



EFFECTIVENESS OF GUIDED DISCOVERY STRATEGY ON SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT IN FINANCIAL ACCOUNTING IN OGUN STATE, NIGERIA

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Abstract

This study examined the effectiveness of guided discovery strategy on Secondary School Students' Academic Achievement in Financial Accounting in Ogun State, Nigeria and also studied the moderating effect of gender on Students' academic achievement in the subject. The study adopted a quasi-experimental design, involving a pretest, posttest and control group with a 3 x 2 x 2 factorial matrix which comprised three treatment groups and two moderating variables of location and gender. The population of the study was 5,257 SSS II Commercial students in all public secondary schools in Ogun state. A total number of 405 of them were selected in their intact classes as samples for the study using a simple random technique in a multi-stage procedure. The Financial Accounting Achievement Test (FAAT) was the instrument validated and used for data collection and its reliability was determined using K-R 20 reliability method and a coefficient of 0.78 was obtained. Data collected were analyzed using mean and standard deviation to answer all the research questions and Analysis of Covariance (ANCOVA) to test all the hypotheses at 0.05 level of significance. The results showed that there is a significant main effect of treatments on students' academic achievement in Financial Accounting ($F = 3537.52$ $P < 0.05$) because students taught Financial Accounting with guided discovery strategy had higher academic achievement than those taught with conventional method. Results also showed that there is no significant effect of gender on students' academic achievement in Financial Accounting ($F = 0.129$ $P > 0.05$). The study concluded that the guided discovery Strategy was more effective than the conventional method because it helped to improve students' achievement in Financial Accounting. Based on the conclusion, it was recommended among others that secondary school Financial Accounting teachers should adopt a guided discovery strategy for instructional delivery to enhance students' academic achievement and Ogun State Ministry of Education through Educational secretaries and officials assigned to curriculum review should include the use of Guided Discovery Strategy to the instructional methods used in teaching Financial Accounting.

Keywords: academic achievement, conventional method, gender, guided discovery strategy, financial accounting,

Introduction

Financial accounting is a core vocational subject offered by students in commercial departments of secondary schools, accounting and business education departments of colleges of education, polytechnics and universities in Nigeria. Furthermore, Abbey and Okorogba (2017) defined



financial accounting as essentially a course that involves the acquisition, management and keeping of business transaction records. Some of the goals of teaching Financial Accounting in Nigerian secondary schools are to enable learners to value fundamental practices of accounting principles and their applications to newfangled/contemporary business activities that prepare them for future engagements in the field of accounting, to enable students become proficient in financial transaction and management, to train students in practical knowledge of bookkeeping and to help them understand the stages of record keeping in organizations, to prepare financial statements of business concerns, analyze and communicate it to its users for making informed decisions. Hence, Financial Accounting as a subject is very important to the Nigerian economy as it provides the basis for preparing future entrepreneurs, accountants, bankers, stock brokers, managers and other financial experts who are key stakeholders in economic building and sustainability.

However, bearing in mind the enormous benefits of financial accounting to individuals and national development, the academic achievement of commercial students has been observed to be poor and below average. Despite efforts by teachers to make classroom instruction interactive and engaging, students' academic achievement in this skill course has been low and there is a need for improvement especially in external examinations such as the West African Examination Council (WAEC) (Inuwa, *et al.*, 2018). Academic achievement is the outcome of teaching and learning; that is, the extent to which teachers and students have achieved their instructional goals.

According to Jimoh *et al.* (2017), academic achievement can be said to be the success accomplished by the students in their area of study, especially through efforts, skills, practice or perseverance. It is the amount of information and knowledge that students acquire after studying through instruction or personal efforts (Fakhir, 2015). It is commonly measured through examinations or continuous assessment. However, in secondary schools, students' academic accomplishment/performance through continuous assessment and examination determines to a great extent the quality of the process. To buttress this fact, Adamu *et al.* (2022) expressed that the performances of secondary school students in financial accounting have fallen short of expectations over the years. This poor academic achievement could be a result of many factors such as school environment, facilities, leadership style and teachers' teaching experience, method of teaching, students' background, gender and location. Scholars such as Adamu *et al.* (2022) have associated the problem more with the use of conventional teaching methods adopted in financial accounting instructional delivery.

Generally, financial accounting is taught through a conventional classroom approach, where the instructor physically presents the educational materials to the students and utilizes several teaching methods. Students are assessed based on their completion of homework assignments and participation in class activities. This pedagogical approach, also known as the direct instruction method, entails the teacher assuming control of the educational process by disseminating instructional materials in the classroom, while students actively engage in listening and maybe taking notes. The teacher administers tasks and lessons periodically to evaluate the students' comprehension of the subject matter being taught. This strategy offers numerous



benefits. The conventional classroom approach facilitates direct engagement between the instructor and pupils, encourages socialization among students, and enhances enthusiasm throughout the learning journey. Furthermore, it highlights the importance of face-to-face teaching, where the teacher assumes a major position (Cooper, 2018).

Nevertheless, this approach may not consider students' learning styles and may not be flexible enough for self-paced learning. Abdulmutallib, *et al.* (2021) thought that the conventional method of teaching has continued to dominate Nigerian classroom teaching; while this method has its good, it may not always be an effective instructional pedagogy for improving students' academic achievement in skill-oriented subjects because learners' active involvement in teaching and learning process is low and this makes students rely heavily on their teachers for probably majority of their learning needs. Consequently, the conventional classroom approach may not be student-centred as students' participation may be restricted to only what the teacher permits in class. There is a need for financial accounting teachers to adopt innovative, learner-centered and 21st-century strategies. Some of these strategies include think-pair share, cooperative learning, collaborative problem solving and guided discovery. This study focused on guided discovery strategies because little has been done on their applicability in teaching financial accounting in secondary schools, particularly in Ogun state, Nigeria.

The guided discovery method is another innovative and learner-centred approach which may enhance students' achievement in Financial Accounting. The guided discovery method, as described by Ozioko (2015), is an instructional approach that enables learners to utilize their process abilities to develop content knowledge. It is a pedagogical approach that involves learners in direct, practical learning experiences in the actual world. This implies that it motivates learners to investigate the subject matter by engaging in hands-on experiences facilitated by structured tasks. The guided discovery technique is an instructional approach that promotes experiential learning, solving issues through supervised activities and encourages active engagement and creativity among students. The strategy also empowers students to independently make allusions to uncover concepts or clarifications, with minimal supervision from the teacher (Babat & Ugbe, 2018). In using guided discovery as a teaching method in Financial Accounting, the teacher devises a series of statements or questions that will guide the learners to use a step-by-step series of discoveries that can lead to the accomplishment of financial accounting objectives.

According to Idris (2014), the advantages of guided discovery include; active learning, students tend to learn more and retain information, learning is motivating because there is personal involvement; and enhances the development of positive social skills. Numerous studies have shown the effectiveness of guided discovery in enhancing students' performance in various subjects. Ugwoke *et al.* (2020) reported that guided discovery improved students' attitudes and retention in Oyo state. Also, Babat and Ugbe (2018) found that there was a significant difference in students' achievements after being taught with guided discovery in colleges of education. In another report, Ozioko (2015) found that the use of the guided discovery method enhances students' achievements and interest in food and nutrition. These few studies have shown that



guided discovery helps in enhancing students' academic achievement but little has been done to testify to its applicability in financial accounting instruction in secondary schools particularly in Ogun state.

Even when the teaching strategy is appropriate, gender is one of the factors that may influence students' academic achievement. Etim (2022) defined gender as a biological construct that distinguishes males from females. In this study, gender is simply the classification of a person into male and female based on biological attributes. Studies abound on gender differences and students' achievement in school subjects with most being conflicting. While some of these studies observed gender disparity in favour of males; others report females' superiority and others show zero disparity. For instance, Gogo (2018) reports that girls have greater verbal ability than boys while boys have greater spatial abilities than girls. This means that boys perform well in calculation-based subjects like mathematics, physics and financial accounting while Nnamani and Oyibe (2016) reported that boys are higher in verbal ability than girls and perform lower in practical-based subjects. Also, a study by Babatunde (2015) revealed that boys show interest in brain-tasking careers while girls are more interested in courses that do not require much brain work. Meanwhile, Financial Accounting is a practical-oriented subject which is brain-tasking. This fact may make the use of innovative strategies like guided discovery to be gender biased in teaching Financial Accounting and there is a need to find out.

Though many researchers have proven the effectiveness of guided discovery in enhancing students' academic achievement, few studies have been conducted to reflect the effectiveness of these strategies in improving students' academic achievement in financial accounting, especially in secondary schools in Ogun State. Also, the conflicting reports and diverse opinions on gender disparity in learning outcomes necessitate the need to empirically find out the level at which gender influences students' achievement when guided discovery strategy is applied in Financial Accounting instruction. It is on this background that this study seeks to examine the effectiveness of guided discovery strategies on secondary school students' academic achievement in Financial Accounting in Ogun State, Nigeria.

Statement of the Problem

There have been reports of inconsistent, dwindling and poor academic achievement of secondary school students in financial accounting in secondary schools. Obidile *et al.*, (2017) observed that the incidences of students' poor academic achievement in mathematical or calculation-based subjects such as financial accounting remain concurrent despite the unrelenting efforts of the government to foster the achievement of learners; hence, it becomes imperative to examine various ways of improving students' performance in the subject. The WAEC Chief Examiner (2019) reported a decline in students' performance in accounting as a result of poor use of grammar, posting entries without account headings and currency value, wrong placement of values, poor understanding of the rudiments of financial accounting among others were the problems identified. Furthermore, a three-year WAEC result statistics released by the chief examiner showed the percentage failure rate of students in the subject to be 54.43%, 63.22% and 44.81% for years 2019, 2020 and 2021 respectively (WAEC Chief Examiner, 2021). This shows



a very disappointing poor academic achievement in financial accounting and experts have expressed displeasure on the issue.

Research Questions

The following research questions guided the study:

1. What is the difference in the academic achievement of secondary school students taught financial accounting with guided-discovery strategy and those taught with conventional method?
2. What is the difference between the academic achievement of male and female students exposed to financial accounting instruction using treatment strategies?

Research Hypotheses

The following hypotheses were formulated in line with the research questions and tested at 0.05 level of significance:

- Ho1:** There is no significant main effect of the treatment (guided discovery method and conventional method) on secondary school students' academic achievement in Financial Accounting.
- Ho2:** There is no significant effect of gender on secondary school students' academic achievement in Financial Accounting.
- Ho3:** There is no significant interaction effect of treatment and gender on secondary school students' academic achievement in Financial Accounting

Methodology

This study adopted a quasi-experimental pretest, posttest control group design with a 3 x 2 x 2 factorial matrix. The population for the study was five thousand, two hundred and fifty-seven (5,257) SS2 commercial students in public secondary schools in Ogun State (Ogun State Ministry of Education, 2023). The sample consisted of Four Hundred and Five (405) SS2 commercial students in four public secondary schools across the senatorial districts in Ogun State. The sample was selected using simple random techniques in a multistage procedure. At First, two senatorial districts were randomly selected and one local government was selected from each senatorial district. Secondly, a simple random sampling technique was used to select two secondary schools from each Local Government giving four secondary schools in all. Thirdly, a simple random sampling technique was then used to assign each Local government into two treatment groups such that Abeokuta North fell into the experimental group using guided discovery and Yewa South fell into the control group using the conventional method. Finally, the intact classes of commercial students in each of the four schools formed the sample size for the treatment. The instrument used for treatments and data collection in this study was validated by experts in business education. The Financial Accounting Achievement Test (FAAT) was subjected to a reliability test using the KR-20 technique which yielded a coefficient of 0.78. Data collected was analyzed with mean and standard deviation used to answer the research questions while ANCOVA was used to test the hypotheses at 0.05 level of significance.



Results

Research Question One: What is the difference in the academic achievement of secondary school students taught financial accounting with a guided-discovery strategy and those taught with a conventional lecture method?

Table 1: Mean Achievement Score and Standard Deviation of students taught Financial Accounting with Guided-discovery Strategy and Conventional Lecture Method.

Treatment Strategies	N	Pretest		Posttest		Mean Gain	Diff.
		Mean	Std. D	Mean	Std. D		
Guided Discovery Strategy	237	12.08	1.44	31.66	4.95	19.58	18.57
Conventional Lecture Method	168	12.73	1.61	13.74	1.16	1.01	

Results in Table 1 show a pretest mean achievement score of 12.08 and a posttest mean achievement of 31.66 for students taught financial accounting with guided-discovery strategy. The result also indicates a pretest mean achievement score of 12.73 and a posttest mean achievement score of 13.74 for students taught financial accounting with the conventional lecture method. A comparison shows a mean gain achievement score of 19.58 for experimental group one and 1.01 for the control group with a difference of 18.57 in favour of students in experimental group two.

Research Question Two: What is the difference between the academic achievement of male and female students exposed to Financial Accounting instruction using treatment strategies?

Table 2: Mean Achievement Score and Standard Deviation of Male and Female Students taught Financial Accounting with Treatment Strategies.

Treatment Strategies	Gender	N	Pretest		Posttest		Mean Gain	Diff
			Mean	Std. D.	Mean	Std. D.		
Guided discovery	Male	99	12.01	1.45	31.96	4.73	19.95	0.63
	Female	138	12.13	1.44	31.45	5.11	19.32	
Conventional Lecture Method	Male	73	12.49	1.59	13.78	1.22	1.29	0.5
	Female	95	12.93	1.62	13.72	1.13	0.79	

The result in Table 2 shows a mean achievement gain of 19.95 for male students and 19.32 for female students taught using guided discovery strategy while a mean achievement gain of 1.29 was shown for male and 0.79 for female students taught using the conventional lecture method. The difference is 0.63 for guided discovery and 0.5 for the conventional method in favour of male students which shows that males slightly performed higher than female students



Hypotheses Testing

Hypotheses One: There is no significant main effect of the treatment (guided discovery and conventional method) on secondary school students' academic achievement in Financial Accounting

Table 3: Analysis of Covariance Showing the Effect of Treatment, Gender and Interaction Effect on Students' Academic Achievement in Financial Accounting

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31010.597 ^a	12	2584.216	918.950	.000
Intercept	4866.005	1	4866.005	1730.356	.000
PRETEST	9.573	1	9.573	3.404	.065
TREATMENT	19896.013	2	9948.006	3537.520	.000
LOCATION	6066.540	1	6066.540	2157.267	.000
GENDER	.363	1	.363	.129	.720
TREATMENT * LOCATION	3590.160	2	1795.080	638.332	.000
TREATMENT * GENDER	.375	2	.187	.066	.936
LOCATION * GENDER	.066	1		.525	.878
TREATMENT * LOCATION * GENDER	1.050	2		.187	.830
Error	1889.759	392	2.812		
Total	394300.000	405			
Corrected Total	32900.356	404			

a. R Squared = .943 (Adjusted R Squared = .942)

The result in Table 3 shows an F-value of 3537.52 and a p-value (computed significant value) of 0.00. Since the computed significance (P-value) is less than the Alpha level of significance ($0.00 < 0.05$), the null hypothesis is hereby rejected. This result indicates that there is a significant main effect of treatments on secondary school students' academic achievement in Financial Accounting in Ogun State, Nigeria.

Hypotheses Two: There is no significant effect of gender on secondary school students' academic achievement in Financial Accounting

The result in Table 3 shows an F-value of 0.129 and a p-value (computed significant value) of 0.720. Since the computed significant (P-value) is greater than the Alpha level of significance ($0.720 > 0.05$), the null hypothesis is hereby upheld. This result indicates that there is no significant effect of gender on secondary school students' academic achievement in Financial Accounting in Ogun State, Nigeria. The use of guided discovery is not gender biased which means it's not sensitive to the nature of students whether male or female.

Hypothesis Three: There is no significant interaction effect of treatment and gender on secondary school students' academic achievement in Financial Accounting

The result in Table 3 shows an F-value of 0.066 and a p-value (computed significant value) of 0.936. Since the computed significant (P-value) is greater than the Alpha level of significance ($0.936 > 0.05$), the null hypothesis is hereby upheld. This means that there is no significant



interaction effect of treatments and gender on secondary school students' academic achievement in Financial Accounting in Ogun State, Nigeria.

Discussion of Findings

The study found that students taught financial accounting with guided discovery strategy performed better than those taught with conventional lecture method. This better academic achievement may be as a result of the fact that the guided discovery strategy allows students to investigate, use their discretion, contribute to knowledge, and get information individually or collectively to find a solution to a given task. It stimulates inquisitiveness and promotes students' enthusiasm to discover the solution to financial accounting problems. Students tend to learn better and deeper when required to search, discover, and build essential information in financial accounting tasks. Guided discovery strategy being student-centered helps to foster cooperation amongst learners during financial accounting classroom activities. This result aligns with the submission of Tofi, *et al.* (2022) who found out the academic performance scores of students taught Biology using the guided discovery method are better than those taught using the lecture method. Also, the findings of Onochojare, *et al.* (2018) showed that the students who were taught geometry using guided discovery teaching strategy had better achievement scores than those who were taught using the conventional method.

Also, the finding that the academic achievement of female taught financial accounting using guided discovery is slightly better than their male counterparts. This result may be attributed to the fact that female students tend to concentrate more than male students when they are properly guided through guided activities. This finding is in agreement with the report of Jekayinfa, *et al.* (2023) that there was no statistically significant difference in the academic achievement of male and female graduates from the University of Ilorin. In support of this finding also, a report by Ani, *et al.* (2021) stated that gender (male/female) had no significant effect on students' academic achievement in Basic Science.

The findings of hypothesis one revealed that there is a significant effect of treatment on students' academic achievement in financial accounting which shows that guided discovery strategy is effective than the conventional method. This result may be attributed to the fact that students can solve problems in a systematic way when they are guided through guided activities. financial accounting can identify the problem, collect and process data, verify the results, and draw conclusions when a guided discovery strategy is used for instructional delivery. This result is in agreement with the findings of Bupo (2019), Olatunde-Aiyedun and Adams (2022) in their separate studies that there is a significant effect of treatment with a cooperative learning approach (guided discovery) on students' academic achievements. On the other hand, the result is also in consonance with the submission of Tofiet *al.* (2022) and Onochojare, *et al.* (2018) that there is a significant effect of treatment using the guided discovery method on students' academic achievement in Biology.

The study also found that there is no significant effect of gender on secondary school students' academic achievement in financial accounting in Ogun State, Nigeria. This finding is in



agreement with the report of Jekayinfa, *et al.* (2023) that there was no statistically significant difference in the academic achievement of male and female graduates from the University of Ilorin. In support of this finding also, a report by Ani, *et al.* (2021) stated that gender (male/female) had no significant effect on students' academic achievement in Basic Science.

Furthermore, the study found that there is no significant interaction effect of treatment and gender on secondary school students' academic achievement in financial accounting in Ogun State, Nigeria. This is in agreement with the finding of Eze, *et al.* (2016) who found that there was no significant interaction effect of treatments and gender on students' academic achievement in financial accounting. Also, the result of Okeke (2018) revealed that there was no significant interaction effect of gender and treatment on student's academic achievement and retention. More so, Nwosu and Ndanwu (2020) found that there was no significant interaction effect of teaching method and gender on the mean achievement scores of students in electronic libraries course. On the contrary, the study of Peter (2014) that there was a significant interaction effect of treatment and gender on students' academic performance in social studies contradicts the result of this findings.

Conclusion

The study concluded from the results that the use of guided discovery strategies for financial accounting instruction yielded better academic achievement than the conventional lecture method. This is because guided activities given by the teacher help students explore instructional content and enable students to achieve more participation, cooperative learning and creativity. It was also concluded that the use of the guided discovery strategy was not gender biased because there was no significant effect of gender on the academic achievements of students in financial accounting. Lastly, the study has contributed to the body of knowledge by providing an evidence-based report that guided discovery strategies are more effective in enhancing students' academic achievement in financial accounting than the conventional method.

Recommendation

The following recommendations were presented based on the findings of the study

1. Financial accounting teachers should employ guided discovery to enhance students' academic achievement in the subject.
2. Teachers should ensure proper monitoring of students when teaching with guided discovery strategies to ensure that students concentrate during the guided activities.
3. The State Ministry of Education in charge of the administration of secondary schools and curriculum review should as a matter of urgency include the use of guided discovery strategies in the instructional methods used in teaching financial accounting
4. Administrators of secondary education should create a positive atmosphere for the utilization of guided discovery strategy for teaching by making available those Financial Accounting formats, source documents and field/experienced accountants that will serve as necessary guided activities for students.



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