

*Full Length Research*

# Effectiveness of Guided Discovery Learning Strategy and Gender Sensitivity on Students' Academic Achievement in Financial Accounting in Colleges of Education

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This study examined the effectiveness of guided discovery learning strategy and gender sensitivity on students' academic achievement in financial accounting in colleges of education in Ogun State. The study adopted a quasi-experimental research design, specifically, non-randomized pretest-posttest control group design comprising of two instructional strategies (guided discovery learning strategy and lecture method). Three specific purposes, two research questions and three null hypotheses, tested at 0.05 level of significance, were formulated to guide the study. The population for the study was all 466 200-level business education students drawn from two colleges of education in Ogun State. Financial accounting achievement test (FAAT) is the instrument used for data collection. The FAAT and the lesson plans for instruction in the two groups were all validated by three accounting education experts. The reliability coefficient of the instrument was computed using split-half reliability technique and it yielded a coefficient of 0.76. Mean was used to answer the research questions while Analysis of Covariance (ANCOVA) was employed to test the null hypotheses. It was found that guided discovery learning strategy is more effective than the traditional lecture method in the teaching and learning of financial accounting in tertiary institution. The study also revealed that significant difference exist between the academic achievement of male and female students, taught financial accounting using guided discovery learning strategy. The study recommends among other things, the adoption of guided discovery learning strategy in the teaching and learning of financial accounting in tertiary institutions especially colleges of education.

**Keywords:** Academic Achievement, Financial Accounting, Gender, Traditional Lecture Method, Guided discovery Learning Strategy.

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## INTRODUCTION

Financial accounting is an academic course that equips students with relevant skills and knowledge needed for occupation in accounting field. Jat & Jugu (2008) defined financial accounting as a service activity which provides social communication through which changes and improvements in business activities are communicated to various users in order to allow them make informed decision. Akinbuli (2006) stressed that "financial accounting is a branch of accounting that enables business managers to report their stewardship, keep records of all financial transactions, provides records for tax assessment, planning and decision making". Financial accounting is the process of identifying, measuring, and communicating economic and financial information to permit informed judgments and decision by the users of the information (Okwoli, 2006). Asaolu (2002) also explained that "financial accounting involve a process of recording, classifying, selecting, measuring, interpreting, summarizing and reporting financial data of an organization to users for objective assessment and decision making". Similarly, Okewale, Osinubi, Abata and Desu (2002) corroborated that "financial accounting is a field of accounting that involve collecting, recording, classifying, summarizing and communicating financial data in respect of business event which can be expressed in monetary terms". The major objective of offering financial accounting in business education is to impart the necessary skills and knowledge for performing financial duties in any business organization and provide students with technical and professional skills needed to handle financial accounting subject in both secondary and tertiary institutions including colleges of education. Meanwhile, in colleges of education financial Accounting is part of business education subjects offered to students and they must attain some level of success in it before they are awarded N.C.E certificate.

Academic achievement is the outcome of education, that is, the extent to which a student, teacher or institution has achieved their educational goals. According to Jimoh, Idris and Olatunji (2016), academic achievement is the degree of success attained by students after being exposed to one form of learning or the other. Jimoh (2014) corroborates that academic achievement is the level of success attained by students in school subjects. Ezenwosu and Nworgu (2013) noted that academic achievement is commonly measured using classroom exercise, assignment and continuous assessment as well as internal and external examination. It can be used to indicate students' level of success in a particular task previously exposed to and it can also be used as indices for determining students' ability to effectively undertake another task (Jimoh, 2014).

The preliminary study conducted by the researcher showed that students' performances in financial

accounting examinations are below expectation. The poor performance of students in financial accounting in colleges of education may have been attributed to the traditional lecture method popularly used by lecturers in instructional delivery. Ezenwosu and Nworgu (2013) noted that most teachers adopted traditional lecture method which is an oral presentation of ideas, concepts and principles to the students. Jimoh (2014) explained that lecture method is an instructional strategy which affords teacher the opportunity to present a wide content to a large class of students with little or no interaction among students and even the teacher. In the word of Adunfe (2005), lecture method is a teaching strategy where a pre-packaged instructional content is delivered by the teacher to a large audience with minimal students-teacher interaction. The characteristics of lecture method include the following: teacher-centered, teacher-active, learner-passive, content emphasis, large class size, wide content of instruction and minimal use of chalkboard and low level of interaction (Cantrell, 2004; Adunfe, 2005). Ezenwosu & Nworgu (2013) corroborated that the strategy is concerned with how much ground is covered by the teacher before examination. Going by the above features, lecture method is inappropriate for teaching some skill oriented subjects like financial accounting because students are deprived of active participation in the learning process and they have very little or no interaction among themselves and the teacher. To improve on the academic achievements of students in financial accounting, teaching methods that enable the learners to reason, discover facts and develop self-confidence in solving financial accounting problems are required. One of such methods is the guided discovery learning strategy.

Guided discovery learning strategy is a learning situation in which the principal content of learning is not directly exposed by the teacher but left to be discovered by the learners, making the teacher a guardian and students active participants in the learning process. Ogunbiyi (2012) noted that vocational education curriculum demands the adoption of more progressive strategies of discovery, inquiry, discussion, problem solving, dramatization/role playing, computer-assisted instruction and other relaxed classroom learning and teaching activities. The relevance of guided discovery method to financial accounting emanated from the suggestion that learners construct knowledge out of their experiences which is associated with pedagogical approaches that promote learning by doing or active learning (Afolabi & Akinbobola, 2009). Constructivist teaching is based on the fact that skills and knowledge acquisition are not by passively receiving information and rote learning but involves active participation of the learners through knowledge construction, hands-on and

minds-on activities (Akinbobola & Ado, 2007). The teachers' role in guided discovery is to serve as facilitator of learning in which students are encouraged to be responsible, autonomous and construct their own understanding of each concept. Hence, the activities are learner-centered, democratic and interactive. Garuma and Tesfaye (2012) corroborated that discovery learning is an intentional learning through problem solving under teacher supervision. It is a method through which teacher provides illustrative materials for students to study on their own (Akinbobola and Afolabi, 2010). The method is an inductive method of guiding learners to discuss and organize ideas and process it by themselves (Acerio, Javier and Castro, 2000). During guided discovery, the teacher invites students to initiate discussion and to react to other students' (Garuma and Tesfaye, 2012). Learners' background knowledge and understanding of what is expected of them are most important consideration for effective use of this strategy. It can bring improve understanding of financial accounting because students have background knowledge in financial accounting from secondary school. Self discovery of more knowledge and better understanding its content can be achieved through guided discovery.

A lot of empirical studies have been conducted to testify the effectiveness of guided discovery in enhancing students' academic performance in school. But many of these studies were conducted on science subjects like chemistry, mathematics, physics (Udo, 2010, Ozomadu, 2016, Garuma and Tesfaye, 2012). To the knowledge of researchers, no studies have been conducted in Ogun state to determine the effectiveness of guided discovery learning strategy on students' academic achievement in financial accounting in colleges of education. Also, studies on gender influence on instructional approaches show conflicting results. While Ekeh (2004) reported male superiority; Galadima (2003) allege female superiority and some other studies report that both male and female perform equally (Ariyibi, 2004; Udo, 2004 & Udo and Udo, 2007). Base on the foregoing, this study explored the effectiveness of guided discovery learning strategy on students' academic achievement in financial accounting in colleges of education with consideration for gender

## PURPOSE OF THE STUDY

The major purpose of the study is to determine the effectiveness of guided discovery learning strategy and its gender sensitivity on students' achievement in financial accounting in colleges of education in Ogun State. Specifically, the study sought to determine:

1. The effect of guided discovery learning strategy on students' academic achievement in financial accounting

2. The effect of gender on academic achievement of students taught with guided discovery learning strategy
3. The interaction effect of guided discovery learning strategy and gender on students' achievement in financial accounting.

## RESEARCH QUESTIONS

The following research questions were raised in line with the specific purposes and answered in this study:

1. What is the difference between academic achievement of students taught financial accounting with guided discovery learning strategy and those taught with traditional lecture method?
2. What is the influence of gender on the achievement of students taught financial accounting with guided discovery method?

## RESEARCH HYPOTHESES

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

- HO<sub>1</sub>:** There is no significant difference between the mean scores of students taught financial accounting with guided discovery learning strategy and those taught with traditional lecture method.
- HO<sub>2</sub>:** There is no significant difference between the mean scores of male and female students taught financial accounting with guided discovery learning strategy
- HO<sub>3</sub>:** There is no significant interaction effect of guided discovery learning strategy and gender on students' achievement in financial accounting

## CONCEPTUAL REVIEW

Guided discovery is an inquiry-based, student centered and an activity-oriented teaching strategy which allows financial accounting teacher to use varieties of instructional materials and probing questions, to enable students discover answers to accounting problems. According to Ekhasemomhe (2010), this strategy places the teacher as the overseer and facilitator of learning, and as the mediator between the students and the instructional materials for the lesson. Discovery learning takes place in problem-solving situations where the learners use their own experiences and prior knowledge to discover the truths that are to be learned. Discovery learning is a strategy through which students interact with

materials by exploring and battling with probing questions or performing experiments to discover more knowledge. It is believed that students are likely to remember concepts they discover on their own than those they are taught. Bricknell-Holmes and Hoffman (2000) describe the three main attributes of discovery learning as: exploring and problem solving to create, integrate, and generalize knowledge; student driven, interest-based activities in which the student determines the sequence and frequency and activities to encourage integration of new knowledge into the learner's existing knowledge base.

These three attributes are combined to make discovery learning different from traditional forms of learning in the following ways: learning is active rather than passive; learning is activity base and process-oriented rather than content-oriented; failure is important for future success; feedback is necessary for control measures and deeper understanding is ensure

Base on the fact that financial accounting offered in colleges of education aimed at building on the past experience and prior knowledge of the students from secondary schools, it is considered for experiment to testify his effectiveness as against the traditional method of learning financial accounting especially in tertiary institutions. However, the following are the procedures for using guided discovery for teaching financial accounting:

- Teacher introduces accounting topics to set learning pace for students
- Teacher generates and model students idea through financial accounting questions, illustrations and activities
- Teacher encourages accounting students to explore varieties of learning materials to discover facts and more knowledge about financial accounting concept or content
- Encourages financial accounting students to share exploratory work with each other
- Engaging accounting students in thinking through and practicing illustrations, questions and activities

## THEORETICAL FRAMEWORK

The theoretical framework of this study is based on constructivism theory. Constructivism theory was propounded by Burner in 1966. The theory states that learners have the ability to draw or infer ideas based on their past and present knowledge or experience. The learners through their ideas build cognitive ability which allows them to arrive at new concepts from the past knowledge gained. The theory insists that the method of instruction should be focused on motivation, encouragement, helping and allowing students to discover new ideas, principles and facts on their own

through guided means. The theory encourages learners' inquisitiveness, exploration, innovation and initiation. The theory is related to this study as guided discovery learning provides an avenue for student to discover ideas, facts, principles and knowledge content on their own with little guidance from the teacher. Also, financial accounting offered in colleges of education aimed at building better understanding of what the students have learnt in secondary schools and self discovery of financial accounting concepts and principles is possible through guided discovery strategy.

## MATERIALS AND METHODS

The study adopted a quasi- experimental research design, specifically, non-randomized pretest-posttest control group design. This design was used because the experiment took place in normal school settings where randomization or assignment of subjects to experimental and control groups is not possible (Nworgu, 2006; Ezenwosu & Nworgu, 2013). Two instructional strategies (guided discovery learning strategy and lecture method) were used as treatments to determine the most effective one; with consideration to gender. The population for the study was 466 200-level business education students in the selected colleges of education in Ogun State. The population comprises of 216 students in their intact class for experimental group and 250 students in their intact class for control group respectively. The entire population was studied because the size is not too large for the study. A 30 multiple choice financial accounting achievement test (FAAT) developed by the researcher; was the instrument validated and administered for data collection. The reliability of the FAAT was determined using split-half technique and it yielded a coefficient of 0.76. The lesson plans for the two instructional groups were also validated by experts in business education.

A pre-experimental briefing section was organized before the commencement of the treatment, to highlight to the research assistants, the procedures for the experiment after which a pretest was first administered. After the pretest, a three-week treatment was given to the two groups, using appropriate strategies and lesson plans. The post-test was administered to the two groups after the completion of the lesson and the data collected were analyzed using descriptive statistic of mean to answer the research questions and ANCOVA to test the null hypotheses formulated for the study.

To control pre-existing group difference which may arise from the difficulty in randomizing students in the school situation, intact classes was used to control initial group differences and analysis of co-variance (ANCOVA) was used as a statistical tool for data analysis to minimize the effect of non-randomization of the subjects and check the interaction effect of all variables

## RESULTS

### Effect of guided discovery learning strategy on students' academic achievement in financial accounting

Research question one sought to determine the difference exist between academic achievements of students taught financial accounting using guided discovery learning strategy and traditional lecture method. The results are presented in Table 1 below:

The data presented in Table 1 shows that the control group had a pretest mean of 8.96 and posttest mean of 16.62 with a mean gain of 7.66. The experimental group had a pretest mean 9.00 and posttest mean of 21.20 with a mean gain of 12.20. Since the mean gain of 12.20 in the experimental group is higher than the mean gain of 7.66 in the control group, it therefore means that, guided discovery learning strategy is more effective in teaching financial accounting than traditional lecture method.

Table 2 shows the results of testing hypothesis 1 which sought to determine if significant difference existed between the mean achievement test scores of students taught financial accounting using guided discovery learning strategy and those taught using traditional lecture method. The analysis shows that F-value for the instructional groups is 39.98 with a significant of F at 0.00, which is less than 0.05 alpha value. Therefore, the null hypothesis was rejected. This means that there is a significant difference in the mean achievement scores of students taught financial accounting using guided discovery learning strategy and those taught using traditional lecture method. It therefore means, the mean achievement of students taught guided discovery learning strategy is significantly higher than that of those taught using traditional lecture method.

### Effect of gender on students' academic achievement in financial accounting

The mean achievement test scores of students in financial categorized by gender is shown in Table 3.

Table 3 shows that the mean gain score of 9.83 for male students in the control group is higher than the mean gain score of 5.59 for female students in the same group with a difference of 4.25 in favour of male students. In addition, the mean gain score of male students in the experimental group was 12.05 and 12.51 mean gain score for female students in the same group with a difference of 0.46 in favour of female students. This result shows that control group favour male students while experimental group favour female.

The results of testing hypothesis 2 as shown in Table 4 indicates that the F-value for the effect of gender in the

application of treatment is 75.68 with a significance of F at 0.00 which is less than 0.05. The null hypothesis was therefore rejected. Therefore there is significant difference in the mean achievement scores of male and female students taught financial accounting using guided discovery learning strategy. It means that gender statistically affect the achievement of students in financial accounting most.

### Interaction effect between guided discovery learning strategy and gender on students' academic achievement in cost accounting

The results of testing hypothesis 3 as shown in table 5 revealed that the F-value for combination of groups and gender is 0.35 with a significance value of 0.55. The significance value of 0.55 is greater than the alpha significance of 0.05. Therefore, the null hypothesis was accepted. It therefore means that there is no significant interaction effect of guided discovery strategy and gender on students' academic achievement in financial accounting.

## DISCUSSION

The result of research question one showed that students in the experimental group (taught financial accounting using guided discovery learning strategy) performed significantly better than those in the control group (taught using traditional lecture method). In the same vein, the findings of the hypothesis one revealed a significant difference between the mean achievement test score of students taught financial accounting using guided discovery learning strategy and those taught using traditional lecture method. This finding is supported by the result of Akinbobola and Afolabi (2010); Acero, Javier and Castro (2000) and Bicknell-Hoffman, (2000) that guided discovery learning strategy improve students' academic achievement than traditional lecture method. The reason is that guided discovery learning strategy allow students to think and discover fact that will enable them provide solution to financial accounting problems on their own which may be difficult to do in a traditional learning environment. Similarly, Olorode (2016) affirm that guided discovery strategy is an instructional method that emphasizes students' active involvement in the learning process through peer work and enable students to think together with a view to discovering knowledge under the guidance of the teacher especially in calculation subjects like financial accounting.

Findings for the research question two revealed that male students in the control group gain more than their female counterpart in terms of academic achievement while female students in the experimental group gain

**Table 1:** Mean Achievement Scores of Students in Financial Accounting for Control and Experimental Group

TEST	GROUP			
	Control		Experimental	
	N	Mean (X)	N	Mean (X)
Pretest	250	8.96	216	9.00
Posttest	250	16.62	216	21.20
Mean gain score		<b>7.66</b>		<b>12.2</b>

**Table 2:** ANCOVA for the Effect of Teaching Method on Students' Achievement in Financial Accounting

Source	Type III sum of squares	Df	Mean square	F	Sig.
Corrected model	9379.35	6	1563.23	164.66	0.00
Intercept	75310.78	1	75310.78	7.933E3	0.00
<b>Group</b>	<b>379.53</b>	<b>1</b>	<b>379.53</b>	<b>39.978</b>	<b>0.00</b>
Gender	718.44	1	718.44	75.677	0.00
Group*gender	6.98	1	3.35	0.35	0.55
Error	4357.479	456	9.493		
Total	219621.00	466			
Corrected total	13736.83	465			

\*Significant at Sig of F (p) < 0.05.

**Table 3:** The Mean Achievement Test Scores of students in Financial Accounting by Gender.

Group	Gender	N	Pretest mean(x)	Posttest mean(x)	Mean gain score	Difference
<b>Control</b>	Male	155	8.46	18.29	9.83	<b>4.25</b>
	Female	95	9.46	15.05	5.59	
<b>Experimental</b>	Male	102	7.91	19.96	12.05	<b>0.46</b>
	Female	114	11.18	23.69	12.51	

**Table 4:** ANCOVA for Students' Achievement in Financial Accounting by Gender

Source	Type III sum of squares	Df	Mean square	F	Sig.
Corrected model	9379.35	6	1563.23	164.66	0.00
Intercept	75310.78	1	75310.78	7.933E3	0.00
Group	379.53	1	379.53	39.978	0.00
<b>Gender</b>	<b>718.44</b>	<b>1</b>	<b>718.44</b>	<b>75.677</b>	<b>0.00</b>
Group*gender	6.98	1	3.35	0.35	0.55
Error	4357.479	456	9.493		
Total	219621.00	466			
Corrected total	13736.83	465			

\*Significant at Sig of F (p) < 0.05.

more than male students. This means that the use of guided discovery learning strategy favour female students in learning of financial accounting. However, hypothesis two found that there is a significant difference between the mean achievement scores of male and female students in financial accounting especially when guided discovery is used for instruction. This finding is in consonance with the findings of Udo and Etiubon (2011)

that there is a significant difference in the mean achievement test scores of male and female students taught using guided discovery strategy.

Hypothesis three found no significant interaction effect of guided discovery learning strategy and gender on students' academic achievement in financial accounting. The finding contradicts the result of Ozomadu (2016) that there is significant interaction effect between method and

**Table 5:** ANCOVA of Students' Achievement Scores in Financial Accounting by Instructional Group and Gender

Source	Type III sum of squares	Df	Mean square	F	Sig.
Corrected model	9379.35	6	1563.23	164.66	0.00
Intercept	75310.78	1	75310.78	7.933E3	0.00
Group	379.53	1	379.53	39.978	0.00
Gender	718.44	1	718.44	75.677	0.00
<b>Group*gender</b>	<b>6.98</b>	<b>1</b>	<b>3.35</b>	<b>0.35</b>	<b>0.55</b>
Error	4357.479	456	9.493		
Total	219621.00	466			
Corrected total	13736.83	465			

\*Significant at Sig of F (p) < 0.05

gender on SS2 mathematics students' achievement in algebra but consistent with Ezinwa (2003) that no significant interaction effect exists between guided discovery strategy and gender on students achievement in quantitative analysis.

## CONCLUSION/ RECOMMENDATIONS

It is evident from the findings of this study that, guided discovery learning strategy has a comparative advantage in enhancing students' academic achievement in financial accounting than the traditional lecture method. Thus, the study inferred that guided discovery learning strategy is more effective in teaching financial accounting than the traditional lecture method. It is therefore recommended that:

1. Business education lecturers should incorporate the use of guided discovery learning strategy in the teaching of financial accounting.
2. Management of colleges of education should organize seminars and workshops for practicing lecturers on the procedure and use of guided discovery learning strategy in teaching accounting courses most especially financial accounting.

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