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## EFFECTS OF COOPERATIVE AND GUIDED DISCOVERY APPROACH ON FINANCIAL ACCOUNTING ACHIEVEMENT AMONG SECONDARY SCHOOL STUDENTS

By

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### ABSTRACT

*This study examined the effects of cooperative learning and guided discovery approaches on financial accounting achievement among secondary school students in Gombe state, Nigeria. A pre-test-post-test-control group design was adopted. 180 students that participated in the study were selected randomly from nine schools. The students were divided into three equal groups, viz. cooperative, guided discovery (i.e., experimental groups) and conventional approach (i.e., control group), all at random. A Financial Accounting Achievement Test (FAAT) was used as an instrument for data collection. At the pre-test stage, the study found that there was no statistically significant difference in the achievement of students who were assigned to the cooperative, guided discovery and conventional teaching approach, the results suggested that at the start of the experiment the students were equal in terms of their achievements. However, at the post-test stage, the financial accounting achievement of students who were exposed to the cooperative approach was significantly better than the financial accounting achievement of students who were exposed to the guided discovery and conventional teaching approach. The finding suggested cooperative approach as an effective approach to enhance the financial accounting achievement of the secondary school students. It is, therefore, recommended that government should encourage both curriculum planners and secondary schools' teachers to adopt cooperative approach as an instructional approach for teaching financial accounting in secondary schools to improve students' achievement in the subject.*

**Key Words:** cooperative, guided discovery, financial accounting, secondary school students

### INTRODUCTION

Financial accounting in Nigeria is part of the vocational subjects designed to equip the students of secondary school with the relevant knowledge, skills, work habit, abilities and attitude required for self-reliance (Ezeagba, 2014). He further stated that it is an occupationally oriented subject that provides trained manpower for the development of the nation. Moreover, the aims of teaching this subject in Nigerian secondary schools are: to enable the students to appreciate basic accounting practices, principles, and

their applications in contemporary business activities, and to prepare them to further their study in the field of accounting (NECO, 2004). Hence, this subject is very imperative to the Nigerian economy, because it provides the basis for developing future managers, accountants, entrepreneurs, and other financial controllers (Francis, 2014).

Despite the importance of financial accounting to the individual and national development, over the years, the secondary school students' achievement in this subject is far from impressive.

especially in their final examination (Adeleke, Binuomote, & Adeyinka, 2013; Ezeagba, 2014; Mohammed, 2011). Previous studies argued that the quality of teachers' instructional approach is a key determinant of students' achievement (Adeyemi, 2002; Bilesanmi-Awoderu, 2006). Furthermore, the massive and consistent failure recorded among secondary school students in national examinations are mostly due to the instructional approach employed by the teachers (Afolabi & Akinbobola, 2009; Aremu & Soka, 2003; Ezeagba, 2014) and the persistent use of conventional instructional approach (Akanbi & Kolawole, 2014; Mohammed, 2011).

However, the conventional instructional approach focuses completely on the intellectual and neglects the experiential learning (Salako, Eze, & Adu, 2013). In addition, empirical evidence have shown that the conventional instructional approach is not effective for enhancing the achievement of students in the school subject because the students' participation in the learning process is less (Abimbola & Abidoye, 2014; Hossain & Tarmizi, 2013; Majoka & Khan, 2011). On the other hand, Akintelure (1998) maintained that the subject financial accounting requires the full participation of students in the learning process because it is not learned by memorization of basic accounting rules and principles. Therefore, the use of predominant teaching method (i.e., conventional teaching approach), which involves reading, telling, and memorizing of concepts, has failed to address the issue of poor academic achievement among students of secondary schools (Kohle, 2002). Hence, effective instructional for teaching financial accounting in secondary schools needs to be sought to address the massive and consistent failure among secondary school students in the subject, particularly in their final examination.

Although, studies by Gokkurt et al. (2012) and Hossain and Tarmizi (2013) on the effect of cooperative learning on students' achievement in mathematics suggested that future studies should focus on the effect of cooperative learning on

students' achievement in various subjects. Alike, Bamiro (2015) and Udo and Etiubon (2011) recommended the future studies on guided discovery effect on students' achievement in other subjects other than chemistry. To the best of the authors' knowledge, no published study was found to have focus on the effect of cooperative and guided discovery approach on financial accounting achievement among secondary school students. This paper, therefore, addressed these gaps by examining the effects of cooperative and guided discovery approaches on financial accounting achievement among secondary school students in Gombe state, Nigeria. Specifically, the study aims to examine whether the cooperative and guided discovery approach will enhance the secondary school students' achievement in financial accounting more than the conventional teaching approach. Also, the study wants to find out which of these instructional approaches is more effective in teaching financial accounting to secondary school students.

The expected outcome of this study will be of great significance to financial accounting students in the sense that good teaching method has a positive influence on the students' success. Specifically, the study's findings are expected to be relevant to stakeholders, especially government, curriculum planners, and financial accounting teachers of secondary schools, in terms of the benefits of adopting the most effective approach for teaching financial accounting and how this approach could be used to improve their students' achievement. It is also hoped the massive and consistent failure in financial accounting among the secondary school students may be reduced and their grade in the subject be improved.

### ***Research Questions***

The following questions are formulated:

1. Is there any significant difference in the financial accounting achievement of cooperative, guided discovery, and

- conventional approach students before exposing them to the treatment?
2. Is there any significant difference in the financial accounting achievement of cooperative, guided discovery, and conventional approach students after exposing them to the treatment?

## LITERATURE REVIEW

### *Cooperative Learning Approach*

A cooperative approach is an instructional approach in which learners work in small learning groups to address the problems and other learning objectives while the teacher acts as a facilitator (Duplass, 2005). It is the approach that allows students to work together to attain their learning objectives (Abrami, Poulsen, & Chambers, 2004). Several studies have examined the effect cooperative approach on students' achievement in the different subject area. For instance, Jebson (2012) focused on the impact of cooperative learning on mathematics performance of students in secondary school. The study found cooperative learning as a valuable approach for helping the learners to accomplish a better learning outcome in mathematics. The effectiveness of cooperative learning approach could be relatively due to the fact that the students of cooperative learning approach receive academic and emotional support which help them to persist against the many obstructions they face in their learning. Similar findings were reported in the studies of Alabekee and Samuel (2015); Gokkurt al. (2012); Hossain and Tarmizi (2013) and Zakaria, Chin, and Daud (2010) in the context of Malaysia.

Recently, studies were conducted to examine the effect cooperative learning on physics achievement of secondary school students. Adebayo and Judith (2014) in the context of Zambia found that cooperative learning improved students' achievement and motivation towards learning physics. Similar to Adebayo and Judith (2014), Gambari and Yusuf (2014) argued that due to the carefully organized activities of

cooperative learning approach, the approach contributed significantly to the achievement of secondary school students in physics. These findings are consistent with Adeyemi (2008); Salako et al. (2013) and Majoka and Khan (2011) in social studies. Nevertheless, the findings contrast with the study of Parveen, Mahmood, Mahmood, and Arif (2011). They argued that cooperative approach was not found to be more powerful and influential than conventional approach in improving the social studies achievement of students. Although, Parveen et al.'s (2011) study was conducted only for a period of 15 days which is not enough to arrive at valid and sound conclusion on the effectiveness of cooperative learning approach or otherwise

Sani (2015) in his quasi-experimental study investigated the effect of cooperative approach on secondary school students' achievement in chemistry. The study evidenced the effectiveness of cooperative approach over conventional approach on students' achievement in chemistry. The approach produced effective learning outcome by creating learning interest that enhanced students' achievement in the subject. Moreover, the cooperative approach enables students to derive their own patterns of thoughts and meaning from the learning materials through interaction with peers which led to a better understanding of the chemistry concepts (Cagatay & Demircioglu, 2013). In the studies conducted by Ibraheem (2011) and Oludipe and Awokoya (2010), similar findings were reported. In addition, Oludipe and Awokoy (2010) argued that the chemistry anxiety of students was minimized drastically as a result of their exposure to the cooperative approach.

### *Guided Discovery Approach*

Guided discovery approach is an instructional approach in which a teacher provides clarifying learning materials for learners to study on their own under the guidance of a teacher (Akinbobola & Afolabi, 2010). A number of studies have reported the effectiveness of guided discovery approach on

students' achievement in different subjects. For example, Bamiro (2015) in their study of the effects of guided discovery and think-pair-share instructional approach on chemistry achievement of secondary students have proved that the guided discovery approach has the potentiality for improving the achievement of secondary students in chemistry. Similar findings were reported by Fatokun and Eniayeju (2014) and Udo (2010). The studies found the effectiveness of guided discovery in facilitating the chemistry achievement of secondary students. Moreover, Akanbi and Kolawole (2014) focused on the effect of guided discovery and self-learning on biology achievement of secondary students. They observed that guided discovery approach is capable of enhancing the biology achievement of secondary students because the learners are more likely to recall what they have discovered by themselves.

In a related study, the effectiveness of guided discovery over conventional approach on students' mathematics achievement was found in the studies of Akanmu and Fajemidagba (2013); and Matthew and Kenneth (2013). Akanmu and Fajemidagba argued that the approach was effective in stimulating the high, medium and low achieving student to perform better in mathematics. A similar finding was observed by Akinbobola and Afolabi (2010) in physics. They found that guided discovery was effective in facilitating the physic achievement of the student through hands- on activities. Equally, Uside, Barchok, and Abura (2013) revealed in their study that there was existence of a significant difference in the achievement of physics students who were exposed to the discovery method

and that of those who were exposed to the conventional approach in favor of discovery approach. This because the approach instilled confidence and improved knowledge retention of students. Nonetheless, Cohen (2008) in his study of guided discovery and conventional approach on understanding of science lesson, observed that guided discovery was not found to be significantly better than the conventional approach in grasping the content of science lesson. The insignificant effect of guided discovery over conventional approach in Cohen's study was probably due to the procedure used in assigning the subjects to the groups and the short treatment period of 90 minutes covered in his study. Based on the above discussions the following hypotheses are formulated:

- H1 There is no significant difference in the financial accounting achievement of cooperative, guided discovery, and conventional approach students before exposing them to the treatment.
- H2 There is no significant difference in the financial accounting achievement of cooperative, guided discovery, and conventional approach students after exposing them to the treatment.

Hence, in regards to the above formulated hypotheses, a research framework showing the relationship between the instructional approaches (i.e., cooperative, guided discovery and conventional approach) and the students' achievement in financial accounting is developed (see Fig. 1) to guide the study.

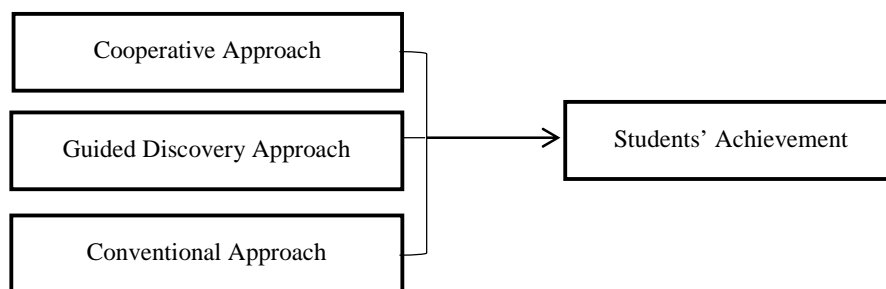


Fig. 1 Research Framework

**METHODOLOGY**

The target population for this study comprised all senior secondary school level two (SSII) financial accounting students in Gombe state, Nigeria. This is because in Nigeria, at this level, students are grouped according to their area of specialization (Akanbi & Kolawole, 2014). The study used only those students who have an interest in accounting and related courses. One hundred and eighty (180) students from nine (9) secondary schools in Gombe state, Nigeria were selected to participate in the study using a cluster sampling technique. This sampling technique is used when the population members are naturally grouped into a unit that can be conveniently used as clusters (Uzoagulu, 2011). Gombe state has three senatorial districts, viz., Gombe north, Gombe south, and Gombe central. Sixty (60) students were drawn from three schools in each of the senatorial districts to form the sample size. Both the students and the schools were selected at random.

This research work adopted a pre-test-post-test-control group design to examine the effect of cooperative and guided discovery approach on financial accounting achievement among secondary school students in Nigeria. The pre-test-post-test-control group design is a randomized experimental design which comprises of experimental and control groups. Both groups are exposed to pre-test and post-test in order to determine the net effects of the treatment (Sambo, 2005; Sekaran & Bougie, 2011). The only difference between these groups (i.e., experimental and control group) is that the former is exposed to treatment, while the latter is not (Sambo, 2005; Sekaran & Bougie, 2013). The study's design is as follows:

G1	R	Y11	X	Y12
G2	R	Y21	X	Y22
G3	R	Y31		Y32

Fig. 2 Pre-test-post-test-control group design.

G1 and G2 are the experimental groups (i.e.,

cooperative and guided discovery approach). While G3 is the control group (i.e., conventional teaching approach). R is random assignment of the subjects to the treatment and control group. Y11, Y21 and Y31 are the initial measurements on the dependent variable or the pre-test scores. The X in the first two lines of Fig. 2 indicates that the treatment variable has been applied to the experimental group, G1 and G2. The absence of X in the last line of Fig. 2 shows that no treatment was applied to the control group, G3. Y12, Y22 and Y32 are the final measurements or post-test scores of the experimental group (i.e., G1 and G2) and the control group (i.e., G3), respectively. The design is followed in this study due to the fact that both groups have been randomized as well as exposed to pre-test and post-test. Therefore, whatever happens to the experimental group, apart from the treatment, also happens to the control group. In a nutshell, pre-test-post-test-control group design controls all the threats to internal validity of the experiment (Sambo, 2005; Sekaran & Bougie, 2011).

The instrument used for data collection in this study is Financial Accounting Achievement Test (FAAT). The instrument, comprising of 40 objective questions, was adapted from the West African Examination Council's (WAEC) past examination based on the topics covered during the study. WAEC examination is reliable and valid because it has been constructed by the experts (Osadebe, 2014), usually with try-out, analysis, and revision. Several studies (see, for example, Ogologo & Wagbara, 2013) have also used the WAEC examination to measure the secondary school students' achievement in chemistry. Prior to the actual study, the instrument was pilot tested on the students that are part of the population, but not included in the sample of the study. The instrument was also subjected to the validity and reliability test. The FAAT was prepared by the researchers and was assessed by two experts. This is to ensure that the content validity of the test instrument is established by expert judgment (Baykul, 2000).

Face validity was assessed by two Heads of

Department (HODs) of financial accounting in senior secondary schools in Gombe state. The suggestions and inputs of the validators were taken into consideration in adjusting the instrument for final use. The Cronbach alpha was used to determine the reliability of the research instrument. According to Hair et al. (2010), the Cronbach alpha value of more than .70 is acceptable and sufficient. The value of reliability coefficient in this study is .73, suggesting that the research instrument is reliable.

Nine (9) financial accounting teachers with similar teaching qualification (Nigeria Certificate in Education) and with 5-7 years working experience were selected at random to carry out the experiment at the selected schools. The selected teachers were given a one-week orientation on how to execute the experiment. After which the trained teachers were assigned to the selected schools at random for the actual treatment. The experiment (or the treatment) covered a period of four weeks, from 25<sup>th</sup> July to 19<sup>th</sup> August, and provided only to the experimental group using cooperative learning approach as their teaching approach. The control group, on the other hand, was taught using conventional teaching approach.

After assigning the students to their respective groups, the pre-test was administered to them (both the experimental and the control group students) by their respective teachers to measure their initial skills before the treatment. After the pre-test, the teachers of the experimental groups exposed their students to cooperative and guided discovery approach, while the teachers of the control group taught their students using the conventional teaching approach. The activities of both the experimental and control groups were carried out simultaneously. After the four weeks experiment, the post-test was administered to the students of both experimental and control groups to determine the treatment effect. Both the pre-test and post-test were collected by research assistants immediately after the tests and passed to the researchers. The tests were marked by the researchers.

The data collected from the study were analyzed using analysis of variance (ANOVA) and analysis of covariance (ANCOVA). ANOVA is a statistical tool used for comparing the mean scores of two or more groups (Tabachnick & Fidell, 2007). This test was performed to determine whether there is a significant difference in the financial accounting achievement of cooperative, guided discovery, and conventional approach students before exposing them to the treatment. Sambo (2005) argued that a usual statistical tool for the pre-test-post-test-control group design is ANCOVA. The ANCOVA was performed with the pre-test scores as covariates to examine whether there is a significant difference between the financial accounting achievement of students who were exposed to the cooperative, guided discovery, and conventional approach.

## FINDINGS

The result of analysis of variance (Table 1) indicates that statistically there was non-existence of significant difference in the financial accounting achievement of the students assigned to the cooperative, guided discovery and conventional approach:  $F(2, 177) = 1.325, p = .268$ . Hence, Hypothesis 1 is supported. This finding suggests that the students of these three groups come from the same population because, at the start of the experiment, they are equal statistically in terms of their financial accounting achievement.

**Table 1:** One-way Analysis of Variance for Mean difference among the three groups

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	53.633 <sup>a</sup>	2	26.817	1.325	.268
Intercept	107164.800	1	107164.800	5296.054	.000
<b>Group</b>	<b>53.633</b>	<b>2</b>	<b>26.817</b>	<b>1.325</b>	<b>.268</b>
Error	3581.567	177	20.235		
Total	110800.000	180			
Corrected Total	3635.200	179			

<sup>a</sup>. R Squared = .015 (Adjusted R Squared = .004)

After the experiment was completed, the analysis of covariance was performed to compare the effectiveness of instructional approaches (i.e., cooperative, guided discovery and conventional approach) on financial accounting achievement among secondary school students. The instructional approach (i.e., cooperative, guided discovery and conventional approach) was the independent variable, the students' post-test scores were used as dependent variable while their pre-test scores were used as covariates in this analysis.

To ensure the non-violation of necessary assumptions such as homogeneity of variance, normality, and homogeneity of regression slopes. The preliminary checks were performed. Then, after adjusting for pre-test scores, the result of analysis of covariance documented in Table 2 shows that there was a statistically significant difference in the

financial accounting achievement of students who were exposed to the cooperative, guided discovery and conventional approach:  $F(2,176) = 969.709, p = .000$ , partial eta squared = .917. Hypothesis 2 is, therefore, not supported. The effect size is large (Cohen, 1988). Moreover, the post hoc analysis was performed using Tukey HSD test. The result indicates that the financial accounting achievement of students who were exposed to the cooperative approach ( $M = 67.87, SD = 3.239$ ) was significantly better than the financial accounting achievement of students who were exposed to the guided discovery approach ( $M = 60.83, SD = 3.237$ ) and conventional approach ( $M = 48.13, SD = 4.264$ ). On the other hand, the financial accounting achievement of students who were exposed to the guided discovery approach was significantly better than that of their counterpart who were exposed to the conventional approach.

**Table 2:** Analysis of covariance (ANCOVA) of Students' Achievement in Cooperative, Guided Discovery and Conventional Approach

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Part. Eta Sq.
Corrected Model	13587.287 <sup>a</sup>	3	4529.096	1097.724	.000	.949
Intercept	9460.508	1	9460.508	2292.958	.000	.929
Pre-test	1584.042	1	1584.042	383.927	.000	.686
<b>Group</b>	<b>8001.843</b>	<b>2</b>	<b>4000.921</b>	<b>969.709</b>	<b>.000</b>	<b>.917</b>
Error	726.158	176	4.126			
Total	63974.000	180				
Corrected Total	14313.444	179				

<sup>a</sup>. R Squared = .949 (Adjusted R Squared = .948)

## DISCUSSION

The finding of this study suggested that at the start of the experiment the achievement of students who were assigned to the cooperative, guided discovery and conventional teaching approach did not differ significantly. This finding agreed with the studies of Gokkurt et al. (2012); Motaie (2014); and Zakaria et al. (2010).

However, after the students being exposed to the treatment, the financial accounting achievement of students who were exposed to the cooperative approach was significantly better than the financial accounting achievement of students who were exposed to the guided discovery and conventional teaching approach. Conversely, the achievement of guided discovery approach students was significantly better than that of the conventional approach students. This finding suggests that cooperative approach which provides a supportive and highly interactive learning environment that allows students to share their ideas with one another, brainstormed responses and worked together in addressing the problems, deliberated and explained their viewpoints was found to be the most effective approach for teaching financial accounting in secondary schools. Then, followed by the guided discovery approach, while conventional teaching approach was less effective in enhancing the financial accounting achievement of secondary school students. Therefore, students' poor achievement in financial accounting, particularly in their final examination could be addressed using cooperative instructional approach. Although, there is no evidence in the existing literature regarding the effect cooperative and guided discovery on students' achievement. But previous studies have proved that cooperative approach is more effective in enhancing the students' achievement than conventional approach (Adebayo & Judith, 2014; Gambari & Yusuf, 2014; Hossain & Tarmizi, 2013; Jebson, 2012; Majoka & Khan, 2011). Conversely, Parveen et al. (2011) argued that cooperative approach was not found to be more powerful and influential than conventional approach in

improving the students' achievement in social studies.

On the other hand, the finding of this study is consistent with the studies of Akanmu and Fajemidagba (2013); Akanbi and Kolawole (2014); Bamiro (2015); Fatokun and Eniayeju (2014); Matthew and Kenneth (2013); Udo (2010) and Uside et al. (2013). The studies argued that there was existence of a significant difference in the achievement of students who were exposed to the guided discovery approach and that of those who were exposed to the conventional approach in favor of guided discovery approach. Nonetheless, the finding is in contrast to the finding of Cohen (2008) who maintained that there was non-existence of significant difference in the achievement of students who were exposed to the guided discovery approach and that of those who were exposed to the conventional approach.

## CONCLUSION

The objective of this study was to examine the effect of cooperative and guided discovery approach on financial accounting achievement among secondary school students in Gombe state, Nigeria. A pre-test-post-test-control group design is adopted where Financial Accounting Achievement Test (FAAT) is used as the instrument. One hundred and eighty (180) students from nine schools in Gombe state participate in the study.

The study proves that the financial accounting achievement of students who were exposed to the cooperative approach was significantly better than the financial accounting achievement of students who were exposed to the guided discovery and conventional teaching approach. This is due to the fact that cooperative approach provides a supportive and highly interactive learning environment that allows students to share their ideas with one another, brainstormed responses and worked together in addressing the problems, deliberated and explained their viewpoints. Unlike conventional teaching approach where students put all their focus on the teacher. It is, therefore, recommended that government should encourage curriculum planners



and financial accounting teachers of secondary schools to adopt the cooperative approach as an instructional approach for teaching financial accounting in secondary schools to improve their students' achievement in the subject.

However, this study considered only senior secondary schools level two (SSII) financial accounting students. Therefore, the findings cannot be generalized to other levels of financial accounting students in senior secondary schools. It is suggested that future research of this type could be conducted in other levels of financial accounting students in secondary schools.

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