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EFFECT OF PROBLEM-BASED LEARNING ON STUDENTS' ACADEMIC ACHIEVEMENT AND INTEREST IN FINANCIAL ACCOUNTING IN UNIVERSITIES IN DELTA STATE, NIGERIA

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Abstract

The study determined the effect of problem-based learning on students' academic achievement and interest in financial accounting in universities in Delta State, Nigeria. Two research questions and two null hypotheses guided the study. The study adopted quasi-experimental research design. The population studied was 126 two-hundred-level business education students. Financial Accounting Achievement Test (FAAT) of 50 items was used to collect data for pretest and post-test achievement scores of the students, while Financial Accounting Interest Inventory (FAII) of 20 items was used to collect data on students' interest. The reliability index for the validated instruments, using KR20 for FAAT, and Cronbach's Alpha for FAII, was 0.88 and 0.83, respectively. A problem-based learning strategy was used to teach the treatment group, while the lecture method was used to teach the control group. Data collected from FAAT and FAII were analyzed using mean and standard deviation to answer the research questions, while the null hypotheses were tested using Analysis of Covariance at 0,05 level of significance. The study found that students taught financial accounting using problem-based learning in the treatment group recorded greater academic achievement and showed more interest than students taught in the control group using the lecture method. Conclusion and recommendations were made.

Key Words: Problem-based learning, Academic Achievement and Interest, Financial Accounting.

Introduction

The quality and quantity of learning depend on the method used by the teacher and the students' disposition in terms of assimilation and personal attributes, among other factors. Wichendu (2022) noted that the teaching method is a strong determinant of the quality of learning achieved by the learner. Also, Stets and Zawadi (2021) stated that the term "teaching method" refers to the general principles and strategies of management and pedagogy, which are used for instructional delivery in classrooms. Similarly, Dilliyev (2024) defines teaching methods as the techniques used to help students achieve learning outcomes. Operationally, a teaching method is the strategies and processes employed by the teacher in imparting knowledge and skills in the classroom. There are different methods of teaching. Teaching methods can be basically teacher-centered or student-centered. Teacher-centered methods allow the teacher to

serve as an authority before the students, while the students receive the knowledge passively by listening to the teacher. Examples of teacher-centered methods include the lecture method, storytelling method, demonstration method, and direct instruction, among others (Adams, 2024). On the other hand, student-centered methods allow learners to participate actively in the teaching and learning process. The teacher becomes a facilitator of learning when a student-centered method is applied (Sequeira, 2021). The student-centered methods include the discussion method, role playing or dramatic method, brainstorming method, assignment method, programmed instruction method, peer learning method, peer tutoring method, differentiated instruction, inquiry-based learning, expeditionary learning, personalized learning and game-based learning (Vietnam Teaching Jobs, 2024). Other student-centered methods include the seminar method, the guided discovery method, and problem-based learning, among others (Nadeak & Naibaho, 2020), Sequeira (2021) noted that the teacher-centered methods make the learners receive knowledge by only listening to the teacher. Such a learning method can cause the learners to sleep during classes, lose interest in learning, be absent-minded, and slow in assimilation, while the student-centered methods allow students to participate actively during classes, thereby motivating them to learn, sustaining their interest, and reducing sleeping during classes (Abdigapharova & Nadezhda, 2022).

Presently, different subjects or courses, including practical subjects like financial accounting, are taught in higher institutions in Nigeria mostly by using teacher-centered teaching methods like the lecture method, demonstration method, storytelling method, among others (Louise, 2025). Sequeira, (2021) noted that teacher-centered teaching methods, like the lecture method, lead to poor academic achievement. The use of the lecture method in teaching accounting in universities in Nigeria may lead to poor academic achievement in accounting courses, among other factors. Nworie, et al (2023) noted that the use of the lecture method in teaching accounting in Nigerian public universities does not help to improve clarity and understanding of practical subject matter. As a result, it leads to poor academic achievement. This poor academic achievement also cuts across accounting students in universities in Delta State. Poor academic achievement in accounting can reduce the interest of students in studying accounting. The persistent loss of interest in accounting may reduce the number of accounting graduates produced in Nigerian universities for national development. As a result, there is a need to proffer a solution to the poor academic achievement of students and low interest in accounting courses in Nigerian universities, including universities in Delta State.

Using student-centered teaching methods could provide solutions to poor academic achievement and low interest in accounting. Sequeira (2021) noted that student-centered teaching methods can help students achieve quality learning and increase their interest in a course. This is because student-centered teaching methods allow accounting students to participate actively in the class, boost assimilation of the subject matter, increase students' interest, and eventually improve the academic achievement of the students. Although there are many student-centered teaching methods, the researcher determined the effect of problem-based learning on students' achievement and interest in financial accounting.

Problem-based learning gives students opportunities to proffer solutions to problems by thinking critically. Wanjun et al (2020) defined problem-based learning (PBL) as a student-centered pedagogy in which students are allocated to groups of up to eight persons under non-directive tutors and given tasks or challenges that reflect situations that are relevant to the working environments and allowed to solve the problems through self-study, research, discussion, and collaboration. Problem-based learning helps students to cultivate autonomous

learning, creative, and critical thinking capabilities. Also, Nadeak and Naibaho (2020), defined problem-based learning (PBL) as a teaching method that uses real problems encountered in the environment as a basis for gaining knowledge and concepts through the ability to think critically. Nadeak and Naibaho (2020) further stated that students will have good critical thinking if they are taught using problem-based learning and recommended that lecturers should apply this method in their teaching. Operationally, problem-based learning is the type of instructional strategy that motivates learners to learn in small groups by interacting with one another to provide information/solution to a given problem through critical thinking under the guidance of the tutor. Problem-based learning is effective in increasing students' academic performance. Mambwe and Overson (2020) stated that problem-based learning increases students' academic achievement in chromatography and science learning activation. Also, Munawaroh et al (2022) asserted that problem-based learning improves students' academic achievement and motivates students to attend classes and function actively in the coursework. Moreover, Peter and Echeipu (2025) stated that problem-based learning has a significant effect on students' achievement and retention in mathematics.

Moreover, academic achievement is of great importance in the academic life of a student. Adenikan (2021) stated that academic achievement refers to students' learning outcomes of a school curriculum. It is the result of the formal academic experiences of a student. It involves the score a student obtained in a course after going through the course. Presently, the academic achievement of many accounting students in financial accounting in Nigerian universities, with reference to the universities in Delta State, is below average. This is evidenced by looking at the financial accounting results of 100 and 200-level accounting students for three consecutive sessions. Poor academic achievement could be because of the teaching method used by the teacher, the entry-level grade, and the study habits possessed by the learner.

Interest plays an important role in the educational life of a learner. Spacey (2021) stated that academic interest refers to students' urge and desire for studying school subjects or topics. It involves the course and subject(s) a student would desire to study. Academic interest could be affected by the teaching method used by the teacher, the entry-level grade possessed by the student and the type of study habit practiced by the learner. The interaction with some 100 and 200-level accounting students revealed that the majority of the students have low interest in accounting. The students blamed the low interest on the lecture method of teaching used by the university lecturers, poor academic achievement, study habits, lack of opportunity for calculation, and not opportune to study financial accounting in secondary school. Also, low interest in accounting could be a result of the low academic achievement of the learner in accounting.

Accounting is the system of providing quantitative information about finances. Accounting cuts across three major areas, namely financial accounting, cost accounting, and management accounting. For this study, the focus is on financial accounting. Financial accounting is the collecting, recording, presenting, and analyzing/interpreting financial information for users of financial statements (Degroot & Galloway,2024). Financial accounting is a class of accounting courses studied by accounting students (including business education students) in universities in Nigeria. The researcher is of the opinion that the use of student-centered teaching methods like problem-based learning can improve students' academic performance and interest in financial accounting.

Statement of the Problem

Researchers have repeatedly found that the use of a teacher-centered method in most cases results in students' poor academic achievement (Sequeira, 2021). Furthermore, a close look at the results of 100 and 200-level business education students from universities in Delta State for the first and second semesters of 2020/2021, 2021/2022 and 2022/2023 sessions in financial accounting indicates that the academic achievement of most of the students was below average. Poor academic achievement often negatively affects the students' interest in the course. As low interest leads to low achievement, the number of university accounting graduates produced yearly continues to reduce, which in turn reduces the number of accounting graduates needed in schools, industries and public organizations for national economic development. There is therefore a need to improve the academic achievement of students in accounting and sustain students' interest in accounting for the production of accounting graduates needed in educational institutions and industries for national economic development. Hence, this study investigated the effect of problem-based learning on students' academic achievement and interest in financial accounting in universities in Delta State, Nigeria.

Research Questions

The following research questions guided the study:

1. What is the effect of the problem-based learning strategy on students' academic achievement in financial accounting in universities in Delta State?
2. What is the effect of the problem-based learning strategy on students' interest in financial accounting in universities in Delta State?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. Problem-based learning strategy has no significant effect on students' academic achievement in financial accounting in universities in Delta State.
2. Problem-based learning strategy has no significant effect on students' interest in financial accounting in universities in Delta State.

Methods

The study adopted a quasi-experimental design. The quasi-experimental design was used to determine the effects of problem-based learning on students' academic achievement. It is a pretest, post-test control group design. Thomas (2020) described a quasi-experiment design as one that does not rely on random assignment of subjects into experimental or control groups. Instead, subjects are assigned to groups based on non-random criteria. Similarly, this design is considered appropriate for this study because both experimental and control groups were used, with no random assignment of subjects. Moreover, the school's calendar was followed to avoid disruption of school activities. The research was carried out in Delta State. The population for the study was 126 two hundred level business education students, comprising 84 students from Delta State University, Abraka, 20 students from University of Delta, Agbor and 22 students from Federal College of Education (T) Asaba Degree Programme in Affiliation with University of Benin, Benin City. No sample was taken as the population was of manageable size and the

study involved intact classes. However, the business education students from the three universities were non-randomly assigned to experimental and control groups.

The instruments used for the study were the Financial Accounting Achievement Test (FAAT) and Financial Accounting Interest Inventory (FAII). FAAT was used to determine the academic achievement of students in financial accounting. It was a 50-item structured multiple-choice instrument with four options (A-D).. Financial Accounting Interest Inventory (FAII) was used to elicit information on students' interest in financial accounting. It was a 20-item structured questionnaire on a four-point scale of Strongly Agree (SA) -4 points, Agree (A)-3points, Disagree (D)- 2 points, and Strongly Disagree (SD)- 1 point. The instruments were validated by three experts from the Department of Business Education, and two experts from the Department of Science Education (Measurement and Evaluation Unit) all from the University of Nigeria, Nsukka. The corrections and suggestions of the experts were incorporated by the researcher, and the corrected copy improved the quality of the instruments used for the study. The instruments were trial tested on 20 accounting students from Nnamdi Azikiwe University, Awka, Anambra State, who were not part of the population. Data collected were analyzed using the Cronbach Alpha reliability method to ascertain the consistency of the test items in FAII, while KR20 was used to determine the reliability coefficient of FAAT. The reliability index for the instruments, FAAT and FAII were 0.88 and 0.83. In addition, two sets of lesson plans validated by experts guided the delivery of financial accounting instruction.

The lesson plans were for the lecture method and problem-based learning. The lesson plan for the lecture method was used for the control group, while the lesson plan for problem-based learning was used for the treatment group. The intact class in Delta State University, Abraka was the treatment group, while the intact class in Federal College of Education (T), Asaba, Degree Programme in Affiliation with University of Benin, and the intact class in University of Delta, Agbor were merged as the control group. The treatment (experimental) group was taught using problem-based learning, while the control group was taught using the lecture method. Before the commencement of the treatment, all students in the treatment group and the control group were subjected to a pre-test in order to obtain the pre-test score using FAAT and pre-test interest using FAII. The pre-test was administered a week before the commencement of the experiment. Two periods of two hours were used each week. The topics that were covered during the experiment were meaning of ledger and classification of accounts, posting transactions to the ledger, extracting a trial balance, trading account, profit & loss account, balance sheet, prepayments, accruals, provisions, adjustment in profit & loss account and Balance sheet, total debtor control account, total creditor control account, receipt and payment account, income and expenditure account.

The treatment group was taught using problem-based learning, while the control group was taught using the lecture method. The treatment lasted for 5 weeks. The treatment group and the control group were given one week to study the topics they had learnt. On the seventh week, the FAAT was re-shuffled and administered to the treatment and control groups to generate post-test scores that were used for the study. Immediately after the administration of the FAAT, on the same seventh week, the Financial Accounting Interest Inventor (FAII) was administered to the treatment and control groups to generate post-test interest rating. Out of the 126 students used for the study, 106 students responded to all the instruments used for the study. Data collected from the administration of pre-test and post-test were analyzed using mean and standard deviation to answer the research questions. Also, data collected from the interest inventory Questionnaire

were analyzed using mean and standard deviation. The hypotheses formulated for the study were tested using Analysis of Covariance (ANCOVA) at a 0.05 level of significance.

Results

Research Question One: What is the effect of problem-based learning on students' academic achievement in financial accounting in universities in Delta state?

Table 1: Mean and standard deviation of students' achievement scores in financial accounting when taught using a problem-based learning strategy

Group	Pre-test			Post-test		
	N	Mean	SD	Mean	SD	Mean Gain
Problem Based Learning Strategy (PBLS)	64	9.11	1.46	29.53	2.64	20.42
Lecture method	42	8.81	0.92	21.07	1.40	12.26

Table 1 indicates that for each of the groups, the post-test mean academic achievement scores are greater than the pre-test mean academic achievement scores, with the PBLS having the highest mean achievement score, followed by the lecture method. This shows that students who are taught financial accounting using problem-based learning strategies (PBLS) achieve higher results than their counterparts in the lecture method group. This greater achievement suggests that problem-based learning is a strong determinant of the academic achievement of students.

Hypothesis One: Problem-based learning strategy has no significant effect on students' achievement in financial accounting in universities in Delta state.

Table 2: Analysis of covariance (ANCOVA) of students' achievement scores in financial accounting when taught using a problem-based learning strategy

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	60.55[a]	2	30.27	28.23	.00	.35
Intercept	.19	1	.19	.17	.68	.00
Pre-Achie	58.27	1	58.27	54.34	.00	.35
Methods	36.24	1	36.24	33.80	.00	.25
Error	110.44	103	1.07			
Total	8739.00	106				
Corrected Total	170.99	105				

a. R Squared = .354 (Adjusted R Squared = .342)

Table 2 shows that the probability associated with the calculated value of F (33.80) for the effect of problem-based learning strategy (PBSL) on students' mean achievement score in financial accounting is 0.00. Since the probability value of .00 is less than the 0.05 level of significance ($p < 0.05$), the null hypothesis is rejected, meaning that problem-based learning strategy has a significant effect on students' achievement in financial accounting in universities in Delta state, with those taught with PBSL having a significant mean achievement score than their counterparts.

Research Question Two: What is the effect of the problem-based learning strategy on students' interest in financial accounting in universities in Delta State?

Table 3: Mean and standard deviation of students' interest ratings in financial accounting when taught using a problem-based learning strategy

Group		Pre-test			Post-test		
		N	Mean	SD	Mean	SD	Mean Gain
Problem Based Learning (PBLS)	Strategy	64	9.11	1.46	67.67	4.50	58.56
Lecture method		42	8.81	0.92	63.90	4.19	55.09

Table 3 indicates that for each of the groups, the post-test mean interest rating are greater than the pre-test mean interest rating, with the PBLS having the highest mean interest rating, followed by the lecture method. This shows that students who are taught financial accounting using problem-based learning strategies (PBLS) have higher interest than their counterparts in the lecture group. This higher interest suggests that problem-based learning is a strong determinant of students' interest.

Hypothesis Two: Problem-based learning strategy has no significant effect on students' interest in financial accounting in universities in Delta State.

Table 4: Analysis of covariance (ANCOVA) of students' interest ratings in financial accounting when taught using a problem-based learning strategy

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	52.23[a]	2	26.11	1.38	.26	.03
Intercept	3295.64	1	3295.64	174.36	.00	.63
Pre-Int	50.85	1	50.85	2.69	.10	.03
Methods	3.79	1	3.79	.20	.66	.00
Error	1946.88	103	18.90			
Total	488749.00	106				
Corrected Total	1999.10	105				

a. R Squared = .026 (Adjusted R Squared = .007)

Table 4 shows that the probability associated with the calculated value of F (0.20) for the effect of the problem-based learning strategy (PBLS) on students' mean interest ratings in financial accounting is 0.66. Since the probability value of 0 .66 is greater than the 0.05 level of significance ($p < 0.05$), the null hypothesis is not rejected, meaning that the problem-based learning strategy has no significant effect on students' interest in financial accounting in universities in Delta state.

Findings

1. Students taught financial accounting using a problem-based learning strategy (PBLS) achieved higher than their counterparts in the lecture group taught using the lecture method.

2. Problem-based learning strategies have a significant effect on students' achievement in financial accounting in universities in Delta State, with those taught with PBLS having a significant mean achievement score than their counterparts taught with the lecture method.
3. Students taught financial accounting using a problem-based learning strategy (PBLS) have higher interest than their counterparts taught using the lecture method.
4. Problem-based learning strategy has no significant effect on students' interest in financial accounting in universities in Delta State.

Discussion of Findings

In research question one, the study found that students who were taught financial accounting using a problem-based learning strategy (PBLS) achieved higher than their counterparts in the lecture method group taught using lecture method. The findings of the study agree with the submissions of Peter and Echeipu (2025) that problem-based learning improves the academic performance of students and retention in mathematics. Also, the findings in hypothesis one showed that the problem-based learning strategy had a significant effect on students' achievement in financial accounting, with those taught with PBLS having a significant mean achievement score greater than their counterparts taught with the lecture method. The findings of the hypothesis are in agreement with the submissions of Nadeak, and Naibaho, (2020). who stated that problem-based learning had a positive impact on learners' academic achievement.

In research question two, the study found that students who were taught financial accounting using a problem-based learning strategy (PBLS) had higher interest than their counterparts in the control group taught using lecture methods. The findings of the study agree with the submissions of Mambwe and Overson (2020) that problem-based learning helps to sustain the interest of the students while being inquisitive to proffer a solution to a given problem, thereby retain the interest of the same students in that course as they have been equipped with critical thinking skill and problem-solving skills to deal with any given problem as they continue in the course. Also, in hypothesis two, the findings showed that the problem-based learning strategy had no significant effect on students' interest in financial accounting. Munawaroh et al (2022) noted that problem-based learning sustains the interest of the students who participate fully during the problem-solving process.

Conclusion

This study determined the effect of problem-based learning on students' academic achievement and interest in financial accounting. The study found that problem-based learning is a strong determinant of academic achievement and interest of students in financial accounting. Using problem-based learning strategy to teach financial accounting in universities ensures the production of graduates in accounting who will sustain organizational and institutional needs for national economic development.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Accounting lecturers in universities should ensure that accounting students participate actively in class activities by using a problem-based learning strategy to teach them accounting courses. The lecturers should endeavour to undergo sponsored and

unsponsored training on how to apply problem-based learning in instructional delivery, especially in financial accounting.

2. Curriculum planners should endeavour to include problem-based learning as a strategy to be used by the lecturers in teaching financial accounting in universities. This will make for effective and active participation of the students to improve achievement and sustain students' interest.

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