared using the t-test statistic. The result is shown in Table 2.

Table 2: t-test comparison of the posttest mean scores of the experimental and control groups

Variable	N	df	X	SD	t- value Cal	P	Remark
Experimental Group	60		12.62	2.26			
		118			13.83*	0.01	Significant
Control Group	60		7.72	1.56			

** - Significant at p< 0.05*

The result of the t-test analysis in Table 2 shows that there was no significant difference in post-test means scores of students exposed to Computer Assisted Instructional Package ($\bar{x}$ = 12.62) and those exposed to conventional teaching method ($\bar{x}$ = 7.72). The result favoured Experimental group exposed to Computer Assisted Instructional Package. The t-value of 13.83 was significant at the 0.05 alpha value. Therefore, the hypothesis which states that there is no significant different between the mean achievement scores of Experimental and Control groups taught History with Computer Assisted Instructional Package was rejected.

Hypothesis 2

There is no significant difference between the mean achievement scores of male and female History students taught history with the Computer-Assisted Instructional package.

To test this hypothesis, the posttest mean scores of male and female students in the experimental group were computed. The analysis was carried out using the t-test statistic and the result shown in Table 3.

Table 3: t-test comparison of the posttest mean scores of male and female history students in the experimental group

Variable	N	df	X	SD	t- value Cal	P	Remark
Males	30		12.73	2.43			Not
Females	30	58	12.53	2.13	0.34ns	0.38	significant

ns - *Not Significant at p> 0.05*

From the result in Table 3, it can be seen that there was no significant difference between the posttest mean scores of male (x = 12.73) and female (x = 12.53) History students in the experimental group at 0.05 level of significance. The t-test analysis shows no significant difference (t_{cal} = 0.34; df = 58; p > 0.05). Null hypothesis 2 was therefore not rejected.

Discussion of Results

The result from the study is in agreement with earlier findings of Ash (2005), Basturk (2005) and Gambari (2010) who found that students taught with computer performed significantly better than those taught without computer. Computer can, therefore, be seen as a tool for effective teaching and leaII1ing of all school subjects (Ezeliora, 2003). CAI is an effective and efficient developmental tool of individual cognitive structure, psychomotor, and affective abilities.

The result is contrary to the findings of Fagbemi (2004) who concluded that the role and performance of girls in electronic media and the computer is not encouraging. Also, Nakaka (2006) observed that, male students found computer to be more interesting than females. However, Gambari, (2010) concluded that female students performed better in integrative processes than their male counterparts. The result also agrees with the findings of Ash (2005) and Basturk (2005) who found that gender did not influence students' performance in Computer/sciences generally.

Conclusion

The result of the study revealed that students taught with the CAI package scored significantly higher in the History Achievement Test (HAT) than those taught without it. The package had the same effects on both male and female students. The study had also shown

that, CAI package provided an effective teaching strategy that leads to understanding, meaningful learning, and improved performance.

Recommendations

From the findings of the study, it is therefore recommended that;

(i) The use of computers for teaching and learning in our schools should be encouraged. In addition, computer education should be made compulsory for teachers and students in all levels of education. To achieve this, curriculum designers should include the use of computers for teaching and learning into school curricula, especially the use of CAI Packages, computer modelling, CAI simulation and so on.

(ii) Computer laboratories/centres with adequate computers and internet facilities should be established in our primary, secondary and tertiary institutions. This would make information technology an integral part of teaching and learning activities as well as arouse students' interest which in turn enhances motivation to learn.

(iii) Educational authorities should provide enabling environment, materials and manpower required for the teaching and learning of all subjects using computer technology. To achieve this, government should provide adequate funds and seek for aids (where necessary) from bodies like United Nations Educational, Scientific and Cultural Organisation (UNESCO), United Nations. Children Education Fund (UNICEF), United States Agency for International Development (USAID) and so on, to assist in funding computer technology in our schools.

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