

Problem-solving teaching method and business education students' achievement in financial accounting in public universities

Método de enseñanza basado en la resolución de problemas y rendimiento de los estudiantes de educación empresarial en contabilidad financiera en universidades públicas

Elizabeth Remilekun Ore*

<https://orcid.org/0000-0001-9871-405X>

Lagos State University (Nigeria)

Seyi David

<https://orcid.org/0000-0002-5818-1372>

Lead City University (Nigeria)

Adebowale John Alabi

<https://orcid.org/0009-0007-2786-9653>

Lagos State University (Nigeria)

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*Corresponding author: elizabeth.ore@lasu.edu.ng

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ABSTRACT

This study examined the effect of the problem-solving teaching method on business education students' academic achievement in financial accounting in public universities in Southwest Nigeria. Quasi-experimental research design was adopted with business education students. A multi-stage sampling procedure was used to select the sample size of 340 intact-class business education students from two sample universities. The instruments for the study were a self-developed achievement test tagged "Financial Accounting Achievement Test" (FAAT). A dependent sample

test (paired sample t) was used to test the hypotheses. The finding in showed that the mean score of students who were taught using the problem-solving teaching method is significantly different than the mean score of students taught using the lecture method. Additionally, we revealed that the pre-test mean score is significantly different than the post-test mean score of students taught using problem-solving and lecture method. Therefore, the problem-solving teaching method enhances understanding and retention of complex financial accounting concepts.

Keywords. Nigeria, Business Education, Financial Accounting, Learner-centred, Problem-solving, Teaching Methods

RESUMEN

Este estudio examinó el efecto del método de enseñanza basado en la resolución de problemas en el rendimiento académico de los estudiantes de educación empresarial en contabilidad financiera en universidades públicas del suroeste de Nigeria. Se adoptó un diseño de investigación cuasi-experimental con estudiantes de educación empresarial. Se utilizó un procedimiento de muestreo por etapas múltiples para seleccionar una muestra de 340 estudiantes de educación empresarial de clase intacta de dos universidades seleccionadas. Los instrumentos del estudio fueron una prueba de logro autodesarrollada denominada "Prueba de Logro en Contabilidad Financiera" (FAAT, por sus siglas en inglés). Para evaluar las hipótesis, se utilizó una prueba de muestras dependientes (prueba t para muestras emparejadas). Los resultados mostraron que la puntuación media de los estudiantes que fueron enseñados utilizando el método de enseñanza basado en la resolución de problemas es significativamente diferente a la puntuación media de aquellos que fueron enseñados mediante el método de clase magistral. Además, se encontró que la puntuación media del pretest es significativamente diferente a la puntuación media del postest en los estudiantes instruidos tanto con el método de resolución de problemas como con el método de clase magistral. Por lo tanto, el método de enseñanza basado en la resolución de problemas mejora la comprensión y retención de conceptos complejos de contabilidad financiera.

Palabras clave. Nigeria, Educación Empresarial, Contabilidad Financiera, Enfoque Centrado en el Estudiante, Resolución de Problemas, Métodos de Enseñanza

INTRODUCTION

Eleven An effective educational system is measured based on the quality of its outputs, and quality educational output is assessed based on the level of students' academic achievement in individual subjects and their aggregate academic performance. Thus, academic achievement is those outcomes that indicate the extent of an individual accomplishment of specific or targeted goals, which are the focus of activities in instructional environments such as universities, colleges and schools (Enwere & Emeasoba, 2019). According to Al-Bayati & Mizban (2022), academic achievement is a complex psychological and educational concept involving many different factors and processes, such as scholastic, personal, social and economic factors. It provides the opportunity to reveal the abilities of learners and develop their talents and ambitions (Al-Bayati & Mizban, 2022)

The in-depth knowledge of Financial Accounting according to Weygandt *et al.* (2012) which consists of three basic activities—it identifies, records, and communicates the economic events of an organization to interested users is a *sine qua non* in every human endeavour as this deals with the recording of all incomes and expenses, which are very important in any organisation that desires to be a going-concern entity (Enwere & Ikeanyionwu, 2022). Everyone needs the right

knowledge of Financial Accounting irrespective of their social class in order to meet every day-to-day activity (Enwere & Ikeanyionwu, 2022). Business Education students need to acquire the skills needed to understand what is happening financially inside a company. Therefore, Financial Accounting is the financial information system that provides these insights. To understand an organisation of any type, there is need to have adequate knowledge of their financial information.

Therefore, the need for improvement in academic achievement of Business Education students especially in the teaching and learning of Financial Accounting cannot be over emphasised. Financial Accounting with its pillars which include, ethics, measurement principles (historical costs and fair value), assumptions, and reporting standards (Weygandt *et al.* 2021) is an important aspect of Business Education curriculum at the post-secondary level of education. It is a key subject taught in all tertiary institutions in Nigeria offering Business Education as an academic programme as stated in the core curriculum minimum academic standard by the National Universities Commission (NUC) to equip students with analytical, vocational and critical skills that will make them marketable and advance in their chosen accounting career and profession (FRN, 2013).

In the opinion of Cano-García & Rojas-Cazaluade (2022), teaching is one of the most important functions of a teacher and as such, tertiary institutions must be committed to practical training rather than theoretical training and thus set up training processes in which professional practice is reassessed, linking knowledge with skills of the field with right ethical attitudes. Teachers should encourage students to develop analytical and critical thinking skills and other competencies such as teamwork, and effective communication which are connected to effective and appropriate usage of active teaching methodologies (Leiva-Reyes, *et al.*, 2020). In the case of Financial Accounting and given the pillars, assessment seeks to cover problem solving, reporting problems, communication, ethics, and critical thinking skills. Therefore, learning materials should have tasks that bring out these aspects. Teachers need to constantly strive to improve themselves in order to impart intellectually and innovative challenging education. A learner that is not properly and adequately educated will have an adverse effect on the nation's growth and development. For adequate goal attainment, Business Education curriculum must be properly planned and implemented in order to achieve the desired goals. For a curriculum to be properly planned, designed and implemented, appropriate instructional strategies, methods, approaches, tools, learners' attitude and interest towards the teaching and learning of such subjects must be effectively and adequately considered (Ogunleye, *et al.*, 2021).

The traditional method focuses on lecture-based teaching as the centre of teaching with an emphasis on programme and concept delivery (Awodun, 2020). In the lecture-based teaching method, the student listens and takes notes, passively receiving and receiving undifferentiated and identical knowledge from the teacher (Ezeddine, *et al.*, 2023). However, in the problem-solving teaching method, the content of the course and its implementation are considered the most important, and students acquire knowledge through exercises and practice which must cover: communication, decision-making across organisation, ethics, reporting problems (Awodun, 2020). Hence, greater importance on the techniques, methods and strategies of teaching that can motivate the learner and bring desired learning outcomes should be considered and adopted. Problem-solving teaching method is a teaching technique that enhances the ability of learners to know what to do when faced with a difficult situation. Problem –solving is an investigation process where the solution is not obvious to the investigator at the initial stage (Okafor & Nzomiwu, 2021). The relevant concepts is that the students' cognitive structure must be adequate before the students will be able to effectively solve the given task or problem (Okafor & Nzomiwu, 2021). Problem solving as a teaching method means teaching students how to solve problems in a logical step from the problem state to its solution (Boris, 2020). Problem solving skill helps to better understand scientific and mathematical concept in which Financial Accounting is one of these categories. It is an excellent tool for encouraging the learning process and also plays an important role in the development of regulatory and transformational skills. These skills are: observing problems, asking questions,

hypothesizing, playing and investigating, analysing and interpreting data, communicating results (Awodun, 2020). It was therefore concluded that problem-solving teaching method enhances understanding and retention of complex financial accounting concepts while also fostering critical thinking and problem-solving abilities that are necessary for success in the classroom.

Statement of the problem

The teaching and learning of financial accounting as a course in universities has been a matter of great concern as the general academic achievement of Business Education students in this course in public universities in Nigeria and specifically in Southwest is becoming worrisome as this can be deduced from the data gathered by the researchers on the academic achievement of Business Education students in their second year. The average summarised analysis of Business Education students' achievement in Financial Accounting for 2019/2020, 2020/2021 and 2021/2022 academic sessions in 200 level from the sampled universities South-West, Nigeria as gathered by the researchers from students results is given as follows: for 2019/2020 academic session, the percentage of students that scored above average was (21.54%), those that scored average was (28.26%), while those that scored below average was (50.20%). For 2020/2021 academic session, the percentage of students that scored above average was (15.63%), those that scored average was (32.81%), while those that scored below average was (50%); and for 2021/2022 academic session, the percentage of students that scored above average was (14.02%), those that scored average was (30.36%), while those that scored below average was (55.62%). This has shown that a huge number of students scored below average in this course. This is because most Business Education Students find this course not too interesting because of its calculative nature and therefore, this affects their performances in the course.

The researchers interaction with lecturers and students directly involved in this study showed that the reasons for Business Education students low performance in Financial Accounting in their semester examinations was as a result of so many factors which include: the nature of the course as it involves calculation, methods adopted by lectures in teaching the course and students' lack of interest and seriousness in the course.

The academic achievement of student in Financial Accounting is greatly linked to the teaching methodology adopted by accounting lecturers, although, some other factors such as student's interest and ability can also affect students' achievement in Financial Accounting. However, the teaching methodology is a major factor, therefore, there is need for accounting lecturers to utilize several teaching methodologies ranging from teacher-centred to learner-centred to teach Financial Accounting in universities. Therefore, this study addressed this problem and also identified relevant method of teaching Financial Accounting at the university level.

Research objectives and hypotheses

The following are the objectives of the study:

- i. To examine the effect of Problem-solving teaching method and lecture method on academic achievement of Business Education students in Financial Accounting in Public Universities in Southwest, Nigeria;
- ii. To determine the difference between the pre-test and post-test academic achievement scores of students taught Financial Accounting using Problem-Solving and Lecture method in public Universities in Southwest, Nigeria

The following null hypotheses were formulated and tested at 0.05 level of significant

H₀₁: There is no significant difference between the academic achievement of business education students in financial accounting taught using Problem-Solving method and those taught using Lecture methods in public Universities in Southwest, Nigeria.

H₀₂: There is no significance difference between the pre-test and post-test academic achievement scores of students taught Financial Accounting using Problem-Solving and Lecture method in public Universities in Southwest, Nigeria.

Significance of the study

The result of this research work will be of great benefit to Business Educators, students, parents, curriculum planners and other researchers. Business Educators will be provided with useful information on the importance of using an effective methodology to ensure students achieve well in Financial Accounting at universities. It will assist Business Education students in information processing, development of communication skills, improve their thinking, increase the sense of participation in the learning process and involve the participation of the largest number of students in the class. Parents will become aware of the various methods that a lecturer can and should use in teaching Financial Accounting that will help their children or wards to improve their academic results and thus better educational outcomes. Curriculum planners will use the findings of this study in Business Education curriculum planning, designing and implementation stages. With the findings of this study, the researchers hoped that active learning will receive more attention and be more popular among students. In general, this study will be considered as a reference source for future researchers in related fields.

LITERATURE REVIEW

This study is anchored on Walberg theory of educational productivity and Gestalt theory of problem-solving. Walberg's theory deals with learning influences that affect a student's academic performance. Walberg used a variety of methods to identify factors that influence a student's academic performance. Walberg's theory of educational productivity has a basic goal, which is to analyse what causes poor academic performance of students. This theory has three basic elements that can help understand student performance, which are aptitude, instruction, and environment (Walberg *et al.*, 1986). This theory is of utmost importance to this study because it serves as a guide to understanding the concept of student academic achievement and those factors that can affect academic achievement, of which quality teaching is one of those factors.

Gestalt theory highlighted higher-order cognitive processes in the midst of behaviourism. The theory concentrated on the concept of "grouping," which holds that certain characteristics of stimuli lead us to organise or understand a visual field or issue in a particular way. The theory argued that learning occurred when students were able to understand a concept in its entirety, rather than breaking it down into parts. The Gestalt theorist suggested that students' experiences and perceptions have a significant impact on the way they learn. The theory further asserted that learning occurs best when instruction is related to the learner's real life experiences and that the human brain has the ability to map stimuli caused by these life experiences (Wertheimer, 1959). Gestalt learning theory is based on the law of simplicity. Simply put, it says that every learning stimulus is perceived in its simplest form. The psychology of this learning theory states that the senses and previous experiences are used to gain knowledge about the world around us. This also suggests that students learn from the methods they are taught in addition to being influenced by the classroom environment and academic culture (Lee, 2018). Theory is important to this study because if there is to be an optimal output in the educational system, there is a need for students to adequately build their cognitive domain and ability to understand, understand, analyse and synthesize problems and offer appropriate solutions as needed. This theory relates to the research rationale that students and teachers can apply acquired knowledge to gain insight, identify problems, and understand problematic situations, as this will help them reorganize visual information about such a situation and subsequently solve the problem.

Business Education is a branch of vocational technical education which starts from the junior secondary school level to tertiary institution level with the aim of exposing students to the various Business Education skills in preparation for the work environment or life after school. It focuses on career development which enables students acquire relevant skills that will make them self-reliant and compete successfully in the fast growing business world (Abraham-Ibe, 2021). According to Ore, Hassan & Ogungbo (2022) Business Education is an aspect of educational programme which prepares students for careers in business. Business Education is a broad and comprehensive field of study whose instructional programme is endowed with the capacity to provide knowledge, skills, vocation and aptitude required to effectively manage personal businesses and at the same time function in the economic system. Business Education programme is basically designed to prepare graduates to be self-reliant, competent, skilful, technically sound and knowledgeable in order to perform effectively and efficiently in the work place. Business Education is about facilitating learning of job-related behaviours in order to improve individual and corporate performance (Ore, 2022).

Financial accounting

Financial Accounting is the process of collecting, recording, preparing and reporting financial information about an organization to users of financial information for the purpose of making informed and reformed decisions. It is a subject that is systematic and procedural; therefore, it cannot be mastered by merely memorizing the basic rules governing it (Okeke, 2023). According to Enwere & Ikeanyionwu (2022), Financial Accounting requires intensive practice in its application and sound theoretical knowledge (Ciudad Gomez, 2024; Ebaid, 2023). However, the use of traditional method of teaching has dominated the teaching of Financial Accounting in Nigerian classroom. This is having a negative effecting in students' academic achievement in the course. Financial Accounting as a course in Business Education is offered at tertiary levels in both private and public institutions in Nigeria for the purpose of acquiring job skills, employment opportunities and to be self-sufficient and self-reliance. Introduction to Financial Accounting which are the elementary aspects are taught at lower level while at higher levels Advance Financial Accounting, Management Accounting and other advance Accounting courses are offered by Business Education students in accounting option. It is noteworthy that Business Education graduates contribute to the economic growth of the nation thus, they play a very important role in the economy; hence the need for proper training cannot be overemphasised in order for them to face emerging challenges in the profession with confidence and discharge their duties effectively (David, 2019).

Teaching method

Teaching method is a professional technique that teachers adopt regularly during the instructional exercises in order to enable them to impart relevant skills and knowledge to the learner (David, 2019). A teaching method comprised the principles and methods used for instruction by teachers to achieve the desired learning in students (Ogunleye, *et al.*, 2021). Therefore, universities must be committed to practical training rather than theoretical training and thus set up training processes in which professional practice is reassessed, integrating knowledge and skills of the field with right ethical attitudes (Cano-García & Rojas-Cazaluade, 2022). In the opinion of Ogunleye, *et al.*, (2021), for a curriculum to be properly planned, designed and implemented, appropriate instructional strategies and methods must be effectively and adequately considered. Hence, greater importance on the techniques, methods and strategies of teaching that can motivate the learner and bring desired learning outcomes should be considered and adopted as teacher quality is broadly grouped according to the pedagogical standards that a teacher exhibits that is the appropriate use of teaching strategies (Ore, 2023).

Generally, there are several types of teaching methods that could be adopted in the classroom and these are broadly grouped into two that is, teacher-centred method and learner-centred method. The teacher-centred methods are lecture method and the demonstration method while the

learner-centred methods include: dramatization, play-way, role play, gamification, discussion, collaborative, cooperative, interactive, problem-solving, simulation socratic, problem based, guided-discovery and case study teaching methods (David, 2019). However, teachers adopt traditional lecture method which is oral presentation of knowledge, ideas and principles to students. The lecture method, often known as the traditional method or conventional method is the oldest and arguably most prevalent teaching approach.

Problem-solving teaching method

According to Norboev (2021) problem-solving teaching method is an alternate to a traditional method of teaching which represents one of the most common student-centred learning strategies and this method allows students to participate in the learning environment, giving them the responsibility for their own acquisition of knowledge, as well as the opportunity for the understanding and structuring of diverse information. The problem-solving teaching method allows learners to participate in the learning environment, while giving them responsibility for their learning and making them understand and structure the information (Ogunleye, *et al.*, 2021). Problem-solving is a process of finding answers or approaching solutions creatively. This process requires that learners are totally involved in the learning process. Problem-solving is the process of applying previously acquired knowledge to obtain a satisfactory solution to new and unfamiliar problems (Muraina & Oladimeji, 2022). Problem-based method could be described as a learning tenet that propagates learner-centred and tutor-centred learning. In the view of constructivism, students employ knowledge they have ever acquired to discover recent understanding through their relationship with their immediate vicinity (Muraina & Oladimeji, 2022).

Problem-solving method is purportedly efficient for the development of manual skills and experiential learning as well as the optimization of thinking ability. It is essentially a collaborative, constructivist and contextualized learning and teaching approach that uses real life problems to initiate, motivate and focus knowledge constructions Mondal & Majumder, 2020). Financial accounting as an academic discipline is quite different from financial accounting in practice. Typical when teaching cases in financial accounting, all information is given and students do not have to search for all the facts. However, this does not occur in professional practice as most times facts and figures need to be ascertained. Questioning is critical is therefore an important skill that Business Education students need to acquire through the problem-solving method of teaching. Another essential feature of problem-solving method of teaching is to ensure that students worked in groups and participated responsibly in the learning process. Students worked together in the same group for an entire semester which is similar to how teams in the workplace operate, thereby emphasizing the importance of teamwork in solving unstructured accounting problems similar to those likely to be confronted in professional practice (Stanley & Marsden, 2012).

Problem-solving learning involves teaching the students on how to solve problem by starting from known to unknown in order to achieve proficiency in teaching and learning (Pohan, Asmin & Menanti, 2020). It majorly focuses on the student ability to be creative and it encourages students to believe in their ability to think creatively and innovatively. It can help a teacher to make effective instructional decisions. It allows students to work at their pace and make decisions about the way they explore the problem and encourages group discussion and teamwork (Okeke, 2023). Therefore, choosing methods that encourage students to think critically and explore are helpful in translating learning objectives meaningfully to students. These methods activate students and allow them to make connections between their previous knowledge and recently acquired knowledge. Thus, the learning process in a constructivist classroom environment, which can be defined as an environment that allows students to construct their own learning creatively in the classroom, should be guided through activities that promote effective learning; enable the use of high-level cognitive skills and participate in discussions (Amadi *et al.*, 2021). For problem-solving teaching method to be effective especially, in terms of developing the skills of questioning,

teamwork, and problem solving, there is need for Business Educators to be vast in the application of the method during instructional delivery. The application of this method in classroom requires grouping of students into manageable smaller groups (team) where the teacher serves as a facilitator allowing students to work at their own pace in proffering solution to real world problem using their already acquired knowledge and skills. In recent years, a number of authorities have called for the development of a broader range of required skills in accounting graduates which Business Education students must also possess. For example, the International Federation of Accountants (IFAC) released as one of its eight International Education Standards (IES) a standard called *IES3 Professional Skills and General Education* (International Accounting Education Standards Board (IAESB), 2009). This standard emphasizes the development of Professional Skills, which include not only intellectual, technical and functional skills but also personal skills, interpersonal and communication skills, and organizational and business management skills (Stanley & Marsden, 2012).

How to use problem-solving methods of teaching

The following are procedures on how to apply the problem-solving method of teaching effectively as identified by Harsh (2024):

- i. Choose problems that are relevant to students’ lives and interests.
- ii. Select those problems that are challenging but achievable.
- iii. Provide students with ample resources such as books, websites, or experts to solve the problem.
- iv. Motivate them to work collaboratively and to share their ideas.
- v. Be patient and supportive. Problem-solving can be a challenging process, but it is also a rewarding one.

METHODOLOGY

Research design

This study adopted quasi-experimental research design. Specifically, pre-test-post-test non-equivalent control group. This is because the study tends to determine the effects of problem-solving teaching methods on the academic achievement of Business Education students in Financial Accounting in public Universities in Southwest, Nigeria. This research design is not a true experimental study as such subjects were assigned to groups based on non-random criteria. The design matrix of the study is outlined as shown below:

The Design Matrix of the Study

Experimental Group1	01	X	02
Control Group 2	03	-	04

Where:

- 01 - Pre-test for Experimental Group 1
- 03 - Pre-test for Control Group
- 02 - Post-test for Experimental Group 1
- 04 - Post-test for Control Group
- X - Treatment (Problem-solving)

Research methods

The population comprised 1,253 200-Level Business Education students in all the 11 Federal and State universities in the six South-west states of Nigeria offering Business Education as a course of study.

Sampling techniques

A multi stage sampling procedure was used to select the sample universities of the study. Firstly, a simple random sampling technique was adopted to select two states from the study population while purposive sampling technique was used to select one university each from the sample states. Thus, the sample size for this study was 305 intact class which were made up of 112 problem-solving method participants and 193 lecture method participants all in 200 Level Business Education from two universities that were randomly selected

Data collection instrument

The instrument for this study was an adopted self-developed achievement test tagged "Financial Accounting Achievement Test" (FAAT). The achievement test comprised 20 multiple choice questions which was used to examine the effect of the problem-solving teaching method on Business Education students' academic achievement in Financial Accounting. The multiple-choice questions was scored 5 marks each and the total score that was allocated to the Financial Accounting Achievement Test (FAAT) was 100 marks. The reliability of the instrument was tested using test-retest method. The instrument was used as research instrument for both the experimental and control group.

Validity and reliability

The instrument was validated through face and content validity by an expert in the field of Business Education. The reliability of the instrument was tested using test-retest method and the result was analysed using Pearson Product Moments Correlation Coefficient with a reliability coefficient of 0.75.

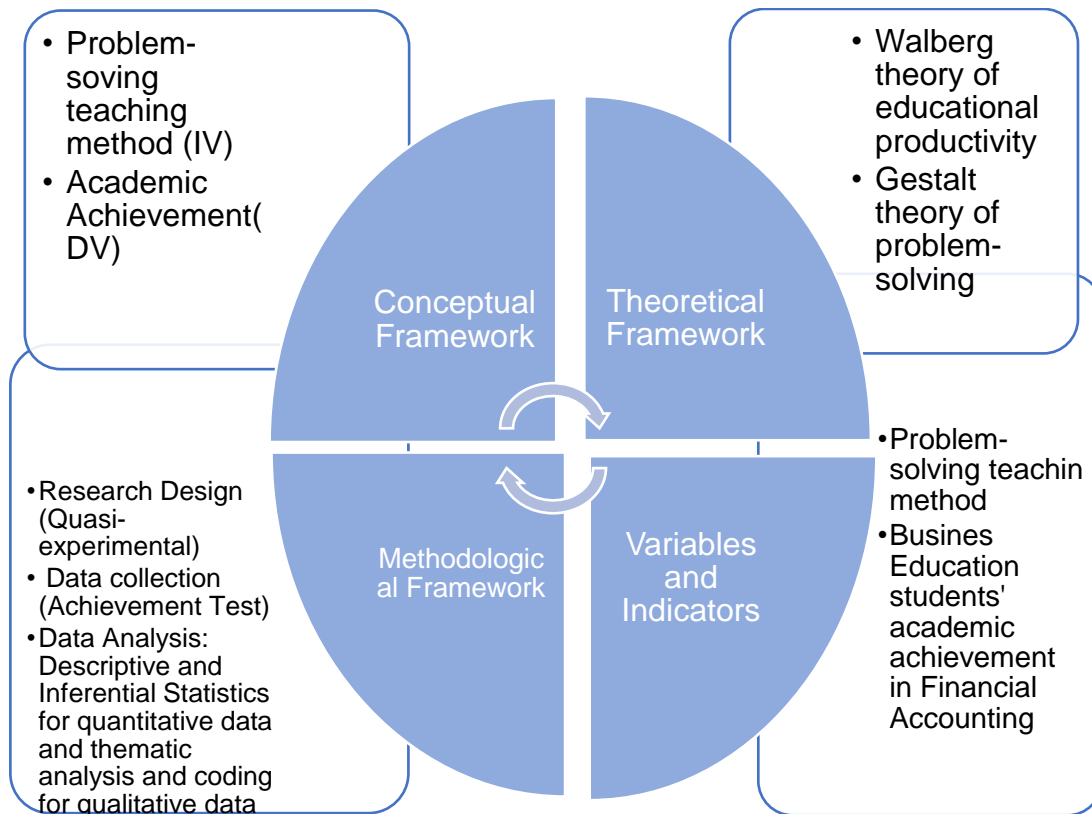
Data collection and analysis

This study collected data through a survey. The duration of the data collection process at each university lasted for eight weeks. The researchers used the first week to familiarise with the Heads of Department of the selected universities for the study and also conducted the pre-test. The researchers used the second to seventh weeks to teach students in each of this university with the assistant of two well-trained research assistants using problem solving teaching method for experimental group one and lecture method (control) while the eighth week was used to conduct the post-test and marking of the tests. The data collected was coded using numeric code with the aid of Statistical Product and Service Solution (SPSS) version 27.0.

Both the experimental group and control group were taught the same financial accounting content however, while the experiment group was taught using problem-solving teaching method via case studies, group discussions and real-world application with the researchers as the facilitator to provide support and guidance, the control group was taught using the conventional lecture teaching method.

Dependent sample test (paired sample t) was used to test the hypotheses at 0.05 level of significance with the aid of Statistical Product and Service Solution (SPSS) version 27.0.

Analytical framework model



FINDINGS

Hypothesis one

H₀₁: There is no significant difference between the academic achievement of business education students in financial accounting taught using Problem-Solving method and those taught using Lecture methods in public Universities in Southwest, Nigeria.

To test the hypothesis, dependent sample test (paired sample t) analysis was conducted. Data collected on students' achievement scores from Problem-solving and Lecture methods were subjected to paired sample t test. The results are reported in Table 1.1a b & c

Table 1.1a. Descriptive statistics for students' achievement in problem-solving, and lecture methods

	Mean	N	Std. Deviation	Std. Error Mean
Problem-solving	59.70	112	12.52414	1.19413
Lecture Method	40.8545	112	10.88036	1.03740

Table 1.1a shows the mean scores of students exposed to problem solving method and conventional lecture methods. The result indicates a meaningful difference in the mean score of students exposed to problem solving teaching method (59.70 ± 12.52) while that of the conventional lecture method (40.85 ± 10.88).

Table 1.1b. Paired samples t test result showing difference between problem-solving and conventional lecture method

	Paired Differences					t	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error of the Difference	95% Confidence Interval				
			Mean	Lower	Upper			
Problem Solving Method	18.84545	17.33014	1.65236	15.57052	22.12039	11.405	109	.000
Lecture Method								

To test this hypothesis, the paired sampled t-test was used to determine whether there is a significant difference in the mean achievement scores of students who were taught using problem solving method and conventional lecture method. The result in table 1.1b showed that the mean score (59.70 ± 12.52) of students who were taught using problem-solving teaching method is significantly different ($t = 11.405$, $df = 109$, $p < 0.01$) than the mean score of students were taught using conventional lecture method (40.85 ± 10.88). Since the significant value is less than the 0.05 level of significance, the null hypothesis was rejected and it was concluded that there is a significant difference between the academic achievement of Business Education students in financial accounting taught using Problem-Solving method and those taught using Lecture methods in public Universities in Southwest, Nigeria.

Using Cohen's d and Hedges' adjustment, the analysis in Table 1.1c compared the effect sizes between the Problem-Solving Method and the Lecture Method. Cohen's d has a point estimate of 17.33014 with a 95% confidence interval that spans from 0.850 to 1.322. The point estimate is much larger than 0, suggesting that students exposed to the problem-solving method did better on average than those taught using the lecture method. This suggests a high positive influence of the problem-solving method over the lecture method. Furthermore, Cohen's d results were corroborated by Hedges' adjustment, which corrects for small sample size bias. This correction produced a point estimate of 17.39005 with a confidence range of 0.847 to 1.317. The benefit of the Problem Solving Method in improving students' problem-solving abilities is reinforced by the closeness of the confidence intervals in both measures, indicating the dependability of these results.

Hypothesis two

H₀₂: There is no significance difference between the pre-test and post-test academic achievement scores of students taught Financial Accounting using Problem-Solving and Lecture method in public Universities in Southwest, Nigeria.

To test the hypothesis, dependent t test (paired sample t test) was conducted. Data collected on students' pre-test and post-test scores from problem solving, think pair share, and Lecture methods were subjected to dependent t test. The results are reported in Table 1.2 a & b.

Table 1.2a. Descriptive statistics for student's pre-test and post-test scores

	Mean	N	Std. Deviation	Std. Error Mean
Pre-test scores	45.59545	305	14.49980	0.64759
Post-test scores	51.0816	305	15.78361	0.71954

Table 1.2a shows the students pre-test and post-test mean scores of students exposed to problem-solving and conventional lecture methods. The result indicates a difference in the pre-test

scores (45.49 ± 14.59) and post-test mean scores of students exposed to different teaching method (51.08 ± 14.68). This result indicates that there is an improvement in the students' achievement scores after exposing them to the treatments.

Table 1.2b. Paired samples t test result showing difference between pre-test and post-test scores

	Paired Differences			95% Confidence Interval		T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error of the Difference	Lower	Upper			
Pre-test Scores Post-test Scores	-6.42813	14.49980	.54567	-7.59692	-4.56121	-8.648	304	.000

Using the paired sampled t-test to determine whether there is a significant difference in the pre-test mean score and post-test mean score of students who were taught using problem-solving and conventional lecture methods, the result in Table 1.2a and 1.2b indicates that the pre-test mean score (45.49 ± 14.59) is significantly different ($t = -8.648$, $df = 304$, $p < 0.01$) than the post-test mean score of students who were taught using problem-solving and conventional lecture method (51.08 ± 14.68). Therefore, since the significant value is less than the 0.05 level of significance, the null hypothesis was rejected, and it was concluded that there is a significant difference between the pre-test and post-test academic achievement scores of students taught Financial Accounting using Problem-Solving and Lecture methods in public Universities in Southwest, Nigeria.

DISCUSSION

The study examined the effect of the Problem-Solving teaching method on Business Education students' academic achievement in Financial Accounting in Public Universities in Southwest Nigeria; the findings from this study are in line with the findings of other similar studies that were conducted. These findings showed that innovative approaches to teaching, such as problem-solving, are superior to the conventional lecture method in raising students' academic achievement in financial accounting. Adopting this teaching method in the classroom will greatly improve student participation, understanding, and retention which will in turn lead to higher academic achievements. Therefore, in order to create a more participatory and productive learning environment, instructors are advised to adopt this instructional method into the teaching and learning process.

Findings from hypothesis one revealed a significant difference between the academic achievements of Business Education students in Financial Accounting taught using Problem-Solving method and those taught using Lecture methods in public Universities in Southwest, Nigeria. This could be due to the distinct nature of the two instructional strategies. By challenging students to apply theoretical information to real-world settings, the problem-solving technique promotes students critical thinking and problem-solving abilities (Amadi, *et al.*, 2021). Through, peer collaboration, in-depth thinking, and experimentation with various solutions, this approach helps students gain a deeper comprehension of Financial Accounting principles. The conventional lecture approach, on the other hand, is frequently more passive, with the main goal being to impart knowledge to students without encouraging their active involvement or critical thinking (Ezeddine, *et al.*, 2023). This might lead to a cursory comprehension of the material. Additionally, the problem-solving approach is better in line with the cognitive demands of Financial Accounting, a course that calls for the application of concepts to actual financial situations in addition to rote memorization. By requiring students to analyse, synthesise, and evaluate information with skills essential for solving tough accounting tasks, this approach fosters higher-order thinking, group discussion and

teamwork and the role of the teacher is a facilitator of learning, and they take on a much more interactive and less rebarbative role (Ezeddine, *et al.*, 2023). The enhanced engagement and cognitive development facilitated by the problem-solving approach can be attributed to the notable difference in academic achievement observed between Business Education students taught using traditional lecture methods and those taught using the problem-solving method in Financial Accounting.

One such study examined the impact of problem-solving and guided discovery teaching approaches on the academic performance of Financial Accounting students at the Colleges of Education in North Central Nigeria. According to David (2019), students who participated in guided exploration and problem-solving sessions were exposed to a higher standard of reasoning that they recognised as legitimate, which enhanced their academic performance. Lower achievement levels were the consequence of students in the control group, who were taught via the lecture technique, often interacting with the teacher without using higher-order thinking skills. This research emphasises how valuable interactive, student-centred teaching strategies like problem-solving are for raising academic achievement. It was recommended by the study that in order to enhance learning outcomes, policymakers should encourage financial accounting lecturers, especially those in universities, to employ problem-solving techniques. A further investigation carried out in Rivers State emphasised the usefulness of the problem-solving approach in the instruction of financial accounting. To evaluate the effect of problem-solving teaching strategies on students' financial accounting learning at Rivers State University and Ignatia Ajuru University of Education, the researchers used a survey design. The results showed that although the problem-solving approach is very successful, professors did not always use it, which had a detrimental influence on students' educational experiences. According to the report, Rivers State's educational officials should create curriculum that emphasises the problem-solving technique and make sure lecturers have the necessary training and assistance to use it to improve the teaching and learning process (Amadi, *et al.*, 2021). Similarly to this current study is a study on the impacts of problem-solving and jigsaw puzzle learning styles on the academic performance of Business Education students in Financial Accounting were investigated in a quasi-experimental study conducted in Anambra State. The findings demonstrated a considerable improvement in students' academic performance through these interactive learning approaches which is in line with the current study findings. The previous researchers suggested that in order to improve students' academic performance in skill-based topics like financial accounting, business education professors at universities should explicitly embrace problem-solving and puzzle-based teaching approaches (Okeke, 2023).

All of these research support the current conclusion that using problem-solving technique greatly improves academic attainment, particularly in challenging disciplines like financial accounting where higher-order thinking and critical thinking are crucial. When opposed to traditional lecture-based techniques, the interactive and student-centred character of problem-solving teaching methods promotes a deeper knowledge of the topic and leads to superior academic achievements. This approach also better prepares students for real-world problem-solving situations.

Analysis of hypothesis two shows a significance difference between the pre-test and post-test academic achievement scores of students taught Financial Accounting using Problem-Solving and Lecture method in public Universities in Southwest, Nigeria. This implies that the post-test scores showed a significant improvement compared to the pre-test scores, indicating that the teaching method used was effective in enhancing student learning. The results suggest that incorporating a variety of teaching strategies can lead to better academic outcomes for students in higher education. This study highlights the importance of using instructional techniques that cater for the individual learning needs of students in order to positive academic outcomes (Caulfield, 2023).

The findings of this study underscore the significance of lecturers being adaptable and open to utilising different teaching approaches in order to engage students and facilitate their understanding

of course material. By incorporating a mix of problem-solving, and lecture methods, teachers can create a dynamic learning environment that encourages critical thinking among students. Overall, this research contributes to the on-going dialogue on best practices in higher education pedagogy and underscores the importance of implementing innovative and student-centred teaching methods in public universities in Southwest Nigeria.

The findings of this study could be due to the fact that students have different learning styles and preferences that benefit from a variety of teaching approaches. Also, students may be more engaged and motivated when they see their own learning needs being met in different ways. According to Okeke (2023), students may have different levels of prior knowledge and background experiences that can impact their ability to learn new material. It is therefore important for educators to be aware of these differences and adapt their teaching techniques accordingly. However, a variance to the findings of this study was seen in a study conducted at a public university in Southwest Nigeria where students consistently performed better in subjects taught using traditional lecture-based methods compared to more interactive and student-centred approaches (Okeke, 2023). This suggests that there may be cultural or institutional factors at play that influence the effectiveness of different teaching methods, rather than just individual learning styles.

Hence, problem-solving learning environment is essential for positive academic achievement because it fosters students' understanding of difficult ideas and their ability to solve problems. Traditional lecture techniques, on the other hand, frequently restrict student participation and interaction, which can impede the growth of critical thinking and problem-solving skills. Because of this, switching from traditional teaching techniques to more participatory ones like problem-solving not only improve students' academic achievement but also equips them with the necessary skills and knowledge for future academic problems.

CONCLUSION AND RECOMMENDATIONS

The overall conclusion from this study, which examined the effects of the Problem-Solving teaching method on Business Education students' academic achievement in Financial Accounting in Public Universities in Southwest Nigeria, demonstrated the significant impact that interactive teaching strategies like problem-solving have on Business Education students' academic achievement in Financial Accounting at public universities in Southwest Nigeria. The study also reveals a noteworthy difference in academic achievement between students taught using problem-solving techniques and those taught through traditional lecture techniques, highlighting the effectiveness of these strategies in improving student learning outcomes. These findings suggest that a student-centred teaching approach enhances understanding and retention of complex financial accounting concepts while fostering critical thinking and problem-solving abilities necessary for classroom success. From the study stated objectives, the findings of the study show that problem-solving and lecture techniques have a substantial combined influence on students' academic progress, suggesting that combining different teaching tactics will enhance learning results even more. This result lends credence to the idea that a blended learning strategy, which capitalises on the advantages of several teaching modalities, will accommodate a range of learning requirements and styles while ultimately improving student performance.

The noteworthy enhancement in post-test results relative to pre-test scores for students who were exposed to problem-solving teaching technique confirms the effectiveness of learner-centred teaching strategy in enhancing students' understanding and utilisation of financial accounting concepts. The practical implication of adopting this method of teaching is that it will enhance students' creative, analytical, questioning, communication and critical thinking skills and ability to work in team in real-world situation. While the instructional outcome of adopting this teaching method will lead to improve academic achievement of Business Education students in Financial

Accounting as a result of better understanding of the subject due to the method of teaching adopted (problem-solving method of teaching)

Overall, the study highlights the importance of adopting innovative and interactive teaching methods to improve the quality of education in financial accounting and other business-related courses. The following recommendations were made by the researchers:

- Teachers should undergo thorough training on how to adopt Problem-Solving technique in the classroom if they are to fully reap the benefits of these teaching tactics. Programmes for professional development should be created to provide teachers the abilities and information they need to employ these techniques with assurance and creativity.
- Given the significant positive impact of this teaching method on students' academic achievement, Universities should include problem-solving technique into the financial accounting curriculum because of the noteworthy advantages these teaching methods have on students' academic performance.
- The results of the study indicate that combining a combination of lecture and problem-solving techniques improves student performance compared to using only one technique. Therefore, in order to accommodate various learning styles and improve overall student engagement and performance, lecturers should implement a mixed strategy that incorporates these strategies.

Limitations of the Study

The major constraint encountered by the researchers was on the achievement test as most of the students were reluctant to participate in the test, and this was a result of students' phobia of examination. However, the researchers were able to convince the participants that the test was strictly for research purposes. Also, differences between institutions and cultural diversity were some other constraints encountered by the researchers.

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