Effect of Instructional Approaches on Financial Accounting Achievement among Secondary School Students in Gombe State, Nigeria

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Abstract
The study examined the effects of instructional approaches on secondary school students' achievement in financial accounting in Gombe state, Nigeria. A pre-test-post-test-control group design was adopted where 240 students from twelve randomly selected schools participated in the study. The Financial Accounting Achievement Test (FAAT) was used as an instrument for data collection. The data collected from the study were analyzed using analysis of variance (ANOVA) and analysis of covariance (ANCOVA). 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 experimental and control groups. However, at the post-test stage, the study has proved that the financial accounting achievement of students who were exposed to the cooperative approach was significantly better than that of their counterparts who were exposed to the guided discovery, demonstration and conventional approach. This suggested cooperative approach as the most effective approach to enhance the financial accounting achievement of the secondary school students.

Keywords: Instructional approaches, students' achievement, financial accounting

Introduction

Financial accounting goes far beyond recording and keeping of business transaction. It concerned with recordkeeping system, preparation, analysis, and communication of financial information (Francis, 2014). In Nigeria, it is part of the vocational subjects offered at secondary school level to enable the students to acquire the relevant knowledge and skills that are necessary for national growth and development (Seyi, 2014). According to the Federal Republic of Nigeria (2004), the objectives of teaching financial accounting in secondary schools are: to train the students for career in the accounting field, to prepare them to play their economic roles as workers, consumers and citizens, and to prepare them to further their study in accounting and related courses at the higher level of learning. Hence, financial accounting subject is very imperative to the Nigerian economy as it provides the basis for preparing future entrepreneurs, accountants, managers, and other financial controllers (Francis, 2014).

Despite the tremendous importance of this subject to the Nigerian economy, the achievement of secondary school students in this subject is far from impressive, especially in their national examination (Adeleke, Binuomote, & Adeyinka, 2013; Mohammed, 2011). 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 & Sokan, 2008; Ezeagba, 2014) and the persistent use of the conventional teaching approach (Mohammed, 2011).

However, the conventional teaching approach completely focuses on the intellectual and disregards experiential learning (Salako, Eze & Adu, 2013). Prior studies (see, for example, Abimbola & Abidoye, 2013; Hossain & Tarmizi, 2013; Majoka, Khan, & Shah, 2011)) have argued that conventional teaching approach was not effective in enhancing students' academic achievement, they further argued that students are not fully partaking in the learning process. Alike, Akintelure (1998) asserted that the financial accounting subject is not learned by simple memorization of basic accounting rules and principles; rather, it requires the full participation of students in the learning activities. The use of conventional teaching approach, which involves reading, telling, and memorizing of concepts, has failed to cope with the problem of low academic achievement among secondary school students (Kohle, 2002). Hence, an appropriate teaching method for teaching financial accounting at the secondary schools needs to be sought in order to address the massive and consistent failure among secondary school students, especially in their national examination.

The prior studies (see, for example, Gokkurt, Dundar, Soylu, & Akgun, 2012; Hossain & Tarmizi, 2013) examined the effect of cooperative learning on secondary students' mathematics achievement and they found that the approach was effective in enhancing students' mathematics achievement. These studies suggested that future studies should investigate the effect of cooperative learning on the

achievement of students in the various subject. Similarly, Bamiro (2015) and Udo and Etiubon (2011) recommended the future studies on guided discovery effect on students' achievement in other subjects area other than chemistry. Ja'afar-furo, Abdullahi, and Badgal (2014) on the other hand, examined the effect of demonstration method on University student' achievement in Agricultural science and they found that the approach was not effective on University student' achievement. They suggested that demonstration approach could be appropriate for teaching primary and secondary school students. To the best of the authors' knowledge, no published study was found to focus on the effect of cooperative, guided discovery and demonstration approach on financial accounting achievement among secondary school students.

In view of this, the paper, therefore, aims to examine the effect of cooperative, guided discovery and demonstration approach on financial accounting achievement among secondary school students in Gombe state, Nigeria. Specifically, the study aims to examine whether the cooperative, guided discovery and demonstration approach will enhance the secondary school students' achievement in financial accounting more than the conventional teaching approach. Also, the study aims 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 secondary school students may be reduced and their grade in the subject be improved.

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 of 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 many obstructions they face in their learning. Similar findings were reported in the studies of Alabekee and Samuel (2015); Gokkurt et 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 of 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, Eze, and Adu (2013) and Majoka and Khan (2011) in social studies. Alike, 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 his guidance (Akinbobola & Afolabi, 2010). A number of studies have observed a significant effect 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 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 observed 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 found 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 students through hands- on activities. Equally, Uside, Barchok, and Abura (2013) revealed in their study that there was the 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.

Demonstration Approach

Demonstration approach is an approach in which the teachers are the role players while the students observe with the aims of acting subsequently. In this approach, the lesson is presented and explained step-by-step with clear and simple examples (Ekeyi, 2013). Previous studies have examined the effect of demonstration approach on students' achievement. For instance, Ameh and Dantani (2012) reported in their study of the effect of demonstration and lecture method on student' achievement in chemistry that demonstration approach was effective in enhancing the achievement of secondary school students in chemistry, as the approach allows the students to actively participate in the lesson. Similar findings were reported in the studies of Ogologo and Wagbara (2013) and Udo (2010), the studies argued that due to the adequate participation of students in the learning process the achievement of students assigned to the demonstration approach was significantly better than that of their counterpart assigned to the conventional approach.

In a related study, Abdulhamid (2010) observed in his quasi-experimental study that demonstration approach developed and sustained students' learning interests which led to the better off performance of secondary school students in Agricultural science. Similarly Ekeyi (2013) in the context of Nigeria noted that due to the activity nature of demonstration approach, the students of demonstration approach class significantly outperformed their counterpart in the conventional approach class. Moreover, Auwal (2013) found that demonstration approach improved the students' knowledge retention in Agricultural science. This is because, in demonstration approach, the concepts are presented clearly to the learners. Equally important, Adekoya and Olatoye (2011) have proved that demonstration approach is a friendly and interactive approach of instruction which brought a significant change in Agricultural science achievement of secondary school students. 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, demonstration, 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, demonstration, and conventional approach students after exposing them to the treatment.

Methodology

Population and Sample

The target population for this study comprised of 546 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. Krejcie and Morgan (1970) recommended that a sample 226 is adequate to represent the population of 550. Therefore, the sample size of this study was drawn from Krejcie and Morgan table for determining the sample size. The present study increased the sample size to 240 students in order have equal number of students in each instructional group and from each senatorial district of Gombe state, that is, 80 students were drawn from each senatorial district of Gombe state to form the sample size. The students were divided into four equal groups, namely: cooperative, guided discovery, demonstration, and control group (i.e., conventional approach). A cluster sampling technique was used in the study. This sampling technique is used in a situation where the population members are naturally grouped into a unit that can be conveniently used as clusters (Uzoagulu, 2011). Gombe state has three senatorial districts, namely: Gombe north, Gombe central, and Gombe south. Eighty (80) students were drawn from four schools in each of the senatorial districts to form the sample size. Both the students and the schools were selected at random.

Research Design

This research work adopted a pre-test-post-test-control group design to examine the effect of cooperative, guided discovery and demonstration 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	X	Y32
G4	R	Y41		Y42

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

G1, G2 and G3 are the experimental groups (i.e., cooperative, guided discovery and demonstration approach). While G4 is the control group (i.e., conventional approach). R is random assignment of the subjects to the treatment and control group. Y11, Y21, Y31 and Y41 are the initial measurements on the dependent variable or the pre-test scores. The X in the first three lines of Fig. 2 indicates that the treatment variable has been applied to the experimental group, G1, G2 and G3. The absence of X in the last line of Fig. 2 shows that no treatment was applied to the control group, G4. Y12, Y22, Y32 and Y42 are the final measurements or post-test scores of the experimental group (i.e., G1, G2 and G3) and the control group (i.e., G4), 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).

Instrument

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 for content validity. The experts were from Abubakar Tafawa Balewa

University, Bauchi, and Federal College of Education Technical, Gombe. 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, Hult, Ringle, and Sarstedt (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.

Procedure

Twelve (12) 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 25th July to 19th 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, guided discovery and demonstration 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.

Data Analysis

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, demonstration 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, demonstration, and conventional approach.

Findings

The result of analysis of variance (Table 1) suggests that the financial accounting achievement of the students assigned to the cooperative, guided discovery, demonstration and conventional approach did not differ significantly at the initial stage: $F(3, 236) = 1.025$, $p = .382$. Then, Hypothesis 1 is supported. This result suggests that the students of cooperative, guided discovery, demonstration, and conventional approach group come from the same population as they are equal initially in terms of their achievement scores.

Table 1

One-way Analysis of Variance for Mean difference among the four groups

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	59.146[a]	3	19.715	1.025	.382
Intercept	141863.438	1	141863.438	7373.722	.000
Group	*59.146*	*3*	*19.715*	*1.025*	*.382*
Error	4540.417	236	19.239		
Total	146463.000	240			
Corrected Total	4599.562	239			

a. R Squared = .013 (Adjusted R Squared = -.000)

Prior to ANCOVA, the assumptions of normality, homogeneity of variance, and homogeneity of regression slopes were checked and satisfied. The normality assumption was assessed using skewness and kurtosis analysis. According to Tabachnick and Fidell (2007), the values of skewness and kurtosis should be nearest to zero (0) if the data is normally distributed. In the present study, the skewness and kurtosis values of all the four groups in both pre-test and post-test are less than ±1 (see Table 2), suggested that the assumption of normality was fulfilled. With regard to the homogeneity of variance, the Levene's test of equality of variance showed that the variance for the four groups is similar (i.e., at the significant value of .111) (see Table 3). The homogeneity of variance assumption has, therefore, not been violated. Finally, the homogeneity of regression slopes was checked to examine whether there is any interaction between the treatment and the covariate. The result showed the significant value of .137 which is above the cut-off of .05, suggested that no interaction between the covariate and the treatment (see Table 4).

Table 2 *Test for Normality*

Group	Variable	Skewness		Kurtosis	
		Statistic	SE	Statistic	SE
Cooperative	Pre-test	.416	.309	-.039	.608
	Post-test	.099	.309	-.223	.608
Guided discovery	Pre-test	.349	.309	-.104	.608
	Post-test	.130	.309	-.213	.608
Demonstration	Pre-test	.317	.309	-.192	.608
	Post-test	.034	.309	-.102	.608
Control group	Pre-test	.414	.309	-.167	.608
	Post-test	.062	.309	-.054	.608

Table 3 *Levene's Test of Equality of Error Variances*[a]

F	df1	df2	Sig
1.190	3	236	.111

Table 4 *Test for Homogeneity of Regression Slopes*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14165.04[a]	7	2023.578	546.178	.000
Intercept	12780.828	1	12780.828	3449.635	.000
Group	448.396	3	149.465	40.342	.000
Pre-test	2128.456	1	2128.456	574.485	.000
*Group * Pre-test*	*20.702*	*3*	*6.901*	*1.863*	*.137*
Error	859.555	232	3.705		
Total	846222.000	240			
Corrected Total	15024.600	239			

Having achieved the necessary assumptions of analysis of covariance, an ANCOVA was performed to compare the financial accounting achievement of students who were exposed to the cooperative, guided discovery, demonstration and conventional approach. In this analysis, the independent variables are the instructional approaches. The post-test scores of students were used as dependent variable while their pre-test scores were used as covariates. The results documented in Table 5 shows that there was a statistically significant difference between the financial accounting achievement of students who were exposed to the cooperative, guided discovery, demonstration and conventional approach: F (3, 235) = 538.778, p =.000, partial eta squared =.903. Hypothesis 2 is, therefore, not supported. The effect size is large (Cohen, 1988). In addition, post hoc analysis was performed using Tukey HSD to determine which of the instructional approach is significantly better than the other. The result reveals that the financial accounting achievement of students who were exposed to the

cooperative approach was significantly better than those of their counterparts who were exposed to the guided discovery, demonstration and conventional approach (see Table 6). This suggested that cooperative approach is the most effective approach for teaching financial accounting in secondary school. Then, follow by the guided discovery and demonstration approach while the convention is less effective compared to cooperative, guided discovery and demonstration approach (see Table 6).

Table 5

Analysis of covariance (ANCOVA) of Students' Achievement in Cooperative, Guided Discovery, Demonstration and Conventional Approach

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Part. Eta Sq.
Corrected Model	14144.343[a]	4	3536.086	616.510	.000	.941
Intercept	12772.534	1	12772.534	2234.261	.000	.936
Pre-test	2134.676	1	2134.676	438.198	.000	.708
Group	*8236.265*	*3*	*2745.422*	*538.778*	*.000*	*.903*
Error	880.257	235	3.746			
Total	846222.000	240				
Corrected Total	15024.600	239				

a. R Squared = .941 (Adjusted R Squared = .940)

Table 6 Post Hoc Tests

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
Cooperative	Demonstration	9.30*	.653	.000
	Guided discovery	7.03*	.653	.000
	Control group	19.73*	.653	.000
Demonstration	Cooperative	-9.30*	.653	.000
	Guided discovery	-2.27*	.653	.003
	Control group	10.43*	.653	.000
Guided discovery	Cooperative	-7.03*	.653	.000
	Demonstration	2.27*	.653	.003
	Control group	12.70*	.653	.000
Control group	Cooperative	-19.73*	.653	.000
	Demonstration	-10.43*	.653	.000
	Guided discovery	-12.70*	.653	.000

Discussion

The finding of this study suggested that there was equality in the achievement of students who were assigned to the cooperative, guided discovery, demonstration and conventional approach before exposure to the treatment. This finding is in line with the studies of Gokkurt et al. (2012); Hijazi and Al–Natour (2012); and Zakaria et al. (2010).

Nonetheless, after exposing the students 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 their counterparts who were exposed to the guided discovery, demonstration and conventional approach. Conversely, the achievement of guided discovery and demonstration approach students were significantly better than that of the conventional approach students. This finding suggested 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 and demonstration approach, while conventional teaching approach was less effective in enhancing the financial accounting achievement of secondary school students. Therefore, the massive and consistent failure of secondary students in financial accounting, particularly in the national examination could be addressed using cooperative instructional approach. Although, there is no evidence in the existing literature regarding the effect of cooperative, guided discovery and demonstration approach on students' achievement. But previous studies (see, for example, Adebayo & Judith, 2014; Akanbi & Kolawole, 2014; Ameh & Dantani, 2012; Auwal, 2013; Ekeyi, 2013; Gambari & Yusuf, 2014; Hossain & Tarmizi, 2013; Jebson, 2012; Matthew & Kenneth, 2013; Uside, Barchok, & Abura, 2013) have proved separately that cooperative, guided discovery, and demonstration approach are more effective in enhancing the students' achievement than conventional approach.

Conclusion

The objective of this study was to examine the effect of instructional approaches on financial accounting achievement among secondary school students in Gombe state, Nigeria. A pre-test-post-test-control group design was adopted where Financial Accounting Achievement Test (FAAT) was used as the instrument. Two hundred and forty (240) students from twelve schools in Gombe state participated in the study.

The findings suggested that the financial accounting achievement of students who were exposed to the cooperative approach was significantly better than the financial accounting achievement of their counterparts who were exposed to the guided discovery, demonstration and conventional approach. This is because cooperative learning 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. It is, therefore, recommended that the government should encourage curriculum planners and financial accounting teachers of secondary schools to adopt the cooperative learning approach as an instructional approach for teaching financial accounting in secondary schools to improve their students' achievement in the subject.

Nonetheless, the present study used only senior secondary schools level two (SSII) financial accounting students. The findings, therefore, cannot be generalized to other levels of financial accounting students in senior secondary schools. It is suggested that future research of this approach could be conducted in other levels of financial accounting students in senior secondary schools.

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