EFFECT OF THE SYNERGY BETWEEN FORMAL AND INFORMAL EDUCATION IN FINANCIAL ACCOUNTING INSTRUCTIONAL DESIGN IN PORTHARCOURT METROPOLIS SECONDARY SCHOOLS

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Abstract

This study investigated the effect of Cognitive Apprenticeship instruction (CAI) in the teaching of Financial Accounting in secondary schools in Port Harcourt metropolis. The study used Quasi-experimental design. The population of the study consisted of all Financial Accounting students in the twenty one (21) government secondary schools in Port Harcourt. A sample of 80 students was used for the study. Instruments used for the study were Trading, Profit and Loss Accounting Achievement Test (TPLAAT) and Trading, Profit and Loss Accounting Interest inventory (TPLAII). The instruments were validated by two experts in measurement and evaluation and two stakeholders in financial accounting. The reliability coefficient of 0.76 and 0.78 was obtained respectively using Kuder Richardson 20 formula. Research questions were answered using mean and standard deviation while hypotheses were tested using Analysis of Covariance (ANCOVA) at .05 level of significance. The study revealed that students taught trading, profit and loss account with CAI improved in their academic performanceas well as their interest significantly.It was recommended amongst others that Financial Accounting teachers should adopt the CAI for effective teaching of Financial Accounting in secondary schools.

Key words: Apprenticeship Instruction, Cognitive,Financial Accounting,Secondary School.

Introduction

In Nigeria, the National Policy on Education (FRN, 2013) stated that Secondary school education is the education children receive after primary education and before tertiary education.

The broad goals of Secondary school education include to prepare the individual for:

1. Useful living within the society; and
2. Higher education.

To achieve this, the Secondary school shall be of six (6) years duration, given in two stages called the Junior Secondary School and the Senior Secondary School. The Junior Secondary

School shall teach basic subjects to enable students acquire knowledge and skills, while the Senior Secondary School shall be comprehensive, with a core-curriculum designed to broaden pupils' knowledge and out-look. Secondary school education generally provides entrepreneurship trainingwhich enables the youths to participate in socio-economic development in the society. It also prepares the youths for the world of work and wealth creation (FRN, 2014).

Financial accounting as a subject in secondary school places its emphasis from skill acquisition to competency at work place. The curriculum is designed according to the demand of the society. It includes ICT skills, business skills, and social skills.Financial Accounting is to arm senior secondary school students with some specific skills, knowledge and appropriate certificate to pursue a chosen trade or career; and to provide training that enables students acquire continuous education that make them self-reliant, wealth creators and providers of employment (FRN, 2013). This goes to point out that entrepreneurship education has been integrated into Financial Accounting curriculum .The contents has been well established to include basic managerial knowledge and skills required for effective management of business.

Based on the objectives of Financial Accounting as deduced from Vocational Education according to (FRN, 2013), the course contents comprises of concept, facts and skills which could aid the development of students' entrepreneurial skills. Financial Accounting curriculum, if well implemented using the right teaching methods can serve as a tool for job creation. Through effective teaching of Financial Accounting with appropriate teaching methods, youths can develop and acquire skills which will enable them to be gainfully employed, thereby solving the problem of insecurity Nigerians are facing in this 21st century. Financial Accounting equips individuals with appropriate entrepreneurial skills, knowledge, abilities, competencies and experiences that will enable the individual to be self -reliant and self-employed which will lead to sustainable economic growth. These are the reason why Financial Accounting is grouped among vocational or entrepreneurial subjects.

Amam (2001) remarked that teachers mainly concentrate on the theoretical aspect of teaching Financial Accounting while neglecting the practical dimensions. However, Fiet (2010), stressed that teachers rely on traditional methods such as lecture, play way, demonstration and case study; because they can be easily accomplished, and also because they require less investment.These traditional methods are less effective in teaching Financial Accounting because they make students become dormant participants. In the same vein, Guogian (2010) observed that many teachers and students think of examination as the end of learning and teaching and the passing rate as the only standard to value the teaching quality. More attention in teaching is paid to the cultivation of the students' competence and less attention to the ability of students to use the knowledge, which leads to the fact that many students cannot use what they have learned in practical situation. This situation has greatly impede students' understanding of Financial Accounting as witnessed in secondary schools today. For this reason,current developments in research and technology have given rise to the adoption of new methods of teaching which have the potential to be efficient in meeting today's 21st centurylearners needs(Udoetuk, 2006).The aim of teaching is to effect changes in the learners which can only come as a result of effective teaching and learning through the adoption of suitable teaching methods, hence, the recommendation for the adoptionof Cognitive Apprenticeship instruction in teaching Financial Accounting subject.

A Cognitive Apprenticeship is a trade apprenticeship where learning takes place as experts (teacher or more knowledgeable peer) and novice interact socially, though focused on completing a task.The focus, as implied in the name, is on developing cognitive skills through participating in authentic learning experiences. Cognitive means relating tothe mental process involved in knowing, learning, and understanding things. Apprenticeship involves learning physical, tangible activities. In apprenticeship, the processes of the activity are visible. In schooling, the processes of thinking are often invisible to both the students and the teacher. Cognitive apprenticeship therefore is a model of instruction that works to make thinking and learning visible. Collins et al (1989) briefly define cognitive apprenticeship as learning-through-guided-experience on cognitive and metacognitive, rather than physical, skills and processes (synergy between formal and informal education).

Apprenticeship embeds the learning of skills and knowledge in their social and functional context.In today`s Financial Accounting classroom, teaching is not based on the social context of the learners, the environment where the learners are living. Even the teachers do not employ methods which can help them adapt to their environment. Knowledge acquired by students in Secondary Schools should be relevant to the society for which it is meant, this is why National Policy on Education (2013) stated that the skills acquired in Secondary Schools should enable them to be self-reliant and contribute to the development of the society. In line with this assertion, Cognitive Apprenticeship instruction is hereby suggested to be used in teaching Financial Accountingin Secondary Schools.

Teaching and learning through cognitive apprenticeship requires making implicit processes visible to learners so they can observe and then practice them (Collins, Brown, & Newman, 1989). Furthermore, Collins, Brown, and Newman designed six teaching methods - modeling, coaching, scaffolding, articulation, reflection and exploration. These methods support the goals of cognitive apprenticeship theory.

In modeling, the teacher sets the example; demonstrate the temporal process of thinking. In explanation, theteacher explaining why activities take place as they do. In coaching, the monitoring of students' activities and assisting and supporting them where necessary. In scaffolding the teacher supports the students so that they can cope with the task situation. The strategy also entails the gradual withdrawal of teacher from the process, when the students can manage on their own. In reflection, the students evaluate and analyses his performance. In articulation the results of reflection are put into verbal form. Also, in explorations the students are encouraged to form hypotheses, to test them, and to find new ideas and viewpoints. No matter which aspect of the cognitive apprenticeship instructional method component that is used, students will ultimately have to practice the task on their own after practicing with their teacher, using materials clearly provided by the teacher and imitating the teacher's actions to complete the task themselves. What seems to be unique in this method according to Igboko (2004), is that it sufficiently enables the learner to concretize phenomena through personal interpretation of experience which could enhance their practical skill achievement.Cognitive Apprenticeship Instruction is used to bridge the gap between formal and informal learning as it help to concretize Financial Accounting concept if used as instructional method.

Formal Education refers to teaching that happens in the schools, following an official curriculum. Learning in formal systems is generally hierarchic (i.e., based on learning objectives that are organised into linear progressions).Institutions and educators have timetabling responsibilities (Johansson, 2003) and employ direct teaching behaviours (e.g., actions explicitly intended to instruct knowledge and skills and to manage a classroom, such as demonstrating, explaining, giving feedback, making corrections, and setting goals (Jung & Choi, 2016)). Formal systems also tend to stipulate minimum requirements for mandated learner participation (e.g., years of attendance or guided learning hours). Learning in formal systems is intentional on the part of educators and learners. Formal learning often results in certification and recognition in ratified diplomas or qualifications (Ivanova, 2016).

Informal education is the name given to learning that is unstructured and takes place away from traditional, formal learning settings, like a classroom. It has no set goals or set objectives as it is often unplanned and self-directed by the learner. It is a process of acquiring knowledge, skills and attitudes outside of formal structured education programme. It can happen in any setting such as workshop, at home or during leisure activities. Defining informal learning can also be problematic as some people used the terms *informal* and *non-formal* interchangeably (Colley et al., 2003). Coombs and Ahmed provide a much-cited definition of informal learning as:

"the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment ... generally [it] is unorganized and often unsystematic; yet it accounts for the great bulk of any person's total lifetime learning-including that of even a highly 'schooled' person (coombs & ahmed,1974)."

This definition implies that informal learning includes a number of elements. It can be a byproduct of other experiences (Allaste*et al*., 2021).

The synergy between formal and informal education could easily be discuss under the concept of 'Formal Apprenticeship Programme'. The formal apprenticeship is a deliberately structured training which alternates learning/training in an institution and in workplace. It enables learning and working at the same time which aid learner to acquire skills for trade or craft through an experienced craftsman. Both secondary and post-secondary education serve as source of formal apprenticeship which enables student the opportunity of engaging in supervised workplace practice in any industry. These highlight the important of Industrial training and Teaching Practice in higher institutions of learning. We believe that if this concept of formal apprenticeship is introduced in the teaching and learning of financial accounting, it would make a lot of difference in students' academic performance and interest. This is because Financial Accounting is a practical subject as such; require practical instructional method such as Cognitive Apprenticeship instructional method that is; classroom learning (Cognitive) is combined with practical learning (Apprenticeship) for easy understanding of Financial Accounting concepts. Topics like trading, profit and loss account and departmental account and many others do not fit into conventional or traditional teaching methods because of its practical nature, but these are the methods that are mostly used in our schools, no wonder the students' poor performance and lack of interest in the subjects. Having noticed the poor performance of students in Financial Accounting occasioned by the teaching method employed by the teachers, this study was carried out to examine; the effect of the synergy between formal and informal education in Financial Accounting Instructionaldesign in Port Harcourt metropolis Secondary Schools.

Statement of the Problem

The importance of financial Accounting as a subject as far as National development is concerned cannot be overemphasized. Financial Accounting arms senior secondary school students with some specific skills, knowledge and appropriates certificate that enables them pursue a chosen trade or career. It provides training that enables students acquire continuous education that makes them self-reliant, wealth creators and providers of employment. All these benefits cannot be achieved or realized if the curriculum is poorly implemented. For example, West African Examination Council (2020) analysis showed that the Financial Accounting students' recorded 60 percent failure; this poor performance is suspected to be caused by poor implementation of the curriculum.

Information obtained from financial accounting students by the researchers shows that financial accounting students do not apply the concept and principles learnt in school in their socio-cultural environment after leaving secondary school. This situation is blamed on the teaching methods frequently used in teaching the students such as lecture method, discussion method etc. These conventional methods adopted by financial accounting teachers' have also been blamed for students' lack of interest and poor academic performance.A cognitive Apprenticeship instruction is hereby suggested to be used in the teaching of Financial Accounting, have been used successfully in teaching subject like English Language, mathematics. Hence, this study set out to determine the effect of CAI in the teaching of Financial Accounting Port Harcourt Metropolis.

Purpose of the Study

The purpose of this study was to ascertain the effect of using CAI in improving secondary students' performance and interest in financial accounting in Port Harcourt. Specifically, todetermine whether:

1. Students taught Trading, profit and loss account using CAI perform better than those taught with conventional method.
2. Students taught Trading, profit and loss account using CAI develop interest in Financial accounting better than those taught using conventional method.

Research Questions

The following research questions were asked;

1. What are the mean achievement scores of students taught Trading, profit and loss accountusing CAI and those taught Trading, profit and loss account using conventional method?
2. What are the mean interest scores of students taught Trading, profit and loss account using CAI and those taught Trading, profit and loss account using conventional methods?

Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance.

1. There is no significant difference between the mean achievement scores of students taught Trading, profit and loss account using CAI and those taught Trading, profit and loss account using conventional method.

2. There is no significant difference between the mean interest scores of students taught Trading, profit and loss account using CAI and those taught Trading, profit and loss account using conventional method.

Research Method

The study used the quasi- experimental design. It was carried out in Port Harcourt Metropolis of Rivers State.The population of the study consisted of all the Financial Accounting students in the 21 government secondary schools in Port Harcourt metropolis.Purposive sampling techniques was use to select one school since the school is centrally located in PortHarcourt as well as the researchers convenience. Senior secondary school one (SSS1)classes was chosen for the study because at thislevel, Financial Accounting is made compulsory for all the students. Again, it is at this level that the students develop interest ina subject.Two streams of the class selected were used for the study. An intact class was used. The experimental and control groups were made up of 40 students each. The essence of intact classes was to avoid interferences and distraction of normal activities in the classroom. A total of 80 students were used. Senior secondary one A and B were used for the experimental and control group respectively.

Instruments of the study were Trading, Profit and loss Accounting Achievement Test (TPLAAT) and Trading, Profit and loss Accounting Interest Inventory (TPLAII). They were validated by two experts in measurement and evaluation and two stakeholders in Financial Accounting education. Reliability coefficient of 0.76 and 0.78 were obtained respectively using Kuder Richardson 20 formula. Research questions were answered using mean and standard deviation while analysis of covariance (ANCOVA) was used to test the hypotheses at .05 level of significance.

Procedure

In carrying out this study, a stream of the chosen class was randomly assigned experimental and control groups. This was done by the use of a throw of a coin with the head being assigned experimental group and the tail control group. The regular Financial Accounting teacher taught the control group while the researchers introduced as a newly posted Financial Accounting teacher taught the experimental group using CAI. The classes were already intact. After the assignment, pre-test was administered to the subjects before the commencement of the pre-test. Subjects in both experimental, and control groups were taught the same topics (trading, profit and loss account) within the same length of time. Each group was taught for three weeks of four periods of 40 minutes each per week. In all, 15 lessons were taught during the period of the study. The same instrument was used for both pre-test and post-test. However the post test was disguised by reshuffling items in the instrument of study.

Results

Research question 1

What are the mean achievement scores of students taught trading, profit and loss account using CAI and those taught trading, profit and loss account using conventional method.

The answer to this question is presented in Table 1.

Table 1: Mean achievement scores, Standard Deviation and adjusted mean scores of experimental and control groups

Variable	Mean		Standard deviation		Adj. mean scores
	Pre-test	Pre-test	Pre-test	Post-test	
Experimental group	22.93	56.75	8.02	7.98	55.86
Control group	21.18	44.50	8.72	10.25	43.02

Table 1 shows that the experimental group had a mean Score of 22.93 with standard deviation of 8.02 in the pre-test and a mean score of 56.75 with standard deviation of 7.98 in the post-test. While the control group had a mean score of 21.18 with standard deviation of 8.72 in the pre-test and a mean of 44.50 with a standard deviation of 10.25 in the post-test. The adjusted mean scores for Experimental and Control groups are 55.86 and 43.02 respectively. This indicates that there exists positive difference in students' trading, profit and loss account achievement in favourof those taught using CAI.

Research Questions 2: What are the mean interest scores of students taught trading, profit and loss accountusing CAI and those taught trading, profit and loss account using conventional methods. The answer to this question is presented in Table 2.

Table 2: Mean and standard deviation of students' pre and post statistics Interest scores

S/N	Statement	Pre Mean (X)	SD	Rem	Post Mean (X)	SD	Rem
1	I hate trading, profit and loss account because it is very difficult	2.02	0.96	DA	2.85	0.51	DA
2	Solving trading, profit and loss account related questions using T format saves time	1.89	0.99	DA	3.00	0.41	A
3	I will like to be an accountant in the future	2.50	1,01	A	2.89	0.34	A
4	Answers are more accurate when computer is used in solving trading, profit and loss account questions	2.04	0.67	DA	2.75	0.78	A
5	Computers solve complex trading, profit and loss account questions faster than manual method	2.89	0.97	A	2.72	0.65	A
6	Computer is friendly to every user	1.45	0.88	DA	2.68	0.56	A
7	Computer gives room for feedback as many times as possible	2.00	0.96	DA	2.58	0.82	A
8	My interest in accounting has improved since I began learning the subject.	2.65	0.76	DA	3.12	0.82	A
9	trading, profit and loss account is not a bored topic	2.54	0.89	A	2.78	0.34	A
10	Solving trading, profit and loss account problems using T method is preferable.	2.09	0.99	A	3.24	0.34	A

From the table it could be observed that the mean scores of students on each of the items ranged from 2.58 to 3.12. In the same vein, their standard deviation ranged from 0.34 to 0.82. This deviation in their opinions appears to be quite close. Similarly all the items meet up with the cut-off point of 2.5 meaning that the statements are agreeable to the subjects.

Research Hypothesis 1

There is no significant difference between the mean achievement scores of students taught trading, profit and loss account using CAI and those taught trading, profit and loss account using conventional method.

The result of test of this hypothesis is presented in Table 3.

Table 3: Analysis of Covariate of students' post Achievement scores due the use of CAI

Sources of Variance	Sum of Square	Df	Mean Square	F-cal	F-crit
Covariate	87.754	1	87.754	5.696	
Main Effects	868.527	2	289.509	89.931	3.96
Method & Achievement	852.020	1	332.508	99.030	
Explained	893.145	3	148.024	86.644	
Residual	6671.032	76	89.334		
Total	**6775.432**	**79**	**98.025**		

Table 3 indicates that F-cal of Main Effect is 89.931 while that of Method versus Achievement is 99.030. All these are greater than the table value of 3.96. This implies that the null hypothesis of no significant difference is rejected.

Research Hypothesis 2

There is no significant difference between the mean interest scores of students taught trading; profit and loss account using CAI and those taught trading, profit and loss account using conventional method. The result of test of this hypothesis is presented in Table 4.

Table 4: Analysis of Covariance of students' Post interest scores due the use of CAI

Sources of Variance	Sum of Square	Df	Mean Square	F-cal	F-crit
Covariate	24.754	1	24.754	0.313	
Main effects	195.503	2	110.231	5.231	3.96
Method & Interest	235.423	1	185.373	6.373	
Explained	896.492	3	265.082	4.268	
Residual	9.86.297	76	78.973		
Total	**4235.789**	**79**	**80.421**		

Table 4 shows that F-cal for Main Effect is 5.231 while that of Method versus Interest is 6.373. These values are all greater than the critical value of 3.96. This finding therefore implies that the null hypothesis of no significant difference is rejected

Discussion of Findings

In research question 1, the study found out that there exist positive difference in students' trading, profit and loss account achievement in favourof those taught using CAI. This means that CAI performed better than the conventional group. This findings is similar to the findings of Ricco (2015), whose research shows that 72% of his respondents would like to use apprenticeship teaching method other than lecture method if the resources were readily available.

Furthermore, this finding is in agreement with the findings of Onwusa and Nwaosa (2020), whose findings revealed that students taught metalwork technology using CAI had better accomplishment, possessed better problem solving skills and retained better than those taught with lecture-demonstration teaching method.

In research question 2, the study revealed that students taught trading profit and loss account using CAI developed interest in Financial Accounting more than those taught using conventional method. This finding may not be surprising because whatever captivates an individual will propel his/her interest. This is in line with Ozden and Cultekin (2008) who found that students who were taught using CAI were able to retain and develop interest In English Language concept than those students taught using lecture/demonstration method. This could be as a result of activities and experiences involved in CAI which made the students to develop their own knowledge,meaning of the concept taught.

Summary of Major Findings

From the analysis of data collated for this study, the following major findings are made:

1. Students taught trading, profit and loss account using CAI have higher mean score than their counter part in conventional method.
2. Students improved their trading, profit and loss account achievement test. More interesting is that this achievement is relatively close as it could be seen from the standard deviation Scores.
3. There is equally an improvement of interest of students in the trading, profit and loss account taught during the course of this Study. Moreover, this was shown to be statistically significant.

Conclusion

This study was borne out of the enormous importance of Financial Accounting in national development and its attendant neglect at the secondary school level,also the noticeable poor students' performance of the subject in both external and internal examination. Cognitive Apprenticeship instruction(CAI) was used to teach secondary school trading, profit and loss account to ascertain if it will help in improving students' performance in the topic. The findings show that students' performance and interest significantly improved due to the usage of CAI in teaching trading,profit and loss account.

Recommendations

The following recommendations are made based on the findings of the study.

Cognitive Apprenticeship Instruction should be incorporated as teaching method in teaching financial accounting secondary schools.

Teachers should improve their knowledge and skill in the use of CAI for effective teaching of financial accounting in secondary schools.

Government should organize workshops on the use of CAI for effective teaching and learning of financial accounting.

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