

Influence of Computer Assisted Instruction (CAI) package on Upper Basic School Students' Performance in Keyboarding Concept in Business Studies.

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ABSTRACT

The present study investigates the influence of computer assisted instruction (CAI) package on upper basic school students' performance in keyboarding concept in Business Studies. Also, the influence of gender on the performance of students exposed to CAI package was examined. It involved one hundred and sixty junior secondary school three (JSS 3) students in Iseyin Local Government of Oyo State, Nigeria. Three research questions and three hypotheses were generated to guide the study. The treatment for the study was the computer assisted instruction (CAI) package and the test instrument used was Business Studies Achievement Test (BSAT). Both the instrument and the treatment were subjected to content and face validation. Reliability of the test instrument was carried out using split-half method during the pilot study and its value yielded 0.86. Data collected from the respondents were analyzed using descriptive statistics of mean, standard deviation and inferential statistics of t-test and thus answered both research questions and research hypothesis raised in the study. Findings of study showed that students taught with computer assisted instruction (CAI) package performed better than their colleagues taught using traditional classroom method $t(79) = 36.6$; $\text{sig}(2\text{-tailed}) = .000$ and $P > 0.05$. There was no significant difference between the mean scores of the male and female students in the experimental group $t(39) = 0.38$; $\text{sig}(2\text{-tailed}) = .970$ and $P > 0.05$. Finally, based on the research findings recommendations were made on the need to train teachers on keyboarding skills and hand-on computer authoring software application through seminars, workshops, conferences as well as in-service training.

Keyword: Computer Assisted Instruction, Keyboarding, Upper Basic School, Business Studies

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1. INTRODUCTION

In this epoch, computers are everywhere, we use computers at home, at school and at work. People of all ages, all nations and from a wide variety of careers communicate with one another by using computer. However, that communication can be laborious and ineffective if the user does not have the right tools. The first tool for computer usage is basic keyboarding skill. We are sending an enormous amount of e-mail messages, we are chatting with friends, searching the internet for information and we are storing a lot of critical information electronically. All this communication can be time intensive if you have not mastered the touch operation of the keyboard. Once you have basic skill, you will save time using word processing, spreadsheet, desktop publishing and other application programme. Learning to use the keyboarding effectively is an important skill for everybody regardless of the discipline or field you may find yourself. This keyboarding skill will give students control over most important communication tools that they can use in the rest of their educational and working life.

Azuka (2000) explained that keyboarding should be emphasized along with the traditional typing; the author identified closer relationship between word processing, data processing and the use of the internet. Word processing is the application of computer for manipulating text-based documents; the electronic equivalent of paper, pen, typewriter, eraser, and most likely, dictionary and thesaurus (Encarta, 2009). According to Agomuo (2005), word processing can be likened to a typewriter inside a computer in that it incorporates all the duties of a typewriter which basically are: the ability to type and produce text on paper, store and manipulate text in documents and get printed copies. But when using computers, it deviates a little from the common typewriter. There is the enter key replacing the carrier movement and there are commands (simple ones) for paragraph, indent, spacing and so on.

In addition, one can store the document for future reference or use; make corrections to the documents very conveniently; format your documents to a wide variety of specification; automate some functions such as page numbering, generation of indexes; check the spelling of text in your document for correctness; and have greater control over page layout attribute such as margin and so on. Other area where computer is most useful in daily activities is in the use of the internet and data processing. Improving the quality of education and training is a critical issue considering the level of educational expansion in Nigeria. Haddad (2002) observes that ICTs enhance the quality of education by increasing learner motivation and engagement (through videos, television and multimedia computer software that combine text, sound and colour as well as moving images), facilitating teacher training (e.g Web-based courses through the Internet, satellite-based one-way video and two-way audio conferencing by telephone, e-mail and fax).

Gaible (2009) reiterated this fact by stating that ICT ensures that students have adequate literacy, numeracy and other basic skills. ICT is also presented as enabling teachers and students to engage with learning in new ways, ways that transform their relationships to mathematical problems, history, culture and art, innovation and creativity. ICT-supported education can promote the acquisition of the knowledge and skills that will empower students in Nigeria for lifelong learning. From literature, the integration of computer in education and training cut across all levels of education i.e primary, secondary and tertiary, the use of computers is applicable. Computers can be used in education as a teaching tool through the use of Computer Assisted Learning (CAL), Computer Assisted Instruction (CAI), Computer Mediated Learning (CML), Computer Managed Instruction (CMI). Computer Assisted Learning (CAL) which is somehow similar to CAI is generally being used in learning and instruction. CAL involves the development of software that can be used as a learning tool by the students.

CAL works in a way that the computer would present module of instructions in sequences for the students to learn and the package would also test their mastery of the topics. The response of the learner determines the progress or otherwise of the learners which is largely dependent on the accuracy of the answers supplied by the students. On the other hand, Computer Assisted Instruction according to Ekiregwo (2001) is a programme of instructional materials presented by means of a computer or computer systems. Fakomogbon (2002) also describe CAI as any instructional materials production in audio disc format or audio-visual digital disc that can be played-back on the available screen.

Adegbija and Onasanya (2007) define Computer Assisted Instruction as the use of computer to provide instruction directly to the students by simulating teaching and learning situation. CAI is applicable in the areas of lecture demonstration in the classroom, interactive teaching or tutorial aids and self-testing exercise for students working individually, learning-in-pairs or group-learning. Using self-instructional mode CAI affords a learner to go at his/her own pace whereby; students are highly motivated to do extra work for academic enrichment with little or no input from the teachers or external guidance. Okute (2008) opined that business studies is the fundamental subject which has to do with acquisition, conservation and expedition of wealth. Osuala (2004) stated that business studies help the students to make informed decisions in the everyday business of living. Obi (2005), explained that business studies prepares students for business career or enables those in that career become more efficient and advance to higher business positions. Many students see business subjects as too abstract to comprehend, thereby resorting to memorization or rote learning. Several students have also changed from business subjects to art and other subjects while dropped out and some failed woefully at the final examination. Meanwhile. Various attempts have been made by government, school proprietors and teachers to facilitate effective teaching and learning of these courses, which are the rudiments of development of any nation. Textbooks have been constantly reviewed and rewritten in simpler forms and teaching materials of various types designed, yet the problems persist.

Ogunneye (1982) in Solomon, Onyemaechi and Ogbenyealu, (2011) found out that in this era of technological advancement, technology is still having minimum impact on education. This is because 80% of teachers in Nigeria are mostly using the chalkboard and textbooks method (traditional method) in teaching. Actually, most schools do not have modern instructional equipment and media. The few schools that have are unable to use them effectively due to erratic power supply and at times the inability of some teachers to operate some of this instructional media equipment. However, constant use of the traditional method of teaching is a major factor contributing to poor academic achievement of business studies students. A number of steps are necessary for Business Studies teachers to find a proper place in Nigeria classroom, improve their quality and teaching skills to be useful and meet today's needs in order to make themselves relevant. Changes in IT have affected developing countries including Nigeria.

Educational programs are no longer fixed entities, but are continuously changing and adapting. This had prompted the Nigerian Educational Research and Development Council (NERDC) to prepare a conceptual Framework for the review of the 9-years Basic Educational Curriculum (BEC). (NERDC 2009) Business Studies Curriculum took cognizance of the need to provide students with the ability and skills to be gainfully employed upon completion of their programme, prepare them for setting up their small business as entrepreneurs as well as creating awareness on how to be a better consumer and knowing the right of the consumer.

The general objectives of Business Studies therefore are to:

- provide the orientation and basic skills with which to start an occupation for those who may not have opportunity for further training.
- provide basic business skills for personal use now and in the future.
- prepare students for further training in Business Studies.
- relate the knowledge and skills to the national economy.
- develop basic skills in office occupations.

Four (4) themes were considered as adequate to provide the students with the required cognitive, psycho-motor and affective skills at the upper basic level. These according to (NERDC 2009) are as follows:

- Overview of Business Studies
- Effective office practice
- Commerce-the Heart of Business
- Book Keeping and Business success
- Keyboarding as a Communication Tool.

Keyboarding objectives for students are: to develop the correct touch typing technique; to key data quickly and accurately; to demonstrate operational skills in using the computer; to understand health and safety issues of using the computer; to be able to key accurately at a rate of 35 words per minutes (WPM). Some years back, business education teachers gave formal instruction in typewriting at the high school level. At that time the skill of typing was a necessity for secretariat job. Today, efficient keyboard and computer operation is a necessary skill for all occupations. Keyboarding is an expected tool for communication throughout one's life. With the widespread use of computers in schools and homes, keyboarding instruction has moved down to the Junior Secondary Schools. It is now necessary for students to learn keyboarding techniques early so that they do not develop bad habits that will be very hard to break.

Touch typing allows students to key much faster and they don't get tired quickly. This skill comes after the fingers have learned to operate the keys automatically with speed and a high level of accuracy. The fingers move without hesitation when they know where to go. Students should be encouraged to learn how to use a tool that would assist them to work in the technological framework of the 21st century. All students will benefit greatly from knowing that they can type, edit their work and communicate easily with others while using the keyboard. Good keyboarding skills will aid students as they write, do research, solve problems, communicate with others and achieve competence throughout their educational career.

1.1 Statement of the Problem

In Oyo State, new curriculum in business studies has been put in place by the government to replace the old one. The new curriculum contains keyboarding as a communication tool as one of the theme which covered Basic Keyboarding skill, Keyboarding Applications such as technique development in keyboarding, paragraphing and page set up using Word Processing which were absent in the old curriculum of business studies. The teachers of Business Studies often teach theories while learners are passive listeners. Students memorize and regurgitate facts and concepts. These problems confronting the teaching and learning of business studies can be handled using slide presentations, video presentation process and other interactive ICT software facilities in which a student interacts with and is guided by visual equipment aimed at achieving certain instructional goals (Onasanya, 2002 in Solomon, Onyemaechi and Ogbenyealu, 2011).

Computer can be used to transform classroom instruction into a series of rich memorable experiences and thus, reduce boredom and forgetfulness in teaching subject like business studies. There are different innovations that are being applied in the delivery of new curriculum content to students. Research evidence shows that the use of computer assisted instruction (CAI) could bring about improvement in students' achievement, speeds up learning rate, enhances better attitude (Fakomogbon et.al, 2014, Otunla and Tihamiyu 2016). The study therefore, investigates the Influence of Computer Assisted Instruction (CAI) package on Upper Basic School Students' Performance in Keyboarding Theme in Business Studies.

1.2 Research Question

The following research questions were formulated to guide the study:

- ❖ Is there any difference in the pre-test mean achievement scores of students in experimental and control group before commencing the treatment?
- ❖ Is there any difference in the post-test mean achievement scores of students in experimental and control group after applying the treatment?
- ❖ Is there any difference in the post-test mean achievement scores of male and female students in experimental group after applying the treatment?

1.3 Research Hypothesis

Ho₁: There is no significant difference between the pre-test mean achievement scores of the experimental and control group before applying the treatment.

Ho₂: There is no significant difference between the post-test mean achievement scores of the experimental and control group after applying the treatment.

Ho₃: There is no significant difference between the post-test mean achievement scores of the male and female students in the experimental group after applying the treatment.

2. METHODOLOGY

The study adopted pre-test, post-test control group quasi-experimental research design for the purpose of evaluating the effects of Computer- Assisted Instructional package on teaching Keyboarding theme in Business Studies among students in the selected upper basic schools in Iseyin Local Government Area of Oyo state, Nigeria. The population of this study comprised all the students in Junior secondary school three (JSS 3) in Iseyin Local Government. Purposive sampling technique was employed to select four co-educational schools from Iseyin LG where computer equipment are available and they offer Business Studies. Simple random sampling was employed in selecting 40 students in each of the school chosen. In all 160 students constituted the sample for the study. Subject were therefore classified into the experimental and control group.

2.1 Research Instrument

The test instrument was made up of 40 items of Business Studies Achievement Test (BSAT) which was used as pre-test and post-test to measure both the lower and higher cognitive skills of the students. The test items required multiple choice objective questions with options (A-D) as possible answers to the questions which the students answered before and after the experiment. The experimental group was exposed to business studies lesson using CAI package for period of 6 weeks while the control group was taught the same using the conventional traditional method. After the duration of 6 weeks of treatment for the experimental group and the 6 weeks of lecture method for the control group, the post-test (BSAT) was administered to both groups. However, five trials were made before the package become successful.

It was then tested with some few selected Junior secondary schools in Iseyin Local Government Area. These schools used for testing the package falls between the population of the study but not part of the schools selected for the study. Some of the complaints from these selected students about the package was later used for further modification and finally perfected the package. Item analysis of the instrument was also carried out to determine the facility and discrimination indices; using discriminating power and difficulty index to select the best forty items that constituted the BSAT. The final forty items for the instrument were selected and the reliability coefficient using the split-half approach and the Kuder Richardson formula 21(KR-21) yielded a value of 0.86 which indicates a high correlation and reliability of the instrument.

Research Question 1: Is there any difference in the pre-test mean achievement scores of students in experimental and control group before commencing the experiment?

Hypothesis 1: There is no significant difference between the pre-test mean achievement scores of the experimental and control groups before applying the treatment.

Table1: Pre-test mean achievement scores for both experimental group and control group.

Group	N	X	SD	T	df	Sig.(2—tailed)	Decision
Experimental	80	13.81	2.32	1.85	79	0.068	Not
Control	80	12.86	3.60				Significant

Significant at 0.05 Alpha level

Table 1 shows that the pre-test mean achievement score and standard deviation of the experimental group was 13.81 and 2.32 respectively while the mean achievement score and standard deviation of the control group was 12.86 and 3.60 respectively. The result in Table 1 indicated no significant difference at 0.05 level of the pre-test mean scores of the experimental and control group. This is because $t(79) = 1.85$; $\text{sig}(2\text{-tailed}) = .068$ and $P > 0.05$. This therefore implies that both groups were of equal ability. Hence the first null hypothesis has been accepted and also answers research question 1.

Research Question 2: Is there any difference in the post-test mean achievement scores of students in experimental and control groups after applying the treatment?

Research Hypothesis 2: There is no significant difference between the post-test mean achievement scores of the experimental and control groups after applying the treatment.

Table 2: Post-test mean achievement scores of the experimental and control groups.

Group	N	X	SD	t	df	Sig.(2-tailed)	Decision
Experimental	80	34.48	3.53	36.6	79	.000	Significant
Control	80	15.83	3.46				

Significant at 0.05 Alpha level.

From the table 2, the post-test mean achievement scores of the experimental and control groups were 34.48 and 15.83 respectively. A significant difference existed between the post-test mean achievement scores of the experimental and control groups. The experimental group apparently performed better than the control group. This is upheld because $t(79) = 36.6$; $\text{sig}(2\text{-tailed}) = .000$ and $P > 0.05$. The result answered research question two and null hypothesis two, therefore, null hypothesis two is rejected.

Research Question 3: Is there any difference in the post-test mean achievement scores of male and female students in experimental group after applying the treatment?

Research Hypothesis 3: There is no significant difference between the post-test mean achievement scores of the male and female students in the experimental group after applying the treatment.

Table 3: Post-test mean achievement scores of male and female students in the experimental group.

Group	N	X	SD	t	Df	Sig.(2-tailed)	Decision
Male	40	34.03	3.32	0.38	39	.970	Not
Female	40	34.05	3.36				Significant

Table 3 answers research question 3 and hypothesis 3. The post-test mean achievement scores of male and female students in the experimental group were 34.03 and 34.05 respectively. At 0.05 level of significance, the result in table 3 shows that $t(39) = 0.38$; $\text{sig}(2\text{-tailed}) = .970$ and $P > 0.05$ hence; there was no significant difference between the post-test mean achievement scores of male and female students in the experimental group. Therefore, gender influence on the achievement of the students in the experimental group was insignificant. The null hypothesis three is accepted.

3. DISCUSSION

The findings indicated no significant difference in the pre-test mean scores of both experimental and control group before the commencement of the experiment. This finding agree with the studies of Dhevkrishnan et al (2012) on the effectiveness of computer assisted instruction (CAI) in teaching of Mathematics at secondary level where the pre-test showed no significant difference. The findings equally revealed that there was a significant difference in the performance of students taught keyboarding with computer assisted instruction (CAI) package. The findings agree with the studies of Egunjobi, (2002) in Geography, Udousoro, (2000) in Mathematics, Okoro, and Etukudo, (2001) in Chemistry, Azih and Nwosu (2011) in Financial Accounting, Gana (2013) in Physics, Kareem, (2015) in Biology, Okoli and Nwosu (2010) in Financial Accounting, all conducted in Nigeria which confirmed that CAI has been effective in enhancing students' performance in other subjects than the conventional classroom instruction.

The influence of gender on the academic performance of students in keyboarding when taught with CAI package was examined using hypotheses three. The result of the studies showed that gender had no influence on the performance of students in keyboarding. These findings on gender agree with the earlier findings of Spencer (2004), Yusuf and Afolabi (2010). Also, the findings of this study conformed to findings of Tabassum (2004) that computer-assisted instruction was equally effective for both male and female students. Thus, it can be deduced that the use of computer assisted instruction enhanced the performance of both male and female students.

4. CONCLUSION

The result of the present study clearly points out the significant increase in the mean scores has been found in the post-test scores of the experimental group. Significance difference have been found between the control and experimental group on post test scores. Computer assisted instruction (CAI) package can also be seen as effective tool for developing individual cognitive structure, psychomotor and affective ability. Innovative instructional strategies as advocated by the Nigerian policy on information technology can be implemented in teaching business studies through computer assisted instruction at all level of education which will significantly improve students' achievement.

5. RECOMMENDATION

1. Training of teachers on keyboarding skills and hand-on computer authoring software application through seminars, workshops, conferences as well as in-service training.
2. Development of interest by teachers in the use of CAI packages and ICT resources for teaching Business Studies in Nigeria junior secondary schools.
3. Emphasize in practical teaching of keyboarding in junior secondary schools by school administrators.
4. Diffusion of CAI package and replication of the approach used in this study to develop other subjects in upper basic schools
5. Training programmes should be encouraged for continuous update on any new technological development and innovations for academic purposes,
6. Teachers of Business Studies should be provided with in-service training for teaching skill update in the use of modern and students-centred instructional strategies such as CAI

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