



Effect of Computer Assisted Instruction on Secondary School Students' Achievement in Financial Accounting

Ethel-Echedo, Ebere Margaret

Department of Technology and Vocational Education, Nnamdi Azikiwe University, Awka

Abstract: *This study investigated the effect of computer assisted instruction on secondary school students achievement in financial accounting in Anambra state. Two null hypotheses were tested at 0.05 level of significance. The study adopted a non-randomized non-equivalence post-test quasi-experimental design. The population of the study was 14,268 Senior Secondary One (SS1) students in 254 government-owned secondary schools in Anambra State in the 2018/2019 academic session. A sample of 97 students selected from two intact classes participated in the study. The sample was selected using multi-stage sampling technique. Researcher developed Achievement in Financial Accounting Test (AFAT) for post-test. The instrument was validated by experts and reliability index of .90 was established. Data obtained were analysed using t-test statistics and ANCOVA. The findings showed among others that, there was significant difference between the mean achievement scores of the students taught financial accounting using computer assisted instruction and those taught using the lecture method; there was significant difference between the mean achievement scores of male and female students taught financial accounting using computer assisted instruction; and there was significant interaction effects of teaching methods and gender on students' mean achievement scores in financial accounting. Based on the findings, it was recommended among others, that teachers should adopt Computer assisted instruction in teaching Financial Accounting to enhance students' academic achievement in schools.*

Key words: *curriculum, national economic goals, economic development*

Introduction

Accounting is the language of business. People need knowledge of accounting to keep their businesses afloat. Accounting is the art of recording, classifying and summarizing in a significant manner any transaction and event which, are at least of a financial character, and interpreting the results thereof (American Institute of Certified Public Accountants, in Olugbenga, 2014). Financial accounting which is a branch of accounting, is the communication of information about a business or of organization so that individuals can assess its financial health and prospects. The secondary school financial accounting is meant to prepare students for the challenges of the business world.

At the secondary school level, financial accounting teachers understand the relevance of financial accounting to business practices and consequently seek to provide students with rich learning experiences that will assist them to learn the rudiments of accounting practices. While doing this, teachers employ the conventional lecture method to impart knowledge and skills in financial accounting. Lecture has been arguably the most popular method used by teachers to provide learners with rich learning experiences (Okoli, 2013). It is doubtful however, whether

this has transformed to higher achievement among students. Achievement refers to the extent to which objectives are achieved in a given learning experience or activity. The resultant poor achievement of students in the financial accounting public examinations over the years seem to send the message that lecture has not been effective. For instance, The WAEC Chief Examiners Report of candidates' performances between 2004 and 2006, and 2011 to 2014 indicated that students have not performed well in the subject. Educators as a result have been worried on how to improve the learning of financial accounting in secondary schools. As a consequence, many innovative techniques have been advocated for effective teaching of financial accounting in the secondary schools. One of this innovative techniques is the use of computer assisted instruction (CAI).

CAI is a teaching and learning strategy in which topics to be taught is carefully planned, written and programmed in a computer (Sofa, Ezenwa & Wushishi, 2013). The potentials of CAI have been widely reported. For example, in a review of empirical studies on CAI, Oduwaiye (2009) found among others, that the use of CAI as a supplement to conventional instruction produces higher achievement than the use of conventional instruction alone in subjects like mathematics where students have been found wanting. In addition, students learn instructional contents faster and retain instructional contents more when taught using CAI than when taught using conventional instruction method. Another subsequent study (Mahammed, 2008) has confirmed also students' positive attitude to CAI and its relationship with their ability to retain content. Earlier, Kara and Kaharaman (2018) studied the effect of computer assisted instruction on academic achievement of students on Physics of 7th grade science lesson and found that the CAI was more effective than the traditional instruction on the academic achievement levels.

Likewise, whether gender plays a role in achievement especially with the use of innovative techniques like CAI has been recurring in academic discourse. Gender is a set of characteristics which distinguish between male and female, particularly in the cases of men and women roles on specific issues like achievement (Ajai & Imoko, 2005). It is likely that preconceived gender expectations affect how people perceive and define gender roles in reality. It is the view of Pusavat (2007) that there is difference in the way male and female perceive realities. These differences may affect their levels of achievement in financial accounting where the CAI plays a mediatory role, hence its interest in this study.

The studies so far reported focused on subjects other than secondary school financial accounting. It is important therefore to test the effect of CAI on achievement of students in financial accounting, as well as gender differences in their achievement in financial accounting at the secondary school level.

Statement of the Problem

The secondary school financial accounting aims to equip students with the knowledge and skills that will enable them to ascertain the results of business operations. The subject is therefore very important for students to participate actively in the world of business. Learning financial accounting, however, appears difficult to a large number of students. The lack of understanding of the rudiments of financial accounting often causes discouragement amongst students who tend to shy away from the subject. Most students who eventually enrol for the

subject in public examinations like the WAEC and NECO have come out with abysmally poor results. A number of factors have been put forward to explain why many students fail financial accounting in secondary schools, one of which is ineffective instructional techniques employed by teachers. The Computer assisted instruction (CAI) could be an appropriate technique to reconcile students with the Financial Accounting contents of the curriculum. The CAI has been employed in the teaching of some subjects like Physics, Mathematics, Chemistry, and in other settings to improve students' achievement with positive results. Whether the same could be replicated in Financial Accounting is yet to be determined.

The problem of the study is whether the use of computer assisted instruction (CAI) would be more effective than lecture in the teaching of Financial Accounting among students in secondary schools.

Purpose of the Study

The study aimed to determine:

1. the effect of computer assisted instruction (CAI) on secondary school students' academic achievement in Financial Accounting;
2. the effect of computer assisted instruction (CAI) on achievement of male and female secondary school students in Financial Accounting.
3. the interaction effect of teaching methods and gender on students' achievement scores in financial accounting.

Hypotheses

Ho1: There is no significant difference between the mean achievement scores of secondary school students taught Financial Accounting using computer assisted instruction (CAI) and those taught using lecture method.

Ho2: There is no significant difference between the mean achievement scores of male and female secondary school students taught Financial Accounting using computer assisted instruction (CAI).

H03: There is no significant interaction effect of teaching method and gender on students' achievement scores in financial accounting.

Method

This study adopted a non-randomized non-equivalence post-test quasi-experimental design. Two groups (Experimental and Control Groups) were involved in the study. The experimental group (CAI-G) was exposed to topics in financial accounting using a computer projector. The control group (Lec-G) was taught the same topics in financial accounting using the conventional method. In this case, the CAI was the variable being manipulated and whose effect were compared with conventional method, while students' achievement was the variable measured. The target population of this study was 14,268 first year senior secondary school students (SSI) in 254 public secondary schools in Anambra State, Nigeria. A multi-stage sampling technique was used to select two intact classes 97 students from two secondary schools from different Education Zones of the State. Thus a class of 50 students was used for the experimental group while the other class of 47 students was used as control group.

The instrument used for the study was Achievement Test in Financial Accounting (ATFA). The test covered topics on meaning of and format of a journal, journalising, and preparation of

journal accounts selected from the SS1 Financial Accounting syllabus. ATFA comprises 50 multiple choice questions; lettered a-e, all questions carry equal marks. Provisions were made for names and sex of participants. The content validity of the instrument was decided by three specialists at Nnamdi Azikiwe University, Awka. Reliability coefficient of .90 was estimated for the instrument. Two trained teachers were assigned to the groups and they taught the students for 4 weeks before posttest was conducted. T-test and ANCOVA were used to test the hypotheses at 0.05 level of significance. ANCOVA was considered appropriate because it controlled the initial differences across groups and increased the precision due to the extraneous variables.

Results

Re-statement of Hypotheses

Ho1: There is no significant difference between the mean achievement scores of secondary school students taught Financial Accounting using computer assisted instruction (CAI) and those taught using lecture method.

Table 1: t-test of difference in mean achievement scores of the two groups

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
CAI	69.722	49	.000	75.10000	72.9354	77.2646
Lecture	43.446	46	.000	43.17021	41.1701	45.1703

Data in Table 1 show the t-test of significance between the mean achievement scores of secondary school students who were taught financial accounting using computer assisted instruction and those taught using lecture method. Since the p-value of .00 is lower than the alpha value of .05, the null hypothesis was rejected. There was significant difference between the mean achievement scores of students taught financial accounting using the computer assisted instruction and those taught with the lecture method.

Ho2: There is no significant difference between the mean achievement scores of male and female secondary school students taught Financial Accounting using computer assisted instruction (CAI).

Table 2: t-test of difference in mean achievement scores of male and female students in CAI group

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Male	51.310	20	.000	74.57143	71.5398	77.6031
Female	48.768	28	.000	75.48276	72.3123	78.6532

Data in Table 2 show the t-test of significance between the mean achievement scores of male and female secondary school students who were taught financial accounting using computer assisted instruction. Since the p-value of .00 is less than the alpha value of .05, the null hypothesis is rejected. There is significant difference between the mean achievement scores of male and female students taught financial accounting using the computer assisted instruction.

H03: There is no significant interaction effect of teaching method and gender on students' achievement scores in financial accounting.

Table 3: Interaction effect of teaching methods and gender on achievement Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	CAI	887.143 ^a	19	46.692	.	.000
	Lecture	1052.738 ^b	19	55.407	12.313	.221
Intercept	CAI	106732.417	1	106732.417	.	.
	Lecture	35921.959	1	35921.959	7982.658	.007
Male	CAI	701.833	7	100.262	.	.
	Lecture	600.000	7	85.714	19.048	.175
Female	CAI	.000	4	.000	.	.
	Lecture	367.000	4	91.750	20.389	.164
Male * Female	CAI	.000	0	.	.	.
	Lecture	.000	0	.	.	.
Error	CAI	.000	1	.000		
	Lecture	4.500	1	4.500		
Total	CAI	117666.000	21			
	Lecture	39543.000	21			
Corrected Total	CAI	887.143	20			
	Lecture	1057.238	20			

a. R Squared = 1.000 (Adjusted R Squared = 1.000)

b. R Squared = .996 (Adjusted R Squared = .915)

The data in Table 3 show the interaction effects of teaching methods and gender on students' achievement in financial accounting. Since the p-value of .00 is less than the alpha value of .05, the null hypothesis is rejected. The model is therefore significant. There is significant interaction effects of teaching methods and gender on students' achievement in financial accounting.

Discussion

The study found that students who were taught with computer assisted instruction had mean achievement score of 75.10, while students taught financial accounting with lecture method had mean achievement score of 43.17. The corresponding hypothesis one showed that there was significant difference between the mean achievement scores of the two groups. The finding suggests the efficacy of computer assisted instruction in teaching financial accounting to students in secondary schools and the ineffectiveness of the dominant traditional lecture

method. Mohammed (2018) in a study has identified poor and ineffective teaching method as one of the challenges of teaching financial accounting in Nigerian secondary schools. The finding is consistent with the earlier studies on the effect of computer assisted instruction on the achievement of students in various subjects. For instance, Kara and Kaharaman (2008) studied the effect of computer assisted instruction on academic achievement of the students on the instruction of Physics and found that the CAI was more effective than the traditional instruction on the academic achievement levels.

On the moderating influence of gender, the study found that male students who were taught financial accounting with computer assisted instruction had mean achievement score of 74.57, while their female counterparts had mean achievement score of 75.48. The corresponding hypothesis also indicated that there was significant difference between the mean achievement scores of the two groups. Female students statistically achieved better than their male counterparts in achievement scores. The study disagreed with Yusuf and Afolabi (2010) who investigated the influence of gender on the performance of students exposed to CAI in individualized or cooperative learning setting package and found that no significant difference existed in the performance of male and female students exposed to CAI in either individual or cooperative settings. However, the difference in findings could be as a result of difference in subjects under consideration.

The study also found that there was significant interaction effects of teaching methods and gender on students' mean achievement scores in financial accounting. It follows that teaching methods and gender could exert some significant influence on students' achievement.

Conclusion

The study compared the effects of computer assisted instruction on secondary school students' achievement in Financial Accounting in Anambra State. Using non-randomized non-equivalence post-test quasi-experimental design, the study found that students taught using the computer assisted instruction achieved better than those taught with lecture method. Innovative strategies like the computer assisted instruction, therefore should be employed by secondary school teachers in Financial Accounting in order to improve students' achievement in the subject in the public examinations.

Recommendations

The following are recommended:

1. Teachers should often adopt CAI in teaching Financial Accounting to enhance students' academic achievement in schools. The use of lecture method of teaching should be combined with CAI in Financial Accounting class for effectiveness.
2. Teachers should attend capacity-building programmes for upgrading in the use of innovative teaching method like CAI for effective learning in secondary schools.
3. Parents should install online gadgets at home and regulate the usage for CAI in Financial Accounting by their children to facilitate learning among secondary school students.

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