



Ignatius Ajuru University of Education, Port Harcourt, Nigeria
Research and Development Centre

1st International Conference and Exhibition on Research, Innovation and Development (ICERID 2026)

Proceedings URL: <https://iauejournals.com/index.php/ICERID>

Website: <https://icerid.online>



ISBN: 978-978-63205-1-9

June 2026; Page No. 8-14

Effect of Inquiry-Based Instructional Strategy on Senior Secondary School Students' Achievement and Retention in Financial Accounting in Rivers State, Nigeria

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Abstract

This study investigated the effect of inquiry-based instructional strategy on Senior Secondary School students' achievement and retention in Financial Accounting in Rivers State, Nigeria. A quasi-experimental design including a pretest, posttest, non-equivalent control group, and delayed posttest was used. The study population consisted of 832 Senior Secondary School II Financial Accounting students, from which a sample of 157 students was selected by simple random sampling using balloting techniques from intact classes in two co-educational public secondary schools. The experimental group was taught by an inquiry-based instructional strategy, while the control group was taught by the conventional lecture method. The research instruments were the Financial Accounting Achievement Test and the Financial Accounting Retention Test. The tests comprised 40 multiple-choice items of multiple choice, were validated by experts and had a reliability coefficient of 0.86 established using Kuder-Richardson 21. The data were analysed using the mean and standard deviation, and analysis of covariance was used to test the hypotheses at the 0.05 level of significance. The results indicated that the students who were taught using inquiry-based instructional strategy obtained higher achievement and retention than those who were taught using the conventional method. Results of the ANCOVA demonstrated a significant effect of instructional strategy on achievement with a large effect size. There was also a significant effect for retention with a small effect size. The study concludes that the inquiry-based instructional strategy is superior to the conventional lecture method in enhancing students' achievement and retention in Financial Accounting. Inquiry-based instructional strategies should be adopted by Financial Accounting teachers, and that school administrators and curriculum planners support their implementation through training and professional development programmes was recommended.

Keywords: Inquiry-based strategy, Conventional Lecture method, Achievement, Retention

Introduction

Financial Accounting is a core subject in the Nigerian secondary school curriculum because it is a subject that gives learners the necessary competencies that are required to participate in the economy, think entrepreneurially and also pursue careers in business-related fields. However, despite its importance, students have been performing poorly in external examinations in the subject consistently. West African Examination Council reports (WAEC, 2023) show a significant decrease in students' performance in accounting. For example, NECO results show a decrease of 12% between 2021 and 2023, whereas, WAEC experienced a decline of 8% within the same period.

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Cite this paper as:

Wokocha, K. D., Williams, A. C., & Walele, C. (2026). Effect of Inquiry-based instructional strategy on senior secondary school students' achievement and retention in financial accounting in Rivers State, Nigeria. In *Proceedings of the 1st International Conference and Exhibition on Research, Innovation and Development (ICERID)*, Ignatius Ajuru University of Education, Port Harcourt, Nigeria (Vol. 1, pp. 8-14).

The continuous poor performance is evidently seen in Rivers State. Instructional deficiencies is one of the major causes. According to Ubulom and Nwaonumah (2024), the current reliance on the traditional teacher-centred approaches is limiting students' grasp and implementation of financial accounting principles. Bukki et al. (2023) made similar observations that creative teaching approaches use different stimuli to arouse the interests of learners in learning and provide changes in the quality of education. They said that these strategies improve equitable learning opportunities, efficiency and quality. In this context it is important to move from passive instructional delivery to more active, student-centred pedagogies. One of these approaches is the inquiry-based instructional strategy (IBIS) which emphasises student inquiry, problem-solving, discovery, and knowledge production. While inquiry-based learning is typically associated with science education, its pedagogical value applies to any discipline demanding analytical reasoning and procedural comprehension. Financial accounting is by definition a systematic analysis of financial transactions, interpretation of data and application of concepts to real company situations (Martinez-Blasco et al., 2025). These features provide support for the application of inquiry-based learning in accounting education rather than in science classrooms just since they are closely aligned with the epistemological foundation of inquiry-based learning.

Financial accounting academic achievement is the level of students' success in displaying their understanding of accounting concepts and procedures as measured by standardised tests (Kassim et al., 2025). Effects on learner engagement, pedagogical methods and quality of education. Wang and Chen (2023). Research has repeatedly shown that inquiry-based teaching practices boost student achievement across all subject areas. For example, Eebo (2020) found that accounting students taught using inquiry-based approaches performed significantly better than those taught using lecture methods, because of enhanced analytical involvement. Similarly, Umoru et al. (2022) reported that the inquiry-based teaching style positively improved business school students' academic performance in Principles of Accounting, with a large main effect of treatment. In addition, a more extensive synthesis by Harleni et al. (2025) also showed that inquiry-based learning has a statistically significant positive effect on academic achievement in numerous studies.

Another important sign of meaningful learning is the retention of the content. Retention is the ability of students to recall and apply information after it has been taught (Issaka, 2020). Retention is vital in financial accounting because students need to apply what they have learned to new and complex financial scenarios. Inquiry-based learning helps retention by promoting active engagement, cognitive elaboration, and deeper processing of knowledge. Usman (2024) found that students who underwent inquiry-based training retained accounting concepts more effectively than those who received standard education. Pratama (2024) also observed that students' active involvement in the construction of knowledge improved both the conceptual understanding and long-term retention of accounting concepts within the framework of inquiry-based learning. (Mediana et al., 2025) Moreover, the findings showed that IBL had a significant positive effect on students' conceptual knowledge, which confirms that inquiry-based pedagogies tend to increase retention consistently by improving conceptual understanding instead than encouraging rote memorisation. These benefits are well documented although there is a considerable gap in the literature. Most of the prior studies have been conducted outside Rivers State and little attention has been paid to the combined impact of inquiry based instructional methodologies on senior secondary school financial accounting achievement and retention. Furthermore, many studies do not analyse instructional efficiency in a comprehensive manner, but focus solely on achievement or retention. This study is a response to a pedagogical and empirical lacuna and it examines the effect of enquiry-based teaching strategy on senior high school students' achievement and retention in Financial Accounting in Rivers State, Nigeria.

Financial accounting is one of the building blocks of senior high school business education to prepare students to be able to record, analyse and make financial decisions for personal and future company engagement. However, there is a chronic low accomplishment and poor recollection of accounting concepts among pupils in Rivers State, raising concern on the efficacy of its training. Prior to the identification of this problem, teaching of financial accounting was mainly instructor centred with a heavy reliance on the traditional lecture method where students had a passive part in their learning. This approach often led to poor conceptual understanding, poor student engagement, and poor application of accounting principles to real-life scenarios.

These learning gaps were recognised and gradually led to a switch to learner-centred instructional approaches that may stimulate deeper understanding and active involvement. One such way is the inquiry-based teaching method that enables students to enquire about accounting problems, ask questions, find answers, and construct knowledge through guided learning experiences. Despite this change in pedagogy, many classrooms still show a continued dependence on old methodologies, and as of October 2023 there is still a dearth of empirical evidence on the degree of improvement in student accomplishment and retention in financial accounting at the senior secondary school level in inquiry-based teaching. It is in the light of the above that this study seeks to bridge the gap by studying the effect of inquiry-based teaching methodologies on Senior Secondary School students' achievement and retention in financial accounting.

The study sought to determine the effect of inquiry-based teaching technique on the academic performance and retention of senior high school students in financial accounting in Rivers State, Nigeria.

Specifically, the study's objectives included the following:

1. Determine the effect of inquiry-based instructional strategy on students' achievement in Financial Accounting.
2. Examine the effect of inquiry-based instructional strategy on students' retention in Financial Accounting.

Based on the mentioned aims, the study was guided by the following research questions:

1. What is the difference in the achievement of students taught Financial Accounting using an inquiry-based instructional strategy and those taught using the conventional lecture method?
2. What is the difference in the retention of students taught Financial Accounting using an inquiry-based instructional strategy and those taught using the conventional lecture method?

The null hypothesis (s) tested at the 0.05 level of significance were:

1. There is no significant difference in the achievement of students taught Financial Accounting using an inquiry-based instructional strategy and those taught using the conventional lecture method.
2. There is no significant difference in the retention of students taught Financial Accounting using an inquiry-based instructional strategy and those taught using the conventional lecture method

Methodology

The study examined the impact of an inquiry-based teaching approach on the academic performance and retention of Senior Secondary School students in Financial Accounting in Rivers State, Nigeria. The pre-test, post-test, non-equivalent control group design with a delayed post-test was used as a quasi-experimental research design. 832 Senior Secondary School II (SS II) Financial Accounting students attending public secondary schools in Rivers State made up the study's population. The study used a sample of 157 SS II students from two chosen coeducational public secondary schools' intact classrooms. Using a straightforward random selection method, the intact classes were chosen by ballot. There were 80 female students and 77 male students who participated. Balloting was used to divide the classes into experimental and control groups. The study involved two intact classes in total: the experimental group received one intact class, whereas the control group received the other intact class.

The Financial Accounting Achievement Test (FAAT) and Financial Accounting Retention Test (FART), which were developed and validated by the researcher, were the research instruments utilised to gather data. Forty multiple-choice objective questions with four answers (A–D) each, each with one right answer and three distractors, made up the instruments. A maximum score of 40 was possible because each right answer received one mark, while incorrect answers received zero. To guarantee sufficient content coverage, item clarity, and alignment with learning objectives, the instruments were verified by professionals in business education and measurement and evaluation. The Kuder–Richardson Formula 21 (KR–21) was used to determine the instruments' dependability. The results showed strong internal consistency with reliability coefficients of 0.86 and 0.89, respectively.

While the control group received instruction in financial accounting through traditional lectures, the experimental group received instruction through an inquiry-based approach. Before therapy, the FAAT was given to both groups as a pre-test. A post-test was given to gauge achievement following the instructional time, and two weeks later, a FART

was used to gauge retention. To address the study issues, the mean and standard deviation were used to examine the data. The hypotheses were tested at the 0.05 level of significance using Analysis of Covariance (ANCOVA).

Results

Table 1: Mean and standard deviation of the Achievement of students based on Strategy

Methods		Pretest	Posttest	Mean Gain
Inquiry-Based Strategy	Mean	14.3077	29.5385	15.2308
	n	78	78	78
	Std. Deviation	4.21595	6.25786	8.05327
Conventional method	Mean	14.9873	20.6962	5.7089
	n	79	79	79
	Std. Deviation	4.04935	6.04758	6.60255

Table 1 demonstrates that students who were taught financial accounting using the inquiry-based instructional strategy had a mean score of 14.3077 with a standard deviation of 4.21595 on the pretest and 29.5385 with a standard deviation of 6.25786 on the posttest. This resulted in a mean gain of 15.2308 with a standard deviation of 8.05327. Students who were taught using the traditional approach, on the other hand, had a mean score of 14.9873 with a standard deviation of 4.04935 on the pretest and 20.6962 with a standard deviation of 6.04758 on the posttest. This resulted in a mean increase of 5.7089 with a standard deviation of 6.60255. The inquiry-based instructional strategy was more successful than the traditional teaching method in raising students' achievement in financial accounting, as seen by the higher mean gain reported by students exposed to it.

Table 2: Mean and standard deviation of the retention of students based on strategy

Methods		Posttest	Retention test	Mean Gain
Inquiry-Based Strategy	Mean	29.5385	32.2821	2.7436
	N	78	78	78
	Std. Deviation	6.25786	6.65455	6.99617
Conventional Lecture method	Mean	20.6962	22.5443	1.8481
	N	79	79	79
	Std. Deviation	6.04758	12.63572	12.49727

Table 2 demonstrates that students who were taught financial accounting using the inquiry-based instructional strategy had a mean score of 29.5385 with a standard deviation of 6.25786 on the posttest and a mean score of 32.2821 with a standard deviation of 6.65455 on the retention test. This resulted in a mean gain of 2.7436 with a standard deviation of 6.99617. On the other hand, students who received instruction using the traditional lecture technique scored 20.6962 with a standard deviation of 6.04758 on the posttest and 22.5443 with a standard deviation of 12.63572 on the retention test, resulting in a mean gain of 1.8481 with a standard deviation of 12.49727. The inquiry-based instructional strategy was more successful in improving students' retention of Financial Accounting concepts than the traditional lecture method, as evidenced by the higher mean gain reported by students exposed to it.

Table 3: ANCOVA Analysis of achievement of students taught Financial Accounting based on Method Tests of Between-Subjects Effects

Dependent Variable: Posttest

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
Corrected Model	3070.053 ^a	2	1535.027	40.294	.000	.344	
Intercept	7025.941	1	7025.941	184.430	.000	.545	
Pretest	1.395	1	1.395	.037	.848	.000	
Strategy	3058.552	1	3058.552	80.287	.000	.343	

Error	5866.698	154	38.095
Total	107763.000	157	
Corrected Total	8936.752	156	

a. R Squared = .344 (Adjusted R Squared = .335)

Table 3 demonstrates that students' performance in Financial Accounting was significantly impacted by teaching method $F(1, 154) = 80.287, p = .000$. The null hypothesis was rejected since the p-value fell below the significance level of 0.05. This suggests that students who are taught using the inquiry-based instructional technique outperform those who are taught using the traditional lecture strategy. The outcome also shows that the instructional method's partial eta squared value is .343. This shows a high effect size, indicating that the teaching strategy significantly impacted students' financial accounting performance.

Table 4: ANCOVA Analysis of retention of students taught Financial Accounting based on Strategy Tests of Between-Subjects Effects

Dependent Variable: Retention test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
Corrected Model	5145.201 ^a	2	2572.601	27.437	.000	.263	
Intercept	1986.875	1	1986.875	21.190	.000	.121	
Posttest	1423.521	1	1423.521	15.182	.000	.090	
Strategy	746.678	1	746.678	7.963	.005	.049	
Error	14439.869	154	93.765				
Total	137301.000	157					
Corrected Total	19585.070	156					

a. R Squared = .263 (Adjusted R Squared = .253)

Table 4 demonstrates that students' retention in Financial Accounting was significantly impacted by instructional technique ($F(1, 154) = 7.963, p = .005$). The null hypothesis was rejected since the p-value fell below the significance level of 0.05. This suggests that students taught using the inquiry-based teaching technique and those taught using the traditional lecture style had significantly different retention ratings. The outcome also shows that the instructional method's partial eta squared value is .049. This suggests a small effect size, indicating that teaching technique had a statistically significant but comparatively little impact on students' retention in financial accounting.

Discussion

The study results in Table 1 show that students taught Financial Accounting utilising the inquiry-based instructional strategy did better than students taught using the standard lecture method. Table 3 further shows that the instructional style had a substantial influence on students' attainment with a large effect size. This implies that the observed change in students' performance was not only statistically significant but also educationally meaningful. These results are similar with the work of Eebo (2020), who found that accounting students taught with inquiry-based education performed significantly better than accounting students taught with lecture-based education. The author associated this increase with better analytical thinking and active engagement of students. Similarly, Umoru et al. (2022) found that the inquiry teaching approach significantly improved the performance of students of Business Education in Principles of Accounting. Students exposed to the inquiry processes showed improved conceptual understanding and problem-solving skills. Similarly, a more systematic review of empirical studies indicates that inquiry-based learning often leads to significant gains in academic performance in a wide range of educational environments (Harleni et al., 2025). Inquiry-based learning is preferable as it is learner-centred and shifts the duty from instructor explanation to student research. This technique encourages curiosity, sustained attention and strong cognitive involvement, all of which are necessary to learn abstract accounting principles. The conventional lecture format, by contrast, often promotes rote learning and passive reception, which can limit retention and higher levels of understanding.

Findings of the study revealed that students taught financial accounting with inquiry-based instructional technique had greater retention of the subject matter than students taught with standard lecture style. This was evidenced by the inquiry-based group's higher pattern of posttest-retention performance. Although the effect size was quite small, the hypothesis testing nonetheless revealed that the instructional style had a significant effect on students' recollection.

This means that while the difference is statistically significant, the size of the difference is quite small. This finding is consistent with the findings of Usman (2024) who found that students who got inquiry-based training were better at recalling accounting concepts than students who received traditional lecture training. The study found that active participation in the learning process enhances the long-term stability of information. Likewise, Pratama (2024) found that inquiry-based learning boosted students' conceptual understanding and long-term recall of accounting ideas, showing how sustained interaction with learning activities increases memory retention. Moreover, Mediana et al. (2025) found that inquiry-based pedagogies significantly improve retention outcomes, while facilitating the long-term acquisition of knowledge through the emphasis on deeper conceptual understanding over rote memorisation. Inquiry based learning is beneficial in enhancing retention since it promotes active learning, discovery and knowledge making. These techniques allow students to organise knowledge so that it can be more readily retrieved later. However, the typical lecture technique tends to promote memorisation and surface learning, which does not facilitate long-term retention.

Conclusion

The study concluded that inquiry-based training is more effective than the standard lecture method in enhancing students' performance and retention in Financial Accounting. The results showed that the students who had regular inquiry-based education did better than their counterparts in academic achievement and memory of ideas. Statistical tests further confirmed that the instructional strategy had a considerable impact on achievement (large effect size) and retention (small but significant effect). Hence, the study reveals that inquiry-based teaching strategy fosters active participation of students, enhancing understanding and better knowledge generation. The effect on retention was somewhat smaller compared to conventional teaching techniques, but still suggests that inquiry-based learning supports retaining learnt concepts over a period of time.

Recommendations

The researchers recommended the following actions based on the study's findings:

1. Teachers of financial accounting should use an inquiry-based teaching approach in the classroom since it has been demonstrated to greatly raise student achievement and improve idea retention.
2. Through conferences, seminars, and ongoing professional development programs for teachers, school administrators and curriculum designers should promote the adoption of learner-centred instructional strategies like inquiry-based learning.
3. To give aspiring educators the tools they need for successful classroom implementation, teacher preparation programs should more clearly include inquiry-based teaching strategies in their curricula.
4. To successfully adopt inquiry-based instruction, government education agencies should offer instructional support resources and learning settings that encourage student exploration and active learning.

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