EFFECTS OF COMPUTER ASSISTED DRILL AND PRACTICE PACKAGE ON PUPILS' ACHIEVEMENT IN ENGLISH LANGUAGE WORD-FORMATION IN NIGER STATE, NIGERIA

ANIAH ANTHONY[1]; BARDE, SADISU SHUAI[2]; & AWU, UNWADA HELEN[3]
[1&2]Department of Educational Technology
School of Science and Technology Education
Federal University of Technology, Minna
[3]Agricultural Extension and Rural Sociology
School of Agric and Agricultural Technology (SAAT)
Federal University of Technology, Minna
E-mail: anthonyaniah@futminna.edu.ng
Phone No: +234-803-619-5385, +234-803-599-0812, +234-806-285-9561

Abstract

The study investigated effects of computer assisted drill and practice package on pupils' achievement in English Language word-formation in Niger State. The study adopted quasi–experimental design. Purposive sampling was used to select two schools from seven educational zones in Niger State. One hundred and twenty pupils were drawn as study sample from primary two pupils'. The study sample comprised of 62 males and 58 females. Control group was taught with lecture method while experimental group was taught with computer assisted instructional drill and practice CAIDP package. Two research questions and two hypotheses guided the study. English Language Achievement Test (ELAT) was used for data collection. The CAIDP package and ELAT were face validated by experts while the reliability was established using Kuder Richardson (KR 20) analysis and the reliability coefficient was found to be r = 0.74. Mean and standard deviation were used to analyze the research questions while Analysis of Covariance (ANCOVA) was used in the testing of the hypotheses. Findings show that computer assisted instructional drill and practice package enhanced achievement of English language word-formation. It is recommended that, curriculum planners should infuse CAI drill and practice packages into English programmes so that primary school teachers' can use it to teach English language concepts.

Keywords*:* *Achievement, Computer Assisted Instruction, Drill and Practice Package, Word- Formation, English Language*

Introduction

English language is the most widely used language in the world. English is very crucial as a medium of instruction for teaching and learning of all school subjects in Nigeria educational system and is a pre-requisite for admission into nearly all programmes in the universities. The role English language plays in the world of communication and scientific advancement cannot be over emphasized. The government of Nigeria considers English language as a core subject in the school curriculum and a major medium of communication both within and outside the school system. The national policy on education, Federal Republic of Nigeria (FRN, 2009) demands ability to communicate effectively at the primary school level. The policy demands that the medium of instruction at primary school shall be the language of the environment for the first three years and from the fourth year English language shall be taught as a subject and used progressively as a medium of instruction.

The achievement of pupils' in English language at all levels of education especially at the primary school level is poor (Okoro, 2002). Okoro (2002) maitained that the problem of poor level of achievement of primary school children is a serious issue in Nigeria. Furthermore, Kolawole (2002) also confirmed the poor achievement of primary school pupils

in English language. The author explained that the poor achievement was due to a number of reasons such as: the use of tribal language in the lower classes of primary school, some pupils do not understand the grammar because their teachers themselves do not know it and in most cases English language teachers in the senior primary schools resort to the use of mother tongue to explain English language even up to secondary school level.

Apart from these factors listed above, Adama (2009) stated that non-availability of teaching materials is one of the factors which contribute to poor achievement by pupils' in English language examinations. Other factors that have been identified as responsible for the poor achievement in English language include non-utilization of audio-visual instructional materials, poor English language teaching and expression, poor knowledge of the subject by the teacher, inadequate relevant English language textbooks and use of cell phones or handsets for text messages which have negative impact on pupils' learning because of short cut in spelling of words among others (Aniah, 2015). These have affected pupils' ability to form words using letters.

Wise (2015) defined word-formation as an aspect of language learning which prepares an individual for language use during the primary school years. In other words, it is an act of acquiring new words to equip an individual for effective communication orally or in written form. Word-formation is very important in a child's learning because it increases pupils' acquisition of new words and also enhances flexibility in their expression and communication both within and outside the school. Pupils' ability to form words using various learning activities thereby expanding the breadth and depth of vocabulary knowledge for example, the use of cross-word puzzles is very important in any learning process.

Lecture method of teaching is the most widely used method employed by teachers in our institutions of learning. In this method of teaching, students are encouraged to sit quietly, listen and perhaps take down notes. Adeoye (2002) describes lecture method as one which involves the lecturer talking according to pre-planned, structured scheme while the students listen and make notes. Adeoye (2002) explained that it might not be easy to write off lecture method stressing that this method of teaching is not ideal for immature learners especially primary school pupils. It makes learners considerably passive and does not cater for individual differences in learners.

With the advent and introduction of ICT into the field of education it became necessary to shift from lecture method of teaching to use of ICT interactive learning devices such as computer. Computer when integrated into teaching makes leaner to be actively involved in the learning process unlike lecture method of teaching which makes learners passive and had contributed to learners 'poor achievement in English language. The integration and use of ICT across curriculum content and process is imperative because it is the back bone of the knowledge economy of the 21st century and it is a very effective tool for promoting economic growth and sustainable development of the individual and the nation. Today, teaching and learning is powered by technology and English language is the language of technologies. Consequently, technologies must be integrated into English language teaching and learning in order to produce proficient users of the language. Computer Assisted Instruction (CAI) such as Computer Assisted Drill and Practice (CAIDP) package and computer technology is a relatively new educational innovation in primary school classrooms in Nigeria and Niger State in particular.

Nigeria as a developing nation requires solid foundation in its educational system especially at the primary school level if it must compete favorably with other nations of the world. It therefore become imperative for Nigeria and indeed Niger State to integrate and use

Computer Instruction CAIDP package in teaching English language word-formation in primary schools to enhance students' achievement.

CAIDP package according to Ash (2005) is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place. Umaru (2003) defined Computer Instructional package as a program of instruction presented as computer software for instructional purposes. In line with this, Basturk (2005) referred to computer instruction as the use of the computer as a tool to facilitate and improve instruction. The following are types of computer instruction: drill and practice, tutorial, games, simulation, discovering and problem solving.

According to Mishra (2007) computer instruction increases motivation in children while she remarked that children using computers are highly motivated to complete assignments and demonstrate high level of curiosity, achievement orientation and personal ownership of project. Teachers can use computer instructional packages to arrest and sustain students' attention, present facts and information, teach concepts and principles, guide thinking and induce transfer of learning Gambari (2010). Nyanga (2002) stressed that a teacher can capitalize on media capabilities such as CAI package to promote the learners' perception, understanding, transfer of learning, reinforcement and retention of learnt concepts by the students. In this study computer drill and practice instructional package was used to teach letters A-J to primary school pupils this is because it allows student interaction with the computer and enhances repetition of concept learnt.

Drilling mean listening to a model provided by a teacher or a tape or another student and repeating what is heard. Drills are a form of very controlled practice. In drill exercises, there is one correct answer and the main focus is on 'getting it right' that is on accuracy. Drills are usually conducted chorally (i.e. the whole class repeats) then individually. There is also the possibility of groups or pairs of students doing language drills together. Its' main purpose is to help learners master materials at their own pace. Drills are used as reinforcement tool and are mainly used for beginners or for students who are experiencing learning problems. Onyejekwe (2006) described drill as the condition in which a learner is encouraged to practice a skill over and over again until he masters such skill. Drill and practice software packages provide feedback to students, explain how to get correct answer and contain a management system to keep track of student progress. Onyejekwe (2006) further stated that drill and practice is probably the most common and best known educational application of the computer. Such repetitive actions are employed in the learning of mathematics, reading, spelling, and other basic skill areas. Drill and practice exercises with the appropriate software can enhance the daily classroom experience (Julie, 2015).

The procedure for using computer drill and practice package instructional delivery in teaching letters A-J, demand that only one letter at a time is treated. For instance, if a child gets an option or answer correct after teaching letter "A" the teacher proceeds to the next letter but if the child gets the option wrong, revisit the same letter until the child gets it right. This procedure is applicable to letters A-J used in this study. The study also determines the influence of pupils' gender on their achievement in word-formation when taught using computer assisted instructional drill and practice package.

The concept of gender is used to describe those characteristics of men and women that are societal determined, in contrast to those which are scientifically determined which affect the use of computer in teaching and learning of science concepts (Victoria, 2005). Gender difference is one of the factors affecting learning and many researchers such as Gambari, (2004) and Dantala, (2005) have focused their attention on studies relating to its effect on

pupils' academic achievement. Studies on the influence of gender on achievement have not produced conclusive results. Some findings indicated that significant differences existed between the achievement of male and female students while other findings showed that gender factor had no influence on students' achievement (Yusuf, 2004). The author noted that gender has no impact on students' academic achievement. This evidence in academic achievement due to gender had resulted in the need to verify the influence of computer instructional packages on pupils' achievement in English language word-formation. However, from the studies made so far on the use of computer instructional packages, no research has been carried out on the effects of CAIDP package on achievement and gender on pupils' English language word-formation in Niger State.

Statement of the Research Problem
The achievement of pupils' in English language has not been encouraging despite its' importance to national development. The researcher observed that pupils have serious problems with English language word-formation because of mother tongue interference; pupils' use of cell phones or handsets for text messages which has negative impact on their learning because of short cut in spelling of words. Pupils' poor achievement has been attributed to poor teaching methods employed by teachers' and the non-utilization of instructional materials, poor knowledge of the subject and expression by teachers and inadequate relevant English language textbooks that contain activities on word-formation. Furthermore, some pupils cannot pronounce English language words correctly. This has contributed to pupils' poor formation of words in English language at the primary and secondary school levels of education Thus, to enhance the teaching of word-formation, the pupils must first know their alphabets and should be able to listen to people very well and also be able to inculcate in them the skills involved in listening.

It is against this background that the study investigated the effects of computer assisted drill and practice instructional package on achievement of pupils' in English language word-formation in Niger State.

Research Objectives
The objective of the study are:
(i)   To determine the effects of CAI drill and practice package on pupils' achievement in word-formation in English language.
(ii)   To determine the effects CAI drill and practice package on male and female pupils' achievement in word- formation in English language.

Research Questions
(i)   What are the mean achievement scores of pupils taught English language word-formation with CAIDP package and lecture method?
(ii)   What are the mean achievement scores of male and female pupils taught English language word-formation with CAIDP package?

Hypotheses
The following null hypotheses were formulated and tested in the study:

HO_1: There is no significant difference in the mean achievement scores of pupils taught English language word-formation using alphabet A-J with CAIDP package and those taught with lecture method.

HO_2: There is no significant difference in the mean achievement scores of male and female pupils taught English language word-formations using alphabet A-J with CAIDP package.

Methodology

This study adopted the quasi- experimental design. Specifically, the quasi-experimental design is the non-equivalent non randomized experimental and control group design. This is because intact classes (i.e pre-existing groups) were used, since randomization was not possible.

The design layout is as follows:

Group	Pre-test	Treatment	Post- test
Experimental	01	X	02
Control	01		02

Where:
01 refer to pre-test scores of experimental and control group
02 refer to post-test scores of experimental and control group
X refers to treatment (Experimental CAIDP Condition)

The population of the study comprises all the primary two pupils in public schools in the seven educational zones in Niger State. The number of public primary schools in the seven education zones is 2,603. The population of primary 2 pupils in these schools is 135,245. **Source:** (Niger State Universal Basic Education Board, 2015).

Multi-stage sampling techniques was used to draw 120 pupils from the seven Educational Zones. The study sample consists of 62 males and 58 females. Purposive sampling technique was used to draw two government owned public primary schools from three Educational Zones in the state. The technique was also used to avoid disrupting the free flow of activities in the chosen schools under study.

The instrument used in collecting data for this study is the researcher designed English language Achievement Test on Word-formation (ELAT). The English Language Achievement Test covered word-formation using ten English language alphabets A-J. The chosen concepts were selected from primary two pupils English language syllabus and it corresponds to what the pupils should be taught in their school at the time of study. Each item of the instrument was based on word-formation from English language alphabets or letters.

The English language achievement test was subjected to face and content validity by four experts, two from school of General Studies, Federal University of Technology, Minna and the other two from the Department of English language, Niger State College of Education, Minna. These experts critically examined all the spellings and words-formed using alphabets A-J. They also ascertained the relevance of the words formed to the content and extent to which the questions covered the topics they are meant to cover based on table of specification. The ELAT was later modified on the basis of suggestions and recommendation of experts.

The developed instructional package was also given to four experts for validation, two of them were from Science Education Department, Federal University of Technology Minna, Niger State and two from Department of Arts Education, University of Nigeria, Nsukka (UNN). They were requested to validate the package in terms of the appropriateness of the package for the chosen topics, clarity and simplicity as well as its suitability for the level of primary two pupils and possible errors in the structuring of the package. The expert's comments and suggestions were used to correct some mistakes while their suggestions and recommendations were used to improve on the package.

The test on English language word-formation was administered to 30 primary two pupils' who constitute part of the population but were not used in the main study. The trial testing helped the researcher to determine the appropriate timing of the test as well as identify any problem which may affect the administration of the instrument during the study. The scores of the 30 pupils were subjected to estimate of temporal stability using test-retest method with two weeks' interval. The two set of scores obtained were subjected to Kuder Richardson (KR 20) correlation analysis. A correlation coefficient of $r = 0.74$ was obtained from the analysis. This value therefore revealed that the instrument is reliable for English Language Achievement Test (ELAT).

Prior to the commencement of the experiment (ELAT) on word-formation was administered on all the primary 2 pupils as pretest in the participating schools. Similarly, at the expiration of the experimental period (four weeks), English language Achievement test (ELAT) was administered on the experimental and control groups as post-test with the aid of English language research assistants. The scores obtained from the experimental and control groups were used to determine the academic achievement of both groups. The scores of the experimental and control group on the posttest were computed, recorded and used for data analyses.

The two research questions were answered using mean and standard deviation. The hypotheses for the study were analyzed using Analysis of Covariance (ANCOVA) using Statistical Package for Social Sciences (SPSS). The significance of the various statistical analyses as was ascertained at 0.05 alpha levels.

Results

The result was presented in line with the research questions and hypotheses that guided the Study.

Research Question 1: What are the Mean Achievement scores of Pupils taught English Language Word Formation with CAI Drill and Practice and Lecture Method using alphabet A-J?

Table 1: Mean Achievement Scores of Pupils taught English Language Word-Formation with CAI Drill and Practice and Lecture Method

Group	N	Pretest Mean	SD	Posttest Mean	SD	Mean Gain
Experimental	60	19.47	5.23	35.00	2.51	15.53
Control	60	16.27	7.29	25.80	8.94	9.53
Total	120	17.87	6.26	30.40	5.73	12.53

Table 1 shows the word formation posttest mean scores of Experimental group (Computer Instructional Drill and Practice) and Control (Lecture Method) to be 35.00 and 25.80 respectively. This shows that CAI Drill and Practice enhanced pupils' achievement in word formation more than lecture method.

HO$_1$: There is no significant difference in the Mean Achievement Scores of Pupils taught English Language Word Formation using alphabet A-J with CAI drill and practice package and that taught using lecture method.

Table 2: Summary of ANCOVA for Achievement Scores of Pupils taught English Language Word Formation using CAI Drill and Practice package and Lecture Method

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Decision
Corrected Model	2585.185	2	1292.593	29.985	.000	
Intercept	10853.210	1	10853.20	251.769	.000	
Pretest	45.985	1	45.985	1.067	.304	
Method	2224.356	1	2224.356	51.600	.000	S
Error	5043.615	117	43.108			
Total	118528.000	120				
Corrected Total	7628.800	119				

Significant (p < 0.05)

Table 2 shows that there is significant difference in the mean achievement scores of pupils taught English Language Word-Formation with CAI Drill and Practice and lecture method since $F_{(1, 117)} = 51.600$, p = 0.000 which is less than 0.05. The null hypothesis 1 is accepted. Therefore, there is a significant difference in the mean achievement of experimental group taught with CAIDP package and the control group taught with lecture method.

Research Question 2: What are the Mean Achievement Scores of Male and Female Pupils taught English Language Word-Formation with CAI Drill and Practice?

Table 3: Mean Achievement Scores of Male and Female Pupils taught English Language Word - Formation with CAI Drill and Practice

Experimental Gender	N	Pretest Mean	SD	Posttest Mean	SD	Men Gain
Male	28	19.14	6.00	34.86	2.85	**15.72**
Female	32	19.75	4.54	35.13	2.64	**15.38**
Total	60	19.47	5.23	35.00	2.72	**15.55**

Table 3 shows that the mean achievement scores of male and female pupils taught Word-Formation with CAI drill and practice are 34.86 and 35.13 respectively with SDs of 2.85 and 2.64 respectively. The mean achievement score of female pupils is slightly higher than that of their male counterparts. The mean gain of male pupils is 15.72 while that of their female counterparts is 15.38. This suggests that both male and female pupils achieved almost equally when taught English language Word Formation using CAI drill and practice.

HO_2: There is no significant difference in the Mean Achievement Scores of Male and Female Pupils taught English Language Word Formation using alphabet A-J with CAI drill and practice package.

Table 4: Summary of ANCOVA for Achievement Scores of Male and Female Pupils taught English Language Word Formation using alphabet A-J with CAI Drill and Practice Package

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Decision
Corrected Model	2.652	2	1.326	.174	.840	
Intercept	5035.137	1	5035.137	662.291	.000	
Pretest	1.580	1	1.580	.208	.650	
Gender	1.225	1	1.225	.161	.690	NS
Error	433.348	57	7.603			
Total	73936.000	60				
Corrected Total	436.000	59				

Not Significant ($p > 0.05$)

Table 4 shows that $F (1, 57) = .161, .690$ Since .690 is greater than 0.05 level of significance, the null hypothesis is upheld. Therefore, there is no significant difference in the mean achievement scores of male and female pupils taught English language Word Formation with CAI drill and practice. This shows that CAI drill and practice is not gender biased in teaching English language word formation.

Discussion of Findings
The findings of this study showed that the use of CAIDP package enhances pupils' achievement in word-formation in English language. Abdullah, Jebreen, Aieman, and Sadeq (2009) findings on effect of CAIDP package language learning in teaching grammar support the present study which showed that the instructional method (Drill and Practice) was in favour of the experimental group. This result is also in line with that of Tabassum (2004) who found out that the achievement of students exposed to CIDP package was better than that of their counter parts exposed to lecture method. This result agrees with Mishra (2007) who reported that children exposed to computer have positive attitude towards learning than those not exposed to the same treatment. The study carried out by (Alongkorn, Wiphasith, Nipon and Tongluan, 2014) on use of CAI drill and practice on hearing impaired pupils agree with Mishra (2007) that the use of CAIDP package enhanced learner's achievement stressing that their satisfaction level was good.

On male and female use of CAIDP package in teaching of word-formation, the result agrees with Chado, (2009) who stated that computer is gender friendly. Ezekoka (2010) study on use of computer in teaching and learning oral English language revealed no significant effect on gender achievement. This result is in support of Chado (2009) whose findings show that computer is gender friendly. This shows that CAI drill and practice is not gender biased in teaching English language word formation using alphabet A-J. This result also agrees with Noabi (2003) research study on students' using computer assisted instruction in tertiary institutions. The result revealed that there was no significant difference between the mean achievement of males and females in favour of the female students while (Abdullah, Jebreen, Aieman and Sadeq, 2009) in their use of CAI for teaching English grammar revealed that there was significant difference in achievement in favour of male students. This result is in disagreement with the findings of Noabi (2003) whose study shows that there was no significant difference in the mean achievement of male and female students. This suggests why gender in academic had remained an issue of discussion and inconclusive among scholars.

Conclusion

The result of this study provides empirical evidence that the use of computer instructional drill and practice package enhanced pupils' achievement in English language word-formation more than the use of lecture method. Pupils' taught English language word-formation with the use of CAI package (experimental group) performed better than their counterpart (control group) taught the same concepts using lecture method. There was no significant difference in gender achievement of pupils taught English Language word-formation with CAI drill and practice package. Primary school pupils should be trained on the use of computer so as to be computer literate and also fit in, in this present society of technological advancement. Finally, other researchers will use these findings as reference point for other studies.

Recommendations

The following recommendations were made based on the findings of this study.

(i)   Since the use of computer instructional drill and practice package enhanced achievement of pupils' in English language word-formation, the English language primary school teachers should use it as one of the technique to be employed in classroom teaching and learning.

(ii)   Based on the above fact, it has become imperative for Nigeria and indeed Niger State to integrate and use computer instruction in teaching English language word-formation in primary schools to enhance students' achievement, increase their acquisition of new words and also enhance flexibility in their expression and communication.

References

Aniah, A. (2015). *Effects of computer assisted instruction on pupils' achievement and retention in spelling and word-formation in English language in Niger State*. Ph.D thesis, Department of Arts Education, University of Nigeria Nsukka.

Adama, U. Y. (2009). *Availability and utilization of instructional materials in the teaching and learning of English language in senior secondary schools in Bida, Niger State.* An Unpulished M.Tech project, Federal University of Technology, Minna.

Abdullah, A. N, Jebreen, H., Aieman, A., & Sadeq, S. (2009). The effect of computer assisted language learning in teaching English grammar on achievement of students in Jordan. *The International Arab Journal of Information technology, 6(4), 431-439.*

Adeoye, B. E. (2002). *Teaching methods, strategies and techniques*. Ibadan: Kraft Books.

Ash, J. E. (2005). *The effectiveness of computer-assisted instruction on middle school mathematics achievement.* Retrieved from http://www. Research Enstae.edu/dissertation/AA 13187984.

Basturk, R. (2005). The effectiveness of computer assisted instruction in teaching introductory statistics. *Educational Technology and Society,* 8 (2), 170-178.

Chado, M. I. (2009). *Development and use of a computer- assisted instruction package for teaching metal forging technology at Nigerian Certificate of Education (Technical) Level.* Unpublished Ph.D Thesis Bauchi: Abukar Tafawa Barewa University.

Dantala, N. M. (2005). Effect of computer assisted instruction (CAI) package for individualized learning of history in senior secondary school in Niger State, Nigeria. An unpublished M. Tech. Thesis, Science Education Department, Federal University of Technology, Minna.

Ezekoka, G. K. (2010). Effect of gender on use of computer in teaching and learning process. Proceedings from 31st Annual Convention and National Conference of Nigeria Association of Educational Media and Technology (NAEMT) held at Niger State College Education, Minna 20th -26th September.

Federal Republic of Nigeria, (2009). *National Policy on Education. (revised) Federal Ministry of Information.* Lagos: Federal Government Press.

Gambari, A. I. (2004). *The development of computer aided learning software for individual instruction in physics in senior secondary schools in Niger State, Nigeria.* Unpublished M.Tech thesis, Department of Science Education, Federal University of Technology, Minna.

Gambari, A. I. (2010). *Effectiveness of CAI package on co-operative settings on senior secondary school students' performance in physics in Minna Niger State, Nigeria.*

Julie, T. (2015). What drilling is, Teacher, trainer, writer, Britsh Council Lisbon. Retrieved on line 30/5/2015 from http:// www.

Kolawole, C. O. O. (2002). In David, A. O. (2008). The impact of mother tongue on students' achsievement in English language in jenior secondary certificate examination in western Nigeria. *Journal of Social Sciences, 17 (1), 41-49.*

Mishra, R. C. (2007). *Teaching of information technology.* New Delhi: APH Publishing Corporation.

Naobi, A. F. (2003). Enhancing students' performance in using computer assisted instruction (CAI) in tertiary institution. In Akale, Mag (Ed). Proceedings of the 44th Annual Conference of Science teachers Association of Nigeria (STAN).

Niger State Universal Basic Education Board, (2014). Information management unit. Statistics of Primary School Pupils Enrollment.

Nyanga, E. (2002). Africa's technology corridor P C world West Africa 2 (2). WWWPC World Africa (February 2002).

Okoro, D. C. U. (2002). Basic education- emerging issues, challenges and constraints in the state of education in Nigeria. A Publication of UNESCO Nigeria Abuja Office. 34 -51.

Onyejekwe, A. (2006). Information communication technology: A giant stride for the Achievement of Functional Education in Nigerian Schools in the 21ST Century. Proceedings of the 31st Annual Convention and National Conference on ICTs in Nigerian School systems, Nigeria Association for Educational Media and Technology held on 20th-26th, September (2010) College of Education Minna, Niger State. 30 - 34.

Tabassum, R. (2004). The effects of the computer- based instructions on the achievement and problem solving skills of the science and technology students. *The Turkish online Journal of Educational Technology, 10, (1)* 183-185.

Umaru, J. (2003). *Introduction to Computer Studies Book 2.* Ilorin: Nathedex Publishers. United Nation Education Scientific Cultural Organization (UNESCO) (2002). Information and communication technology in teacher education: A planning guide. *Division of Higher Education, USA.*

Victoria, N. N. (2005). Relative effectiveness of computers, video-tape and ralia instructional media on the learning of secondary school science in Abuja Municipal council. Unpublished M.Tech thesis, Federal University of Technology Minna, Niger State, 63-64.

Wise, B. (2015). Whole learning comparisons on a computer system. *Journal of Experimental Child Psychology,* 54, 147-167.

Yusuf, A. (2004). *Effects of cooperative and competitive instructional strategies on junior secondary school students' performance in social studies, in Ilorin, Nigeria.* Unpublished Ph.D Thesis, Curriculum Studies and Educational Technology, University of Ilorin, Nigeria.