



Effect of guided discovery approach on financial accounting achievement among secondary school students

Umar Inuwa

Department of Vocational and Technology Education,
Faculty of Technology Education,
Abubakar Tafawa Balewa University, Bauchi, Nigeria.

ABSTRACT

This study examines the effect of the 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 120 students from six randomly selected schools participate in the study. The students are equally divided into two groups, namely, experimental (i.e., guided discovery approach) and control group (i.e., conventional approach), both at random. The instrument used for data collection is the Financial Accounting Achievement Test (FAAT). We found that at the pre-test stage, there is no statistically significant difference between the pre-test mean achievement score of guided discovery students and the conventional approach students, suggesting that the students are equal in terms of their achievements at the initial stage. Nonetheless, at the post-test stage, the mean achievement score of students who are exposed to the guided discovery approach is significantly better than the mean achievement score of students who are exposed to the conventional approach. The finding suggests guided discovery as an effective approach to enhance the financial accounting achievement of secondary school students. It is, therefore, recommended that government should encourage both curriculum planners and secondary schools' teachers to adopt a guided discovery approach as an instructional approach for teaching financial accounting in secondary schools to improve students' achievement in the subject.

ARTICLE INFO

Article History

Received: November, 2020

Received in revised form: January, 2021

Accepted: January, 2021

Published online: April, 2021

KEYWORDS

Guided discovery, financial accounting,
secondary school students

INTRODUCTION

Financial accounting is one of the vocational subjects taught at senior secondary schools in Nigeria, aiming at equipping students with professional knowledge and skills. According to the West African Examination Council (2004), financial accounting is the most popular vocational subject offered to senior secondary school students in Nigeria. The objectives of teaching financial accounting in senior secondary schools in Nigeria are to enable students to appreciate basic accounting practices, principles, and their applications in modern business activities, and to prepare them to further study accounting and related courses at the higher level of learning (National Examination Council, 2004). The 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 financial accounting to the economy of Nigeria, the achievement of senior secondary school students in this subject over the years has persistently remained not encouraging, especially in their national examination (Adeleke, Binuomote, & Adeyinka, 2013; Mohammed, 2011; Osuala, 2004). Prior studies (see, for example, Adeyemi, 2002; Alebiosu, 1998; Bilesanmi-Awoderu, 2006) argued that the quality of teaching method used by the secondary school teachers is a key determinant of students' achievement. Alike, the mass failure of the secondary school students in the national examination is due to the instructional approach employed by the teachers (Afolabi & Akinbobola, 2009; Akinolu,

*Corresponding author: Inuwa, U. ✉ alummari@gmail.com ✉ Department of Vocational and Technology Education, Abubakar Tafawa Balewa University, Bauchi. © 2019 Faculty of Technology Education, ATBU Bauchi. All rights reserved



2006; Aremu & Sokan, 2008) and the persistent use of the conventional teaching approach where teacher dominates the class and does not encourage students to participate in the learning process (Mohammed, 2011; Osuala, 2004).

The existing literature (see, for example, Abimbola & Abidoye, 2013; Hossain & Tarmizi, 2013; Majoka, Khan, & Shah, 2011; Samad, 2005) found a conventional teaching approach as not effective in enhancing students' academic achievement. This is because the students are less engaged in the learning process. Akintelure (1998) argued that the financial accounting subject is not learnt by simple memorization of basic accounting rules and principles, rather it requires the full participation of learners in the learning process. The use of the predominant teaching method (i.e., 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 secondary schools needs to be sought to address the students' low academic achievement in the subject especially in their national examination. One of the teaching methods is the guided discovery approach.

The guided discovery approach is an instructional approach based on the constructivist learning theory. Unlike the conventional approach where students put all their focus on the teacher (Abimbola & Abidoye, 2013); the guided discovery approach is the learning style where students are fully participating in the learning process. In this approach, the teacher guides the students in their learning tasks by asking them questions that would guide them to give out their correct ideas. Hence, learners are made to be active participants in the learning process.

Prior studies have examined the effectiveness of guided discovery approach on the secondary school students' achievement in some subject areas, including mathematics (see, for example, Akanmu & Fajemidagba, 2013; Hendricks, 2013; Matthew & Kenneth, 2013) and chemistry (see, for example, Bamiro, 2015; Fatokun & Eniayeju, 2014; Nbina, 2013; Udo & Etiubon, 2011). Their findings revealed that the guided discovery

approach is effective in enhancing the students' achievement in these subjects. Hake (2012) suggested that the guided discovery approach could have a positive effect on students' academic achievement. Ajiboye and Ajitoni (2008) noted that students perform better by being fully interested in their work, by doing themselves, by testing themselves, by puzzling themselves, by proving their ideas, and by drawing inferences based on the evidence and information they have discovered. This learning approach usually takes place through togetherness, social interaction, and action-oriented communication.

Several studies (see, for example, Bamiro, 2015; Udo & Etiubon, 2011) recommended that future studies focusing on the effect of the guided discovery approach on students' achievement in other subject areas should be carried out. In response to their call, our paper, therefore, aims to examine the effect of the guided discovery approach on financial accounting achievement among secondary school students in Gombe state, Nigeria. Specifically, the study aims to examine whether the guided discovery approach will enhance secondary school students' achievement in financial accounting than the conventional teaching approach.

At present, there is no published study that has focused on the effectiveness of the guided discovery approach on financial accounting achievement among secondary school students in Nigeria. This paper, therefore, addresses this gap. The expected outcome of this study will be of great significance to financial accounting students in the sense that a 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 guided discovery approach in teaching financial accounting and how this approach could be used to improve their students' achievement. It is hoped that the mass failure among the financial accounting students of the secondary schools may be reduced and their grades in the subject are improved.

*Corresponding author: Inuwa, U. ✉ alummari@gmail.com ✉ Department of Vocational and Technology Education, Abubakar Tafawa Balewa University, Bauchi. © 2019 Faculty of Technology Education, ATBU Bauchi. All rights reserved



Research Questions

The following questions are formulated:

1. Is there any significant difference in the financial accounting achievement of students of a guided discovery approach and that of those of the conventional approach before being exposed to the treatment?
2. Is there any significant difference in the financial accounting achievement of students of a guided discovery approach and that of those of the conventional approach after being exposed to the treatment?

LITERATURE REVIEW

In the guided discovery approach, the focus shifts from teachers to students. The main role of the teacher is to guide the students to generate their idea by engaging themselves in active learning (Carnell, 2006).

Several studies have examined the effect of the guided discovery approach on students' achievement in various subject areas. For instance, Koksai and Berberoglu (2014), in their study of the effect of the guided discovery approach on students' achievement in science, found that the approach enhanced students' understanding of science subject more than the conventional approach. In this approach, students develop more interest in learning. Their finding is consistent with Conway (2014) in the context of the United States. Cohen (2008), on the other hand, discovered that no statistically significant difference existed in the achievement of students who were exposed to the guided discovery approach and that of those who were exposed to the conventional approach. The insignificant difference in the achievement of the two groups 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.

In a related study, Udo (2010) compared the effects of guided discovery, demonstration, and conventional approaches on students' achievement in chemistry. Udo (2010) observed that the effectiveness of guided discovery over the demonstration and conventional approaches in teaching chemistry was relatively due to the adequate involvement of the students in the learning process. Nbina

(2013), in his comparative study of guided discovery and demonstration approaches on students' achievement in chemistry, observed that the guided discovery approach is more effective in improving the chemistry achievement of students than the demonstration approach. Similarly, Bamiro (2015) and Fatokun and Eniayeju (2014) found that the guided discovery approach produced a significantly better achievement in chemistry than the conventional approach. This is because the approach enables students to have creative reasoning and critical thinking skills. Vlasi and Karaliota (2013) reported a similar finding in the context of Georgia.

Nonetheless, Oloyede (2010) reported a contrary finding where he argued that both the concept mapping and guided discovery approach are equally important in enhancing the achievement of chemistry students. Both approaches make the learners be active participants in the learning process by not focusing only on the teacher. Similarly, Udo and Etiubon (2011) established no significant difference in the achievement scores of students who were taught chemistry using the guided discovery approach and that of those who were taught chemistry using computer simulation strategies. In both computer simulation strategies and the guided discovery approach, students are allowed to work in an interactive environment that facilitates knowledge acquisition and interest in learning.

Akinbobola and Afolabi (2010) conducted an experimental study to examine the effect of the guided discovery approach on secondary school students' achievement in physics. Their findings indicated a significant effect of the guided discovery approach in improving the secondary school student's achievement in the subject. The approach enhanced the positive attitude of students towards learning. The finding is consistent with Abdisa and Getinet (2012) and Uside, Barchok, and Abura (2013). Abdisa and Getinet (2012), for instance, reported that the achievement of physics students who were exposed to the guided discovery approach was significantly improved compared to that of their counterpart who was exposed to the demonstration and conventional teaching approaches. Uside et al. (2013), in the context of Kenya, found a significant influence of the guided discovery

*Corresponding author: Inuwa, U. ✉ alumhari@gmail.com ✉ Department of Vocational and Technology Education, Abubakar Tafawa Balewa University, Bauchi. © 2019 Faculty of Technology Education, ATBU Bauchi. All rights reserved

approach in enhancing the achievement and knowledge retention of secondary school students in physics. The approach instilled confidence in learners and improved their knowledge retention.

A quasi-experimental design was carried out to investigate the effect of the guided discovery approach on students' achievement in mathematics. For instance, Akanmu and Fajemidagba (2013) reported in the context of Nigeria that the students who were taught using the guided discovery approach significantly outperformed their counterpart who were taught using the conventional approach. Similarly, Matthew and Kenneth (2013) argued that students' achievement in mathematics has significantly improved as a result of the guided discovery instructional approach. Hendricks (2013) reported a similar finding in the context of the United States where he found that the guided discovery approach was effective in improving students' achievement in mathematics. The better performance of the guided discovery students is because the approach is more interactive as it enables the students to interact with their classmates and their learning materials.

Ajewole (2006) and Oghenevwe (2010) examined the effect of the guided discovery approach on students' achievement in biology in Nigeria. They discovered that the guided discovery approach has a significant effect on the achievement of biology students. In this approach, students are given chance to learn the principles and the concepts by themselves rather than being taught. The findings are in line with Hasan (2012) in the context of Dubai. Nevertheless, Akanbi and Kolawole (2014), in their study of the effects of self-learning, guided discovery, and conventional approaches on students'

achievement in biology, found that the discovery approach was less effective than the self-learning strategy but significantly better than the conventional approach. Akanbi and Kolawole (2014) argued that in self-learning strategy, students interact among themselves with minimum guidance from the teacher.

Based on the literature review, we found that none of the existing studies has focused on the effect of the guided discovery approach on the secondary students' achievement in financial accounting. Our paper, therefore, addresses this gap. Prior studies (Bamiro, 2015; Udo & Etiubon, 2011) recommended that future studies should be carried out to examine the effect of the guided discovery approach on students' achievement in other subject areas.

RESEARCH FRAMEWORK

Based on the theoretical perspective and empirical evidence discussed in the previous section, a research framework showing the relationship between the instructional approaches (i.e., guided discovery and conventional approach) and the students' achievement in financial accounting is developed (see Fig. 1). This framework is developed based on the constructivist learning theory. According to the constructivist learning theory, a classroom environment is no longer a place where learners just wait for instructors to impart the knowledge; the students learn by generating their idea through participating in the learning process (Boghossian, 2006; Carnell, 2006). The teachers, on the other hand, become facilitators to guide and support the students to generate their idea (Carnell, 2006). The theory, therefore, promotes active learning where students are given chance to generate and test their ideas of the subject matter (Carnell, 2006).

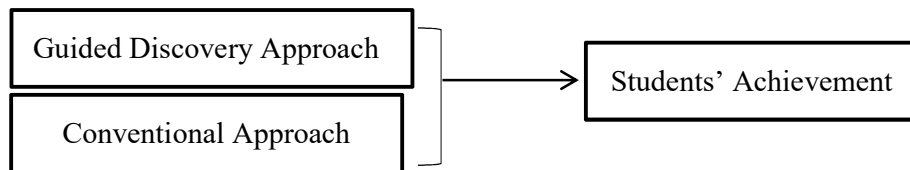


Fig. 1 Research Framework



The theory, developed by Piaget (1969, 1976), has been widely used by prior studies (see, for example, Bamiro, 2015; Treadwell, 2010) in explaining the guided discovery approach.

The following hypothesis is formulated:

- H1 : There is no significant difference between the financial accounting achievement of guided discovery students and that of conventional approach students before exposure to the treatment.
- H2 : There is no significant difference between the financial accounting achievement of guided discovery students and that of conventional approach students after exposure to the treatment.

RESEARCH METHODOLOGY

The target population of this study is all senior secondary schools level two (SSII) financial accounting students in Gombe state, Nigeria. This is because in Nigeria students are grouped according to their area of specialization (Akanbi & Kolawole, 2014). The study uses only those students who have an interest in accounting and related courses.

A sample of 120 students was selected from six (6) senior secondary schools

in Gombe State, Nigeria using a cluster sampling technique. A cluster 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. Forty (40) students were drawn from two 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 the guided discovery approach against the conventional teaching approach on financial accounting achievement among secondary school students in Nigeria. The pre-test-post-test-control group design is a randomized experimental design that comprises experimental and control groups. Both groups are exposed to pre-test and post-test to determine the net effects of the treatment (Sambo, 2005; Sekaran & Bougie, 2013). 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:

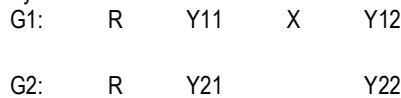


Fig. 2 Pre-test-post-test-control group design.

- G1** : The experimental group (i.e., guided discovery approach)
- G2** : Control group (i.e., conventional teaching approach)
- R** : The subjects randomly assigned to both experimental and control groups.

Y11 and Y21 are the initial measurements on the dependent variable or the pre-test scores. The X in the first line of Figure 2 indicates that the treatment variable has been applied to the experimental group G1. The absence of X in the second line of Figure 2 shows that no treatment was applied to the control group G2. Y12 and Y22 are the final measurements or post-test scores of the experimental group G1 (Y12) and the control group G2 (Y22).

The design is followed in this study because 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, the pre-test-post-test-control group design controls all the threats to the internal validity of the experimental study (Sambo, 2005; Sekaran & Bougie, 2013).

The existing studies of the guided discovery approach (see, for example, Akanbi & Kolawole, 2014; Bamiro, 2015; Udo & Etiubon, 2011) have used the quasi-experimental designs in their studies.

*Corresponding author: Inuwa, U. alumhari@gmail.com Department of Vocational and Technology Education, Abubakar Tafawa Balewa University, Bauchi. © 2019 Faculty of Technology Education, ATBU Bauchi. All rights reserved



Conversely, a true experimental design is used in the present study. This design is chosen because it takes care of all the factors contaminating the internal validity of the experimental outcomes. A quasi-experimental design is a non-randomized experimental design while a true experimental design is a randomized experimental design.

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 (WAEC) past examination based on the topics covered during the study. WAEC examination is reliable and valid because it has been constructed by experts (Osadebe, 2014), usually with try-out, analysis, and revision. The WAEC examination has also been used by the prior studies (see, for example, Ogologo & Wagbara, 2013) to measure the secondary school students' achievement in chemistry.

Before 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 judgement (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 the reliability coefficient in this study is .73, suggesting that the research instrument is reliable.

Six (6) financial accounting teachers with similar teaching qualification and years of working experience were selected at random to experiment with the selected schools. The selected teachers were given a one-week orientation on how to execute the experiment.

After the orientation, the trained teachers were assigned to the selected schools at random for the actual treatment. The experiment (or the treatment) covered four weeks, from 25th July to 19th August, and provided only to the experimental group using guided discovery approach as their teaching approach. The control group, on the other hand, was taught using a conventional teaching approach.

After assigning the students to their respective groups, the pre-test was administered to them (both the experimental and 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 the guided discovery approach, while the teachers of the control groups taught their students using the conventional teaching approach. The activities of both the experimental and control groups were carried out simultaneously.

In the guided discovery approach, firstly, the teacher introduced the lesson to the students and explained to them clearly, what they were expected to do. Then, the teacher gave a task to the students in the group and the task should be completed under the guidance of the teacher. Appropriate time and learning material were given to the students to complete the task. Each group was then asked to present their findings while the audience was given room to ask questions. Finally, the teacher concluded the class by giving more clarification of the students' findings.

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 analysed using independent samples t-test and analysis of covariance (ANCOVA). An independent samples t-test is a statistical tool used for comparing the mean score of the two different groups (Tabachnick & Fidell, 2007). This test was performed to determine whether there is a significant difference between the financial accounting achievement of guided discovery students and that of the conventional approach students before exposing them to the

*Corresponding author: Inuwa, U. ✉ alummari@gmail.com ✉ Department of Vocational and Technology Education, Abubakar Tafawa Balewa University, Bauchi. © 2019 Faculty of Technology Education, ATBU Bauchi. All rights reserved



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 test whether there is a significant difference between the financial accounting achievement of students who were exposed to the guided discovery approach and that of those who were exposed to the conventional approach.

FINDINGS

The result of the independent-samples t-test (Table 1) suggests that there is

no statistically significant difference between the mean achievement score of guided discovery students ($M = 25.03$, $SD = 4.647$) and conventional approach students ($M = 24.18$, $SD = 4.645$), $t(118) = 1.002$, $p = .318$. Hypothesis 1 is, therefore, supported. This finding indicates that the students of the two groups are from the same population as they are equal in terms of their achievements at the initial stage.

Table 1: Independent Samples t-test for Pre-test Scores between the two Groups

Levene's Test for Equality of Variances								
Variable	Groups	N	F	Sig.	T	Mean	SD	Sig. (2-tailed)
Pre-test	Guided discovery	60	.002	.96	1.002	25.03	4.647	.318
	Control group	60				24.18	4.645	

Before performing an ANCOVA to determine the main effect of the treatment, 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 the two groups in both pre-test and post-test are less than ± 1 (see Appendix 1), suggesting that the assumption of normality was fulfilled. Regarding the homogeneity of variance, Levene's test of equality of variance shows that the variance for the two groups is similar (i.e., at the significant value of .278) (see Appendix 1). 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 shows a significant value of .80 which is above the cut-off of .05,

suggesting no interaction between the covariate and the treatment (see Appendix 1).

After all the necessary assumptions related to the analysis of covariance were satisfied, an ANCOVA was performed to compare the financial accounting achievement of students who were exposed to the guided discovery approach and that of those who were exposed to the conventional approach. In this analysis, the independent variable was the instructional approach (i.e., guided discovery and conventional). The post-test scores of students were used as the dependent variable while their pre-test scores were used as a covariate. Results shown in Table 2 reveals that there was a statistically significant difference between the financial accounting achievement of students who were exposed to the guided discovery approach and that of those who were exposed to the conventional approach, $F(1,117) = 769.96$, $p = .000$, partial eta squared = .868. Hypothesis 2 is, therefore, not supported. The effect size is large (Cohen, 1988).

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

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Sq
Corrected Model	5997.500 ^a	2	2998.750	658.921	.000	.918
Intercept	5415.000	1	5415.000	1189.849	.000	.910

*Corresponding author: Inuwa, U. alummari@gmail.com Department of Vocational and Technology Education, Abubakar Tafawa Balewa University, Bauchi. © 2019 Faculty of Technology Education, ATBU Bauchi. All rights reserved



Pre-test	1158.800	1	1158.800	254.625	.000	.685
Group	3504.100	1	3504.100	769.963	.000	.868
Error	532.467	117	4.551			
Total	362742.000	120				
Corrected Total	6529.967	119				

Table 3: Descriptive Statistics

Group	Mean	Std. Deviation	N
Guided discovery	60.83	3.237	60
Control group	48.13	4.264	60
Total	54.48	7.408	120

The result of the descriptive statistics in Table 3 shows that the mean achievement score of students who were exposed to the guided discovery approach (M = 60.83, SD = 3.237) was significantly better than the mean achievement score of students who were exposed to the conventional approach (M = 48.13, SD = 4.264).

DISCUSSION

The finding of this study suggests that there was equality in the achievement of students who were assigned to the guided discovery approach and that of those who were assigned to the conventional teaching approach before exposure to the treatment. This finding is in line with the studies of Gokkurt, Dundar, Soyulu, and Akgun (2012); Hijazi and Al-Natour (2012); Motaei (2014); and Zakaria, Chin, and Daud (2010).

Nonetheless, after exposing the students to the treatment, the financial accounting achievement of students who were exposed to the guided discovery approach was significantly better than the financial accounting achievement of their counterpart who was exposed to the conventional approach. This finding suggests that the improvement in financial accounting achievement of the students exposed to the guided discovery approach was due to the active participation of the students in the learning process; unlike in the conventional teaching approach where students put all their focus on the teacher. Consequently, the mass failure of the secondary school students in financial accounting in the national examination could be addressed using guided discovery as an instructional approach. Similar findings were discovered in the studies of chemistry (Bamiro, 2015; Fatokun & Eniayeju, 2014; Nbina, 2013; Vlasi & Karaliota, 2013), physics (Abdisa & Getinet, 2012; Akinbobola & Afolabi, 2010;

Uside, Barchok, & Abura, 2013), and mathematics (Akanmu & Fajemidagba, 2013; Matthew & Kenneth, 2013; Hendricks, 2013). However, this view was contrary to the research finding of Cohen (2008) who reported no statistically significant difference in the mean 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 is to examine the effect of the 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 twenty (120) students from six schools in Gombe state participate in the study.

The findings suggest that the achievement of financial accounting students who are exposed to guided discovery approach has significantly improved compared to that of their counterpart who is exposed to the conventional teaching approach. This is because students in the guided discovery approach are actively participating in the learning process. Conversely, in the conventional teaching approach, 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 guided discovery approach as an instructional approach for teaching financial accounting in secondary schools to improve their students' achievement in the subject.

Nonetheless, the present study uses only senior secondary schools level two (SSII) financial accounting students. The findings,

*Corresponding author: Inuwa, U. alumhari@gmail.com Department of Vocational and Technology Education, Abubakar Tafawa Balewa University, Bauchi. © 2019 Faculty of Technology Education, ATBU Bauchi. All rights reserved



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.

REFERENCES

- Abdisa, G., & Getinet, T. (2012). The effect of guided discovery on students' physics achievement. *Journal of Physics Education*, 4(6), 530-537.
- Abimbola, I. O., & Abidoye, F. O. (2013). Effect of qualification and experience of biology teachers on the status of ecology teaching in Kwara State. *Journal of Education and Practice*, 4(24), 1-8.
- Adeleke, M. S., Binuomote, M. O., & Adeyinka, M. S. (2013). Determinants of students' academic performance in financial accounting among senior secondary school leavers in Oyo State. *International Journal of Business and Management Invention*, 2(5), 48-59.
- Adeyemi, S. B. (2002). *Relative effects of co-operative and individual learning strategies on students-declarative and procedural knowledge in map work in Osun State, Nigeria* (Unpublished doctoral thesis). Department of Teacher Education, University of Ibadan, Nigeria.
- Afolabi, F., & Akinbobola, A. O. (2009). Constructivist problem-based learning technique and the academic achievement of a physics student with low ability level in Nigerian secondary schools. *Eurasian Journal Physics & Chemistry Education*, 1, 45-51.
- Ajiboye, J. O., & Ajitoni, S. O. (2008). Effects of full and quasi-participatory learning strategies on Nigerian senior secondary students' environmental knowledge: Implication for classroom practice. *International Journal of Environmental and Science Education*, 3, 58-66.
- Ajewole, G. A. (2006). Effects of discovery and expository instructional methods on the attitude of students to biology. *Journal of Research in Science Teaching*, 28(5), 401-409.
- Akanbi, A. A., & Kolawole, C. B. (2014) Effects of guided-discovery and self-learning strategies on senior secondary school students' achievement in biology. *Journal of Education and Leadership Development*, 6(1), 19-42.
- Akanmu, M. A., & Fajemidagba, M. O. (2013). Guided-discovery learning strategy and senior school students' performance in mathematics in Ejigbo, Nigeria. *Journal of Education and Practice*, 4(12), 82-89.
- Akinbobola, A. O., & Afolabi, F. (2010). Constructivist practices through guided discovery approach: The effect on students' cognitive achievement in Nigerian senior secondary school physics. *Eurasian Journal of Physics and Chemistry Education*, 2(1), 16-25.
- Akinolu, B. M. A. (2006). Causes of mass failure in senior secondary school chemistry in Ijebu East Local Government Area of Ogun State. *Oro Science Educational Journal*, 4, 19-24.
- Akintelure, S. L. (1998). *Comprehensive book-keeping and accounts for senior secondary school: Sure-bet for WAEC*. Lagos: Johnson publishing Ltd.
- Aremu, A. O., & Sokan, B. O. (2008). A multi-causal evaluation of the academic performance of Nigerian learners: Issues and implications for national development. *Department of Guidance and Counselling, University of Ibadan*.
- Alebiosu, K. A. (1998). *Effects of two co-operative learning models on senior secondary school students learning outcomes in chemistry* (Unpublished doctoral thesis). University of Ibadan, Nigeria.
- Baykul, Y. (2000). *Eğitimde ve psikolojide ölçme: Klasik test teorisi ve uygulaması (Measurement in education and psychology: Classical test theory and application)*. Ankara: OSYM yayınları.
- Bamiro, A. O. (2015). Effects of guided discovery and think-pair-share strategies on secondary school students' achievement in chemistry. *SAGE Open*, 5(1), 2158244014564754.
- Bilesanmi-Awoderu, J. B. (2006). Effect of computer-assisted instruction and simulation/ games on the academic achievement of secondary school students in biology. *Sokoto Educational Review*, 8, 49-60.
- Boghossian, P. (2006). Behaviourism, constructivism, and Socratic pedagogy. *Educational Philosophy and Theory*, 38(6), 713-722.
- Carnell, E. (2006). Understanding and enriching young people's learning: Issues,



- complexities and challenges. *Improving Schools*, 8(3), 269-284.
- Cohen, J. W. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cohen, M. T. (2008). The effect of direct instruction versus discovery learning on the understanding of science lessons by second-grade students. *NERA Conference Proceedings*.
- Conway, C. J. (2014). Effects of guided inquiry versus lecture instruction on final grade distribution in a one-semester organic and biochemistry course. *Journal of Chemical Education*, 91(4), 480-483.
- Fatokun, K. V. F., & Eniayeju, P. A. (2014). The effect of concept mapping-guided discovery integrated teaching approach on chemistry students' achievement and retention. *Educational Research and Reviews*, 9(22), 1218-1223.
- Francis, N. P. (2014). Climate change and implication for senior secondary school financial accounting curriculum development in Nigeria. *Journal of Education and Practice*, 5(26), 153-157.
- Gokkurt, B., Dundar, S., Soyulu, Y., & Akgun, L. (2012). The effects of learning together technique which is based on cooperative learning on students' achievement in mathematics class. *Procedia-Social and Behavioral Sciences*, 46, 3431-3434.
- Hair, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2013). *A primer on partial least squares structural equation modelling (PLS-SEM)*. Thousand Oaks, CA: Sage Publications, Incorporated.
- Hake, R. (2002). Lessons from the physics education ecology. *Conservation Ecology*, 5(2), Article 28.
- Hijazi, D., & Al-Natour, A. (2012). Teachers' attitudes towards using cooperative learning for teaching English skills. *Interdisciplinary Journal of Contemporary Research in Business*, 3(12), 443.
- Hendricks, C. (2013). *The effects of cognitively guided instruction on mathematics achievement of second-grade children* (Doctoral dissertation, Walden University).
- Hasan, A. S. (2012). The effects of guided inquiry instruction on students' achievement and understanding of the nature of science in an environmental biology course. (Master thesis British University in Dubai).
- Hossain, A., & Tarmizi, R. (2013). Effects of cooperative learning on students' achievement and attitudes in secondary mathematics. *Procedia-Social and Behavioral Sciences*, 93, 473-477.
- Kohle, K. (2002). Freedom, peace and personality. Education: A biannual collection of the recent German contribution to the educational research, 24.
- Koksai, E. A., & Berberoglu, G. (2014). The effect of guided inquiry instruction on 6th-grade Turkish students' achievement, science process skills, and attitudes toward science. *International Journal of Science Education*, 36(1), 66-78.
- Matthew, B. M., & Kenneth, I. O. (2013). A study on the effect of guided inquiry teaching method on students' achievement in logic. *International Researchers*, 2(1), 134-140.
- Majoka, M. I., Khan, M. S., & Shah, S. I. H. (2011). Effectiveness of cooperative learning for teaching social studies to students with different ability at the elementary level. *Interdisciplinary Journal of Contemporary Research in Business*, 2(11), 486-497.
- Mohammed, I. A. (2011). The challenges of teaching financial accounting in Nigerian secondary schools: A case study of Gombe state. Available at SSRN 1854322.
- Motaei, B. (2014). On the effect of cooperative learning on general English achievement of Kermanshah Islamic Azad University Students. *Procedia-Social and Behavioral Sciences*, 98, 1249-1254.
- National Examination Council (2004). Regulations and syllabus for senior secondary school certificate examination. Minna: NECO.
- Nbina, J. B. (2013). The relative effectiveness of guided discovery and demonstration teaching methods on achievement of chemistry students of different levels of scientific literacy. *Journal of Research in Education and Society*, 4(1), 1-8.
- Oghenevwede, O. E. (2010). Effects of discovery and inquiry approach in teaching and learning of biology on secondary



- schools students' achievement in Delta State, Nigeria. *Journal of Research in Education and Society*, 1(1), 30-39.
- Ogologo, G., & Wagbara, S. (2013). Effect of demonstration, strategy on senior secondary school students' achievement in separation techniques in chemistry in/Akpor local government area, Rivers State. *Journal Vocational Education & Technology*, 10(2) 15-29.
- Oloyede, O. I. (2010). Comparative effects of guided discovery and concept mapping teaching strategy on SSS chemistry achievement. *Humanity and Social Science Journal*, 5(1), 1-6.
- Osadebe, P. U. (2014). Construction of Economics achievement test for assessment of students. *World Journal of Education*, 4(2), 58.
- Osuala, E. C. (2004). Principles and methods of business and computer education. Enugu: Cheston Agency Ltd.
- Piaget, J. (1969). *The psychology of the child*. New York: Basic Books.
- Piaget, J. (1976). *The child and reality*. New York: Penguin Books.
- Samad, M. A. (2005). *Ganit shikkha-o-prashikkhon*. Dhaka: Samad Publication and Research.
- Sambo, A. A. (2005). *Research methods in education*. Ibadan: Evans Brothers Nigeria Ltd.
- Sekaran, U., & Bougie, R. (2013). *Research methodology for business: A skill-building approach*. Chichester: John Wiley & Son Ltd.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson Education Inc.
- Treadwell, J. W. (2010). *The impact of discovery learning in writing instruction on fifth-grade student achievement*. (Doctoral dissertation, Walden University).
- Udo, M. E. (2010). Effect of guided discovery, student-centred demonstration and expository instructional strategies on students' achievement in chemistry. *African Research Review*, 4(4), 389-398.
- Udo, M. E., & Etiubon, R. U. (2011). Computer-based science simulations, guided discovery and students' achievement in chemistry. *Modern Applied Science*, 5(6), 211-217.
- Uside, O. N., Barchok, K. H., & Abura, O. G. (2013). Effect of discovery method on secondary school student's achievement in Physics in Kenya. *Asian Journal of Social Sciences & Humanities*, 2(3), 351-358.
- Uzoagulu, A. E. (2011). *Practical guide in writing research project reports in tertiary institutions*. Enugu: Jacob's classical Publisher Ltd.
- Vlassi, M., & Karaliota, A. (2013). The comparison between guided inquiry and traditional teaching method. A case study for the teaching of the structure of matter to 8th-grade Greek students. *Procedia-Social and Behavioral Sciences*, 93, 494-497.
- West African Examination Council (2004). *Chief examiners report May/ June West African senior school certificate examination*. Lagos: WAEC.
- Zakaria, E., Chin, L. C., & Daud, M. Y. (2010). The effects of cooperative learning on students' mathematics achievement and attitude towards mathematics. *Journal of Social Sciences*, 6(2), 272-275.