

Effects of Co-Operative and Problem-Based Learning on Achievement of Secondary Students in Financial Accounting in Akoko-Edo, Edo State, Nigeria

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ABSTRACT

This study investigates the impact of cooperative-based learning on the academic performance of secondary school students in financial accounting within Edo State, Nigeria. The research comprises dual objectives, a pair of research queries, and two null hypotheses. Employing a quasi-experimental design, the study encompassed a population of 217 SSII financial accounting students across nine public senior secondary schools in Akoko-Edo Local Government Education Zone during the 2021/2022 academic session. The study's sample consisted of 118 students from three intact schools. Data were collected using the Financial Achievement Test (FAAT I), comprising pre-test and post-test components. The pre-test was administered before implementing the treatment, while the post-test was carried out afterward. The collected data were evaluated using an established marking scheme. Statistical Package of Social Science (SPSS) version 25 was employed for rigorous data analysis. The research employed mean scores and standard deviations to address the research questions, while hypothesis testing occurred at a significance level of 0.05. The findings indicated that cooperative and problem-based instructional approaches significantly bolstered the academic achievements of secondary school students in financial accounting within Akoko-Edo, Edo State, Nigeria. In conclusion, the study underscores the efficacy of adopting cooperative and problem-based learning techniques to ameliorate the underperformance of secondary school students in financial accounting in the Akoko-Edo region of Edo State, Nigeria. It is recommended that financial accounting educators embrace cooperative and problem-based learning methods across all education levels due to their capacity to enhance achievement, engender interest, and foster the retention of financial accounting knowledge.

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INTRODUCTION

Financial Accounting is one of the commercial subjects designed to identify, record, and communicate financial information that is relevant, reliable, and comprehensive to end users. Longe and Kazeem (2012) defined financial accounting as the process of recording, classifying, summarizing and interpreting the financial transactions and

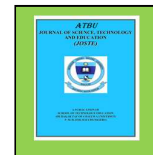
communicating the results to the user of such information. The objectives of financial accounting at secondary school level according to West African Senior School Certificate Examination (2021) is to provide students with knowledge of basic appreciation of the rules and functions of accounting principles and their applications to modern businesses activities. Similarly, National Examination Council (NECO,

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2021) reported that the objectives of financial accounting are to enable students: (i) appreciate the basic rules, functions, and principles of accounting; (ii) laying proper foundation for further study of accountancy and allied courses at higher level and (iii) acquire knowledge of basic accounting principles, practice and their application to modern business activities. Thus through Financial accounting students are expected to acquire skills such as financial record keeping skills.

Despite the importance, laudable objectives and benefits of financial accounting, the enrolment and performance of secondary school students in Senior School Certificate Examination (SSCE) leave much to be desired. Studies have shown that the academic performance of students in the subject is not encouraging. The study of Mohammed, (2011) reported poor performance of students in financial accounting at SSCE level. The West African Examination Council (WAEC) Chief Examiner's report (2015) shows that almost 80.5% of students that sat for financial accounting failed. A survey of five schools in the study area revealed that only 97 students out of the 427 students have credit pass and above in financial accounting in 2016 to 2020 at SSCE level.

The poor performance of students in financial accounting has prompted many scholars have investigated the causes and possible solutions. Research evidences have shown that several factors can lead to poor academic achievement, interest and retention of students. The study conducted by Adamu and Kusa (2018) categorized factors as: school factor, teachers' factor, student factor, parent factor and peer group factor. The authors criticized the use of conventional teaching strategy for teaching financial accounting at secondary school level. To authors suggested the use of constructivism approach. Scholars have also adjudged the effectiveness of cooperative learning in several discipline such as: Economics (Yidani, 2018) and Social Studies, (Ajaja and Meziobi 2018). Ajaja, et al (2018) reported that cooperative learning strategy enhance the performance of students in social studies. Similarly, Mara. Jonassen, Palmer and Luft (2014) suggested the use of Problem-Based Learning (PBL) approach. Problem-Based Learning. Inuwa and Baraya

(2018) also reported that Problem-Based Learning is to improve students' critical thinking, problem solving skills and performance and interest of students in Chemistry. Omega, Iji and Adeniran (2017) reported that problem-based learning (PBL) approach had a more positive effect on performance of students. It is based on these that the researchers specifically (1) determine the difference among the pre-test mean academic achievement scores of Financial Accounting Students in experimental and control groups in Secondary Students in Akoko-Edo, Edo State, Nigeria.; and (2) determine the difference among the post-test mean academic achievements scores of students taught Financial Accounting using Cooperative teaching, Problem-Based Learning and conventional teaching methods in Secondary Students in Akoko-Edo, Edo State, Nigeria.

Research Questions

In line with the specific objectives, the following research questions guided the study:

1. What is the difference among the pre-test mean academic achievement scores of Financial Accounting Students in experimental and control groups in Secondary Students in Akoko-Edo, Edo State, Nigeria?
2. What is the difference among the post-test mean academic achievements scores of students taught Financial Accounting using Cooperative teaching, Problem-Based Learning and conventional teaching methods in Secondary Students in Akoko-Edo, Edo State, Nigeria?

Null Hypotheses

The following null hypotheses were formulated to aid the study and tested at 0.05 level of significance.

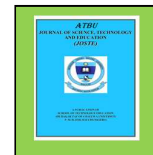
1. There is no significant difference among the pre-test mean academic achievement scores of Financial Accounting Students in experimental and control groups in Secondary Students in Akoko-Edo, Edo State, Nigeria.
2. There is no significant difference among the post-test mean academic achievements scores of students taught Financial Accounting using Cooperative teaching, Problem-Based Learning and

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Conventional teaching methods in Secondary Students in Akoko-Edo, Edo State, Nigeria.

RESEARCH METHODOLOGY

Quasi-experimental research design was used for the study. Quasi-experimental design involves selecting groups, upon which a variable is tested, without any random pre-selection processes. In a quasi-experimental research design, the researchers cannot create the groups to be used for the study artificially, hence the design is considered appropriate because it enabled the researchers to use existing intact classes for the study without disrupting the class arrangement, time table, and contents of the lessons.

The population for this study was all the 217 SSII financial accounting students in the nine public senior secondary schools offering Financial Accounting in Akoko – Edo Local Government Education Zone of Edo State in 2021/2022 academic session. The sample for this study consists of three intact classes of one hundred and eighteen (118) Financial Accounting students from three different schools. In order to provide a suitable sampling frame for the study, purposive random sampling technique was adopted.

The three schools selected were randomly assigned into the two experimental groups and control group. The first school selected was Ojirami Mixed Grammar School (OJMG) with 46 students was assigned Experimental Group One (EG I). The second School, was Ososo Grammar School, Ososo (OGSO) with 30 students and was assigned Experimental Group Two (EG II) and the last school was Ekpesa College, Lampese (ECL) with 42 students, was assigned Control Group (CG). Students in the EG I were exposed to Co-operative Learning (CL), those in EG II were exposed to Problem-Based Learning (PBL). Students in CG were taught using the conventional teaching approach.

The instrument for data collection Financial Accounting Achievement Test (FAAT). The FAAT is divided into Pre-test and Post-test. The pre-test was used to determine the entry level of the students used for the study. The Post-test was used to determine the academic achievement scores of students after subjecting them to respective treatment. The instrument contains 40 multiple choice

questions each adopted from past West African Examination Council (WAEC) examinations and National Examination Council (NECO) for a period of 6 years (2015 - 2020). Since the instrument was adopted from standard examination bodies, West African Examination Council (WAEC) and NECO is considered to be reliable and valid for study as suggested by Osadebe (2014) who opined that an instrument that has been constructed by experts, moderated and used by standard examination bodies should be considered valid for a research study. Going by the argument, the instruments were considered

The researchers employed the service of three (3) research assistants. The research assistants were given three (3) days intensive training on the instructional strategies and how to adopt the teaching approaches into lesson. In the first phase of data collection, the researchers in conjunction with the research assistants from the selected schools, administered the research instruments (Financial Accounting Achievement Test I (FAAT I) pre-test and interest inventory scale (IIS) to the students. The test and inventory questionnaire lasted for 70 minutes. The test scripts were collected and marked by the researchers using the drawn marking scheme in appendix F. The marked scripts and interest inventory questionnaires were further analyzed to determine the position of the three groups on achievement and interest level before treatment.

In the next stage of data collection, the three groups of students were taught manufacturing account independently using respective lesson plan. The instructions lasted for 120 minutes weekly for the period of five weeks. A period was 40 minutes per lesson, one (double period) and one single period weekly. After the treatment stage, the FAAT II was administered to both experimental and control groups. The scripts of FAAT II were marked using the drawn marking scheme by the researchers.

The data obtained from the study were analyzed using the IBM Statistical Package for Social Sciences (SPSS) 25. The package was used to run descriptive statistics of mean scores and standard deviation to answer the research questions and Analysis of Variance

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(ANOVA) was employed to test the null hypotheses at 0.05 level of significance.

RESULTS OF THE STUDY

Research Question One: What is the difference among the pre-test mean academic achievement scores of Financial Accounting Students in experimental and control groups in Secondary Students in Akoko –Edo, Edo State, Nigeria?

The result used to answer research question one presented in Table 1 disclosed the mean score of 32.93 with standard deviation of 6.718 for 46 students in the control group taught financial accounting using conventional

The results of research questions were as presented in Table 1 and 2 while that of hypotheses were in Table 3 and 4.

method. The 42 students in the experimental group I exposed to PBL had mean score of 33.26 with the standard deviation of 7.302. The students in experimental group II exposed to CBL had the mean of 32.57 with standard deviation of 7.933. The grand mean of the 118 students used for the study stood a 32.96 with the standard deviation of 7.202. The mean ranged ± 0.69 which indicated that there was no much difference between the academic achievements of the three groups of students involve in the study prior to the treatment.

Table 1: Descriptive statistics on difference in pre-test mean academic achievement scores of Financial Accounting Students in experimental and control groups

Group	N	Mean	Std. Deviation	Mean range
Control	46	32.93	6.718	± 0.69
PBL	42	33.26	7.302	
CBL	30	32.57	7.973	
Total	118	32.96	7.202	

Source: Fieldwork, 2022

Research Question Two: What is the difference among the post-test mean academic achievement scores of students taught Financial Accounting using Cooperative teaching, Problem-Based Learning and conventional teaching methods in Secondary Students in Akoko- Edo, Edo State, Nigeria?

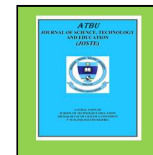
The post-test mean score of 46 students taught financial accounting using conventional method presented in Table 2 stood at 33.89 with standard deviation of 3.82. The post-test mean score of 42 students in

experimental group I (PBL) was 68.60 with standard deviation of 7.082. The students in experimental group II (CBL) had mean score of 55.17 (4.676). The post-test grand mean score of the 118 student was 52.28 with the standard deviation of 9.524. The mean ranged of ± 34.70 obtained was large in favour of students in the experimental groups. The result indicated that there was large difference in the mean scores of the three groups of the students after the treatment.

Table 2: Descriptive statistics on difference in post-test mean academic achievement scores of Financial Accounting Students in experimental and control groups

Group	N	Mean	Std. Deviation	Mean Difference
Control	46	33.89	3.802	± 34.70
PBL	42	68.59	7.082	
CBL	30	55.17	4.676	
Total	118	52.28	9.524	

Source: Fieldwork, 2022



Null Hypothesis One: There is no significant difference among the pre-test mean academic achievement scores of Financial Accounting Students in experimental and control groups in Secondary Students in Akoko-Edo, Edo State, Nigeria.

The result of Analysis of Variance used for the test of null hypothesis one presented in table 3 disclosed the F-value .081 with $p = .923$.

The p -value was found to be greater than the level of significance (.923>0.05). The obtained p -value suggested that there was no significant difference among the pre-test mean academic achievement scores of Financial Accounting Students in experimental and control groups in Secondary Students in Akoko-Edo, Edo State, Nigeria. The null hypothesis was retained. Thus the students are the same before the treatment.

Table 3: Analysis of Variance on difference in pre-test mean academic achievement scores of Financial Accounting Students in experimental and control groups

	Sum of Squares	Df	Mean Square	F	Sig.	Remark
Between Groups	8.498	2	4.249	.081	.923	H0 ₁ retained
Within Groups	6060.290	115	52.698			
Total	6068.788	117				

Source: Fieldwork, 2022

Null Hypothesis Two: There is no significant difference among the post-test mean academic achievement scores of students taught Financial Accounting using Cooperative teaching, Problem-Based Learning and conventional teaching methods in Secondary Students in Akoko-Edo, Edo State, Nigeria.

The statistical evidence documented in Table 4 shows that the result of Analysis of Variance for mean difference among the post-

test mean academic achievements of students taught Financial Accounting using Cooperative teaching, Problem-Based Learning and conventional teaching methods was statistically significant: $F(2, 115) = 125.147, p = .000$ less than 0.05 level of significance. The result suggested that there was significant difference among the mean scores of the three groups of students involved in the study. The null hypothesis was therefore rejected.

Table 4: Analysis of Variance on difference in post-test mean academic achievements of students taught Financial Accounting Students in experimental and control groups

	Sum of Squares	Df	Mean Square	F	Sig.	Remark
Between Groups	7271.029	2	3635.514	125.147	.000	H0 ₃ rejected
Within Groups	3340.742	115	29.050			
Total	10611.771	117				

Source: Fieldwork, 2022

The Tukey HSD post hoc multiple-comparison test presented in Table 5 disclosed the multiple-comparison p -value of .000 and .003. The results indicated that there was difference among the post-test mean academic achievements of students taught Financial Accounting Students in experimental and

control groups. The result therefore suggested that there was significant difference in the post-test mean achievement test of the three sampled groups (control, PBL and CBL) differed significantly. The outcome favoured students in experimental groups.

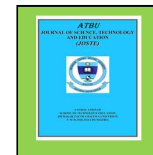


Table 5: Tukey HSD Post Hoc Tests on post-test mean difference among the Financial Accounting students in experimental and control groups

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
Control	PBL	-17.70393*	1.15030	.000
	CBL	-4.27536*	1.26485	.003
PBL	Control	17.70393*	1.15030	.000
	CBL	13.42857*	1.28841	.000
CBL	Control	4.27536*	1.26485	.003
	PBL	-13.42857*	1.28841	.000

Source: Fieldwork, 2022

DISCUSSION OF FINDINGS

The result of research question one in table 8 and the test of corresponding null hypothesis one disclosed that there was no significant difference among mean academic achievement scores of financial accounting students in the experimental and control groups. That is, before treatment, the students in the three groups involved in the study achieved the same level of academic skills and ability. This suggested that there was equality in the mean achievement scores of financial accounting students assigned to Co-operative based learning, Problem-Based learning and Conventional method before exposure to the treatment. This was in line with the study carried out by Inuwa, et.al (2017) which indicated that there was no significant difference between the mean achievement score of cooperative learning students and conventional approach students.

The data analyzed in research question two as stated two and null hypothesis two shows that there was significant difference among the post-test mean academic achievement of students taught financial accounting using co-operative teaching and problem-based learning. This indicated that students exposed to co-operative and problem-based learning performs better than those in conventional group. The finding was in line with Ajaja, et al (2018) who reported that students taught using co-operative learning approach performed better than those taught using the conventional method. This implies that co-operative learning as student centered enhances the active participation of students in the small groups where there is interdependence within the group as an attribute. On the contrary, the finding of Alcalá, Garijo, Villora, Vicedo and Extremera (2020)

opined that “I thought that students would respond very well to co-operative learning activities in Physical Education, however, many of them said that they were bored and wanted to do something else” It causes teachers to be frustrated after much preparation. The application in the university is quite different from the secondary and primary environment. However, the many positive studies such as the study carried out by Inuwa (2019) revealed that there is significant effect of co-operative learning and student’s academic performance in Biology. On the students exposed to Problem-based learning, in experimental group 1 was in line with the study carried out by Argaw, et.al (2016) which indicated that PBL instruction has mean difference between comparison of control and experimental groups. The covariate analysis shows that the difference was statistically significant in Physics. Corroborating the above, Omega, et.al (2017) which shows that PBL is a student-centered pedagogy in which students learn about a subject through the experience of problem solving.

CONCLUSION AND RECOMMENDATION

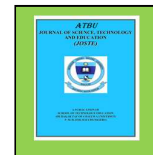
This study was carried out to investigate the effects of co-operative and problem-based learning on achievement of secondary school students in financial accounting in Akoko-Edo, Edo State, Nigeria. The outcome of the study shows that co-operative and problem-based learning were effective on improving the academic achievements of students in financial accounting. It was concluded that adopting co-operative and problem-based learning would help to reduce the poor performance of secondary school students in financial accounting in Akoko-Edo, Edo State, Nigeria. It was therefore recommended that financial

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Accounting teachers adopt CBL and PBL teaching methods at all levels of education as modern instructional method for the teaching and learning of financial accounting since it enhances achievement, interest and retention of learning.

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