

COMPARATIVE EFFECTS OF COLLABORATIVE AND PROBLEM-SOLVING TEACHING METHODS ON ACADEMIC ACHIEVEMENT OF FINANCIAL ACCOUNTING STUDENTS IN GOVERNMENT SENIOR SECONDARY SCHOOLS IN TARABA STATE, NIGERIA

R. Magaji¹, S. M. Abdullahi², (Ph.D.) and Z. Jika³, (Ph.D.)

**¹Department of Adult and Continuing Education
Federal University Wukari, Taraba State, Nigeria**

ruth.magaji@fuwukari.edu.ng, Phone No: 07067957423

^{2&3}Vocational Education Department

Modibbo Adama University, Yola, Adamawa State, Nigeria

shehuselbe01@yahoo.com, Phone No: 08065928188

Abstract

The study examined effects of collaborative and problem-solving teaching methods on academic achievement of Financial Accounting Students in Government secondary schools in Taraba state Nigeria. The study had four objectives, three research questions, and three null hypotheses. The study used quasi-experimental research design. The population of the study was 573 SSII students in Government secondary schools in Taraba state, Nigeria. Out of these population a sample of 80 financial accounting students were used from three intact classes. These three intact classes were purposively selected from three different government secondary schools within the study area. A researcher developed Financial Accounting Achievement Test (FAAT) used for data collection. The instrument was face validated by experts. A pilot test was carried out at Government Capital School Yola. Cronbach Alfa was used to determine the reliability coefficient of the instrument. The teaching experiment period lasted for six weeks. The data collected for the study were analyzed using mean and standard deviation to answer the research questions, t-test statistic was used to test the null hypotheses one and two while null hypothesis three was tested using ANOVA and Scheffe Post Hoc Pairwise Comparison test. All the null hypotheses were tested at 0.05 levels of significance. The study revealed that there was a significant difference in the mean scores of students taught financial accounting using collaborative, problem-solving and lecture teaching methods. With collaborative and problem solving having the highest mean sores. Indicating students do better when taught financial accounting using these two methods of teaching. Based on these findings the study concluded that collaborative and problem-solving method of teaching was found to improve financial accounting students' academic achievement. the study recommended the usage of problem-solving teaching method by teachers of financial accounting should be enforced by the schools' authorities for improve students' academic achievement.

Keyword: Collaborative, problem-solving, Academic Achievement, Financial Accounting

INTRODUCTION

Background of the Study

Education is a medium of transporting people from known to unknown or from abstract to concrete knowledge which facilitates their ability to distinguish wrong from right in all undertakings. This is why education is regarded as the totality of experiences that pave way for people in any society to understand the world they live in and be able to manage issues well. Olawoyin,..et al/(2015), asserted that education remains the most essential element that empowers citizens of any nation to achieve their desired interest in the world of business. The above authors further posited that education is a constant means by which individuals are exposed to new things. Olawoyin,..et al/(2015), affirmed that for a nation to progress and witness development, she must give the right education that is capable of developing the youths into sound and responsible citizens as well as fully integrating them into the community.

This may be the reason, Federal Government of Nigeria (FRN, 2013), stated that one of the aims and objectives of education is to help the child acquire appropriate productive skills, abilities and competencies both mental and physical as requirement to live in and contribute to societal development. In order to achieve the goals and objectives of education in Nigeria, government has geared efforts towards making a well-developed curriculum covering academic and vocational subjects at both junior and senior secondary school level. For instance, at the junior secondary level, subject such as business studies will be taught as a pre-vocational subject with Book-keeping as an integral part. While at the senior secondary school level, the curriculum covers both vocational and commercial subjects such as Financial Accounting, Commerce, Economics among others. These subjects can best be achieved when qualified teachers and appropriate teaching method is adopted.

Teaching methods involves the use of various methods of instruction to deliver lesson effectively (Seyi 2019). White (2013) opined that methods of teaching are tools through which professional tutors engage their learners into purposeful events, as a result of which concepts, values and information are learned. Joseph (2014) opined that for effective learning to occur, a skilled tutor is require to utilize various methods and approaches at his command, though there is a great diversity in teaching methods, there is none of the methods that can be considered as better for every learning situation. A well-designed method of teaching, can work wonders in making teaching efficient. Therefore, the success in the use of the method depends on an intelligent analysis of the educational purpose, the pupils in the class, and the curriculum content at the moment as well as the type of subject being taught. In teaching profession, method can be seen as a stable access selected by a teacher to give details of generalization to his students. The teaching method has to be regular and orderly, so that planned objectives of the lesson can be achieved. These teaching methods are numerous, some are more of teacher centered while others are of students centered. Among these methods are:

Lecture method of teaching is viewed as an oral presentation of information to students without an active involvement or effort on the part of the student. According to Nwafor (2012), conventional teaching method is imposed from teachers and the students are expected to docilely and obediently receive and believe this fixed information. Teachers are the instrument to which this knowledge is communicated and these standards of behavior are enforced with modern method of teaching. This method of teaching therefore might not be capable of producing skills required by students to cope with challenges of rapid economic and technological development. The use of teaching methods that require students to be more actively involved in the learning process is therefore strongly advocated for in secondary schools in Nigeria especially in vocational subjects. (Adeleye., et al 2020). The researcher therefore strongly advocates the use of students' collaborative and problem-solving methods in teaching Financial Accounting.

Collaborative teaching is an instructional method in which students with different levels of learning ability are paired or arranged in small groups where they work collaboratively together to accomplish a given task or goal. Vygotsky (2008), explained that unlike individual learning, students in a collaborative teaching method learn by asking and answering other's questions as well as monitoring each other's work for better achievement. Collaborative teaching method is where the teacher organizes students into small groups who then work together to assist each other learn some academic content (Slavin, 2011). It is a method in which teachers allow students to study in small groups where each contributes efforts to promote the achievement of all members of the group. Each class of students consists of males and females of high and low performers and when grouping students in collaborative teaching method, thus, there is no gender bias. These suggested that the students solve their problems together.

problem-solving is how to teach independently, it is one of the easiest methods to attain objectives of learning procedure. Problem-solving can be referred to as a process of finding answers or approaching solutions creatively. This process needs that the learner to be totally involved in the learning process. Downs (2010) defined problem-solving as the process of applying previously

acquired knowledge to obtain a satisfactory solution to new and unfamiliar problems. Problem-solving method could be described as a learning tenet that propagates learner-centered and tutor-centered learning. In the view of constructivism, students via relationship with their immediate vicinity employ knowledge they have ever acquired to discover recent understanding (Yang, 2012). Problem-solving competencies are the knowledge, skills and general disposition or attitudes which individuals need, to be able to identify and tackle observed or perceived problems in the environment with a view to finding solutions to them. An individual with the basic knowledge, skills and disposition to identify and solve a problem is said to be competent (Smith in Ishaku, 2015). The competencies may also meant ability to understand and solve their academic problems especially courses like mathematics, physics, chemistry, financial accounting among others.

Financial Accounting is therefore defined as the process of identifying, measuring and communicating economic information necessary for informed judgments necessary for decision making in organizations (Maffo, 2013). Financial accounting is an aspect of accounting which is a language that communicates economic information to those who have interest in an organization such as managers, shareholders, investors, employees, creditors and the government. According to Ademola (2010), Financial Accounting is an art or process of recording, classifying and analyzing, summarizing, interpreting, preparing and communicating financial information to its users. Accounting is concerned with the acquisition of knowledge for recording, analyzing, interpreting and summarizing the financial data of an organization or enterprise (Ndinech and Obidile, 2013). In financial accounting there are many factors that may affect students' academic achievement in financial accounting for example teaching method, gender etc. Given the relevance of Financial Accounting knowledge and skills to economic and business affairs of Nigeria, its offering at the senior secondary school level is very commendable. This commendation can only be sustained when the students' performance or academic achievement is encouraging.

Academic achievement is the extent to which a student or institution has achieved either short- or long-term educational goals, or it describes academic outcomes that indicate the extent to which a student has achieved their learning goals. Academic achievement is often measured through examinations or continuous assessments. (Tophatmonicle, 2021). Academic achievement refers to the percentage of students at a school whose learning currently meets or exceeds their grade levels standards (Minesota Department of Education, 2017). Academic achievement represents performance outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments, specifically in school, college and university. Steinmayr, *et.al* (2020). From the various definitions above, we can infer that academic achievement is when effort meet or exceed set standards.

Statement of the Problem

The issue of students' academic achievement in secondary schools has been a frequent issue in Nigerian secondary schools in which accounting is no exception. Akinsolu (2015) reported that student's achievements do not match the government and parental investments using WAEC and NECO results analysis. Akinsolu (2015) maintains that all stakeholders in education are concerned about why the educational system has not been improving as demonstrated by poor results at secondary school level. Financial accounting which is the central focus of the researcher has recorded low performance, from the previous result, it seems the aims and objectives of offering financial accounting in Nigerian secondary schools might be defeated. Emaikwu (2015) revealed that WAEC results May/June 2013-2019 in Accounting showed the percentage of failures as follows: 68.24%, 74.15%; 80%, 83.09%, 88.01%, 90.20% and 93%. In addition to that, similar failure rate was also recorded in Taraba State. The following breakdown of failure rate was given by Taraba state resource center as follows: failed percentages for the following years respectively are: 2015, 2016, 2017, 2018, 2019 and 2020. Corresponding rate are: 84.28%, 13.20%, 85.03%, 70.43%, 62.00%, 53.67%. These failure rates were attributed to the all-calculation courses such as

mathematics, physics, chemistry, financial accounting among others. Here financial accounting is not an exception. Then what may likely be the cause of this mass failure? According to the researcher therefore, this mass failure in accounting was attributed to many factors such as: lack of qualified teachers, poor teaching methods, inadequate instructional materials among others. The researchers among other things choose to investigate the effect of teaching methods on academic achievement of financial accounting students using collaborative and problem-solving teaching methods for the experimental class while conventional teaching method for the control class respectively.

Purpose of the Study

The main purpose of this study was to determine the effects of collaborative and problem-solving teaching methods on academic achievement of financial accounting students in Government senior secondary schools in Taraba State, Nigeria. The specific objectives of the study are to:

- i. Determine the difference in the mean academic Achievement scores of financial students in the experimental groups and those in the control group prior to the treatment
- ii. Determine the effect of collaborative teaching method on academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria
- iii. Determine the effect of problem-solving teaching method on academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria
- iv. Determine the interactive effect of collaborative, problem-solving and lecture teaching method on academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria

Research Questions

The following research questions guided the study:

- i. What is the difference in the mean academic Achievement scores of financial students in the experimental groups and those in the control group prior to the treatment
- ii. What is the effect of collaborative teaching method on academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria
- iii. What is the effect of problem-solving teaching method on academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria

Research Hypothesis

- i. There is no significant effect between collaborative teaching method and academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria
- ii. There is no significant effect between problem-solving teaching method and academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria
- iii. There is no significant interactive effect between collaborative, problem solving, lecture teaching method and academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria

Methodology of the study

The study adopted a quasi-experimental pretest- posttest research design in which there was a control group, but no randomization. Quasi-experimental design was used because random assignment of students into experimental and control groups was not possible. The reason for this was that the school authorities might not allow the control or manipulation of some relevant variables which they may consider disruptive of school activities. Thus, the researcher resorted to

using quasi- experimental design, using intact groups. The researcher used SS 2 classes. The population of the study was five hundred and seventy-three (573) financial accounting students of senior secondary school students (SS 2) in Taraba state. Three SS 2 intact classes were used for this study. A multi-stage sampling technique was used to select Jalingo Zone, Mutum Biyu Zone and Wukari Zone. Purposive sampling technique was used to select Government Day Secondary School Jalingo in North zone, Government Day Secondary, Luga, mutun biyu, Government Day Secondary, school East, Wukari. In Government Day College Jalingo for experiment group one (1) collaborative teaching method was used and Government Day Secondary School Luga Mutum Biyu experimental group two (2) for problem-solving teaching method while Government Day Secondary School, East Wukari was used for lecture teaching method.

The study used the researcher's developed instrument named Financial Accounting Achievement Test (FAAT) for data collection. The instrument comprised of both pre-test and post-test examination questions. It also had 20 items objective questions with four (4) options, A-D, each. FAAT had a marking scheme. The instrument was subjected to face and content validation by three experts from the department of Vocational Education, Modibbo Adama University, Yola. Their comments, corrections and modifications were captured and the final copy of the instrument was produced. A pilot test was conducted at Government Day Capital Secondary School, Jimeta Yola Adamawa State. Cronbach Alpha was used to establish the reliability co-efficient of the research instrument which resulted to 0.86.

Experimental Procedure

The researcher collected a letter of introduction from the Department of vocational education, MAU Yola which was used to introduce the researcher to the authorities of the selected secondary schools. The data collection period lasted for six (6) weeks. The first week was used purposely for familiarization with sampled students and assessment of the students' previous knowledge in financial accounting before the treatment exercise. The researcher also administered pre-test to the students which last for twenty minutes for each of the three groups. In second week, sampled students were exposed to treatment on the concepts of cash book (three column) and the preparation of the three-column cashbook with the use of collaborative teaching method for experimental group I, while problem solving teaching method for experimental group II and conventional direct teaching method for control group lasted (80) minutes for each of the three groups. For the third week, students were taught trading account and the preparation of the trading account, using collaborative teaching method for experimental group I, problem solving teaching method for experimental group II as against the use conventional direct teaching method for control group for each of the three groups, while fourth week, students were taught the preparation of trading profit and loss account, using collaborative teaching method for experimental group I, problem solving teaching method for experimental group II as against the use conventional direct teaching method for control group. Fifth week, students were taught how to prepare balance sheet and it types, using collaborative teaching method for experimental group I, problem solving teaching method for experimental group II as against the use conventional direct teaching method for control group. This making a total of six periods for each of the three groups. Finally, the last sixth week post- test were administered to the students. The post- test were conducted under strict supervision to ensure that the students are not either allow to communicate nor to exchange materials with one another. This is to enable the researcher to lay a claim to the outcome of the study in respect of the treatment administered to the experimental groups as well.

To actualize the above experimental plan, Instructional package for financial accounting (IPFA) lesson plan were prepared for the actual periods taught. Teaching was carried out in accordance with the selected schools time-table. This were strictly followed in order not to disrupt other

subjects" periods. The scripts were collected, marked, scored and recorded using post-test marking scheme. The data collected were analyzed using statistical Package for Social Sciences (SPSS), Version 20.0. The research questions were answered using Means and standard deviation, while the null hypotheses were tested using t-test for hypotheses 1 and 2 while hypothesis 3 were tested using ANOVA and post hoc multiple comparisons at 0.05 level of significance. For interpreting the result of the analysis, when the p-value is greater than 0.05 ($p > 0.05$) the null hypothesis was retained and where p-value is less than alfa value at 0.05 ($p \leq 0.05$), the null hypothesis was rejected.

Results and Discussion

Research Question One: What is the difference in the mean academic Achievement scores of financial students in the experimental groups and those in the control group prior to the treatment?

Table 1: Mean Analysis on the Difference between Mean Academic Achievement Scores of Financial Accounting Students in the Experimental Groups and those in Control Group Prior to the Treatment

Groups	N	Mean	Std. Dev	Mean Diff.	Remarks
Collab. Method	25	34.28	10.60		
Problem Solv.	34	32.88	8.059	±0.1	Very Trivial Diff
Control	21	33.43	7.580		
Total	80				

Source: Field Study, 2025

A descriptive statistic used to determine the mean difference between the mean academic achievement of financial accounting students in the experimental and control groups prior to the treatment. Table 1 showed that the mean response for the experimental group such as collaborative teaching method stood at ($M = 34.28$, Std. Dev. = 10.60), problem solving teaching method stood at ($M = 32.88$, Std. Dev. = 8.059) while that of control group stood as ($M = 33.43$, Std. Dev. = 7.580) with the mean difference between the three groups at (± 0.1) which is a very trivial. The result therefore suggested that the three groups of the students had equal entry level in financial accounting subjects.

Research Question Two: What is the effect of collaborative teaching method on academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria?

Table 2: Post-Treatment Analysis on the Effect of Collaborative Teaching Method on Academic Achievement of Financial Accounting Students in Secondary Schools in Taraba State, Nigeria

Groups	N	Mean	Std. Dev	Mean Diff.	Remarks
Collab. Method	25	58.52	13.94		
Control Method	21	34.86	8.32	±23.66	Large
Total	46				

Source: Field Study, 2025

A descriptive statistic was performed to find out the effect of collaborative teaching method on academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria by comparing the mean response between collaborative teaching method: an experimental group and conventional teaching method: a control group. The result from Table 2 showed that the mean response for the experimental group stood at ($M = 58.52$, Std. Dev. = 13.94) and that of the control group as ($M = 34.86$, Std. Dev. = 8.32), while the mean difference between the two groups stood at ± 23.66 in favor of the experimental group. This indicates that, collaborative teaching method improved Secondary School Students academic achievement in financial accounting in Taraba State, Nigeria.

Research Question Three: What is the effect of problem-solving teaching method on academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria?

Table 3: Post-Treatment Analysis on the Effect of Problem-Solving Teaching Method on Academic Achievement of Financial Accounting Students in Secondary Schools in Taraba State, Nigeria

Groups	N	Mean	Std. Dev	Mean Diff.	Remarks
Problem Solv. Method	34	65.24	12.93		
Control Method	21	34.86	8.32	±30.38	Large
Total	55				

Source: Field Study, 2025

A descriptive statistic was performed to find out the effect of problem-solving teaching method on academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria by comparing the mean response between problem solving teaching method: an experimental group and conventional teaching method: a control group. The result from Table 3 showed that the mean response for the experimental group stood at (M 65.24, Std. Dev. = 12.93) and that of the control group as (M = 34.86, Std. Dev. = 8.32), while the mean difference between the two groups stood at ±30.38 in favor of the experimental group. This indicates that, problem solving teaching method improved academic achievement of financial accounting students in secondary school in Taraba State, Nigeria.

Test of Null Hypotheses

Under this, the test to the null hypotheses were presented as in Table 4 to 6 respectively.

Null Hypotheses One: There is no significant effect between collaborative teaching method and academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria

Table 4: Analysis of Independent Samples t-test on the Academic Achievement of Students Taught Financial Accounting Using Collaborative Teaching Method and Those Taught Using Conventional Method of Teaching

Variable	Groups	Levene's Test for Equality of Variances					Mean	Std.Dev	Sig. (2-tailed)
		N	F	Sig.	T				
Collab.	Experimental	25	2.830	.100	6.818	58.52	13.94	.000	
	Control	21				34.85	8.32		

Source: Field Study, 2025

The outcome of the *independent-samples t-test* in Table 4, indicates that there exists a significant difference between the academic achievement of students taught financial accounting using collaborative teaching method and those taught using conventional method of teaching. The result further shows that, experimental group (Collaborative method) with (M 58.52, Std. Dev. = 13.94), control group (M = 34.85, Std. Dev. = 8.32), $t = 6.818$, $p = .000$. Since the computed p-value is less than the alpha value of 0.05, level of significance. The null hypothesis was therefore rejected. The finding suggested that collaborative teaching method had a significant effect on academic achievement of students taught financial accounting in secondary schools.

Null Hypotheses Two: There is no significant effect between problem-solving teaching method and academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria

Table 5: Analysis of Independent Samples t-test on the Academic Achievement of Students Taught Financial Accounting Using Problem Solving Teaching Method and Those Taught Using Conventional Method of Teaching

Variable	Groups	Levene's Test for Equality of Variances						
		N	F	Sig.	T	Mean	Std. Dev	Sig. (2-tailed)
Problem Solv.	Experimental	34	3.808	.159	9.591	65.24	12.93	.000
	Control	21				34.85	8.32	

Source: Field Study, 2025

The outcome of the *independent-samples t-test* in Table 5, indicates that there exists a significant difference between the academic achievement of students taught financial accounting using problem solving teaching method and those taught using conventional method of teaching. The result further shows that, experimental group (Problem solving method) with (M 65.24, Std. Dev. = 12.93), control group (M = 34.85, Std. Dev. = 8.32), $t = 9.591$, $p = .000$. Since the computed p-value is less than the alpha value of 0.05, level of significance. The null hypothesis was therefore rejected. The finding suggested that problem-solving teaching method had a significant effect on academic achievement of students taught financial accounting in secondary schools.

Null Hypotheses Three: There is no significant interactive effect between collaborative, problem solving, lecture teaching method and academic achievement of financial accounting students in secondary schools in Taraba State, Nigeria

Table 6: Scheffe's Post Hoc Pairwise Comparison Between, Problem-Solving, Lecture and Collaborative Teaching Methods.

(I)Group	(J) Group	Mean Differences (I-J)	Sig.
Problem-solving method	Lecture method	19.31818*	.036
	Collaborative method	19.00000*	.042
Lecture method	Problem-solving method	-19.31818*	.036
	Collaborative method	-31818	.998
Collaborative method	Problem-solving method	-19.000*	.042
	Lecture method	.31818	.998
Problem-solving method	Lecture method	19.00000*	.024
Collaborative method	Lecture method	.31818	.997

Analysis of data in Table 6 shows the Scheffe Post Hoc Pairwise Comparison, which compares the methods, two at a time to see where the difference between the groups occurs. The Table revealed that between problem-solving and lecture teaching method, problem-solving has significant difference on the academic achievement of students in Financial Accounting with a mean difference of 19.31 and P-value of .036 which is less than the fixed probability value of 0.05 ($P < 0.05$). Also, comparing problem-solving and collaborative teaching method, the Table shows a mean difference of 19.00 and P-value of .042 which is less than the fixed probability value of 0.05 ($P < 0.05$). This means that mean academic achievement of students in problem-solving group was higher than collaborative group. The Table also revealed that, comparing lecture method and collaborative method, no significant difference exists as students' means academic achievement scores are almost the same as the mean difference was .31 and P-value of 0.997 which is greater than the fixed probability value of 0.05 ($P > 0.05$). With the result in Table 6, it is clear that problem-solving method of teaching is the most significant in improving academic achievement of students in Financial Accounting. The Problem-solving group did better than the collaborative and Lecture method group.

Discussion of the Major Findings

The finding from research question two revealed that students taught financial accounting using collaborative teaching method performed better than those taught financial accounting using conventional teaching method. This finding is in line with the finding of Michael, et al., (2017) who stated that there was significant gain regarding the difference between the pre-test and post-test mean scores of students taught financial accounting using collaborative teaching method and conventional teaching method. The findings also agreed with the finding of Nkechinyere, et al., (2018) that there was statistically significant difference in the mean scores of students taught Chemistry using collaborative teaching method than taught using conventional teaching method. This also corroborated with the findings from the test of null hypotheses two. The null hypothesis two revealed that there was a significant difference in the mean scores of students taught financial accounting using collaborative teaching methods than those taught using conventional method of teaching. The finding is in line with Nkechinyere, et al., (2018) findings showed that the collaborative group performed better in organic chemistry than students exposed to lecture teaching method. Furthermore, the finding is in line with the finding of Michael, et al., (2017) that there was significant gain regarding the difference between the pre-test and post-test mean academic achievement scores of students taught using collaborative teaching method. Also, Mwelese, et al. (2014) maintained that the lecture method does not enhance students' participation, team work and peer interactions and so on, the performance of students taught using the lecture method would certainly be discouraging. This means that students taught financial accounting using lecture teaching method performed poorly than those taught using collaborative method of teaching.

The finding from research question three revealed that students taught financial accounting using problem-solving teaching method performed very well than those taught using conventional teaching method. This finding was in line with the findings of Seyi (2019) whose study revealed that students taught financial accounting using problem-solving method performed better than those taught using other teaching methods. He also stated that students who work in problem- solving class are exposed to higher level of reasoning and they accept this reasoning as valid. This finding was also supported by the findings from the test of null hypotheses three that those students taught financial accounting using problem-solving teaching method perform better than those students taught using conventional teaching method respectively. The finding is in agreement with the findings of Maikudi (2015) who stated that there was significant difference between students taught using problem- solving method of teaching and those taught using other teaching method. This is also supported by Khadala, et

al., (2014) who found out that student centered teaching method are effective in students' performance in geometry. The finding contradicts the finding of Adebule (2005) which stated that the collaborative group performed significantly better than taught using problem solving method of teaching.

The finding from research question four revealed interactive effects of the three teaching methods used in this study. These teaching methods are: collaborative, problem solving and conventional or lecture method of teaching. The study revealed different impact of this teaching method on students' academic achievement. The finding revealed that students taught financial accounting using problem-solving teaching method performed better than those taught using conventional teaching method. This finding was supported by the findings of Onaolapo (2015) who observed that lecture method will limit student's capability to learn real life situations, but the use of learner-centered (problem solving) learning styles will promote leadership and team building skills. Again, in another study by Seyi (2019) who stated that in control group were the lecture method was employed; students generally perform poorly. On the other hand, when academic achievement scores of students taught using both collaborative and lecture method of teaching were compared. The study revealed that a slightest different exist between the two. The study still suggesting a superiority of collaborative teaching method over conventional or lecture method of teaching. This finding also supported by the findings of Mwelese.,et'al., (2014) who maintained that the lecture method does not enhance students' participation, team work and peer interactions and so, the performance of students taught through the lecture method would certainly be discouraging. the author further revealed that there is significant difference in the means scores of students taught financial accounting using collaborative and lecture teaching method.

The table also revealed that, comparing lecture method and collaborative method, the difference exist but not much significant one. With the result above, it is clear that problem-solving method of teaching is the most significant in improving academic achievement of students in financial accounting. The problem-solving group did better than the collaborative and lecture method group. The reason for the difference in the academic achievement may not be unconnected to the fact that collaborative and problem-solving teaching methods involve students' active participation in the teaching process. Based on the results in the study, students taught using problem-solving teaching method performed very good followed by those taught using collaborative and lastly those taught using conventional teaching method. Therefore, students taught using problem-solving teaching method performed better than those taught using the other two teaching methods. This finding is in line with Seyi (2019) which stated that problem-solving teaching method is the best method of teaching financial accounting. The finding is in agreement with Maikudi (2015) which stated that there was significant difference between the students taught financial accounting using problem- solving method of teaching and other teaching methods.

Conclusion

Based on the findings of the study it was concluded that the three teaching methods: collaborative, problem-solving and lecture, improved students' academic achievement in financial accounting. However, highest achievement was recorded in the group taught using problem-solving method, followed by those taught using collaborative teaching method. After statistical analysis of the data, the researcher concluded that students taught using problem solving and collaborative method of teaching perform better in financial accounting than using the conventional teaching method.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. The secondary school authority should enforce the use Problem-solving teaching method by financial accounting teachers as a matter of necessity for better students' academic achievement in secondary schools.
2. The secondary school authority should enforce the use collaborative teaching method by financial accounting teachers as a matter of necessity for better students' academic achievement in secondary schools.
3. The State Government through the post primary school board should as a matter of urgency organized workshops and training sessions for financial accounting teachers on the use of problem solving and collaborative method of teaching for better students academic achievement in financial accounting subject.

References

- Adebule, S. O. (2005). Functional assessment for quality education in Nigeria. *International Journal of Research in Education*, 2 (1 & 2), 173-179.
- Adeleye, O. Okolocha, .A. (2020) Effects of collaborative teaching method on students academic achievement in financial accounting. *International Journal of Science and Technology Education Research*, 4(4) 63 – 69
- Ademola R. A. (2010). *Simple approach to financial accounting* emperor colour
- Akinsolu, A.O. (2015). Teachers and Students' Academic Performance in Nigerian Secondary Schools: Implications for Planning. *Florida Journal of Educational Administration & Policy*, 3(2), 86-103.
- Downs, R. (2010). Problem Solving. Retrieved from <http://www.egscn.ac.uk/ertheory/>
- Ishaq, U. (2016). Effects of collaborative learning strategy on performance among low ability junior secondary school basic science students in Kano, Nigeria. An Unpublished Thesis submitted to the school of Postgraduate studies, Ahmadu Bello University, Zaria.
- Khadala J.T. (2014). Effect of Concept Mapping and Project Based Instructional Strategies on JSS Student's Performance and Attitude towards Geometry in Adamawa State. Unpublished Ph.D Thesis, A.B.U, Zaria.
- Maffo, F. (2013). *Basic financial accounting for undergraduates*. Lagos: Arraki'un Publication.
- Maikudi, A.U. (2015). Effects of Interaction Pattern, on Achievement and Interest in Biology among Secondary School students in Enugu state Nigeria. *Unpublished M. Ed Thesis* University of Nigeria Nsukka
- Michael, A. F., Hameed, O. B. (2017). Effects of collaborative learning styles on performance of students in a ubiquitous collaborative mobile learning environment. *Contemporary Educational Technology*, 8(3), 268 – 279.

- Mwelese, J.K., Wanjala, M.S. (2014). Effect of Problem Solving Strategy on Secondary School Students Achievement In Circle Geometry In Emuhaya District of Vihiga County; *Journal of Education Arts and Humanities*, 2(2), 18-26.
- Ndinechi, G., Obidile, I.J (2013). Strategies considered effective for teaching accounting in tertiary institution in Anambra State. *The official Journal of Nigerian Accounting Association (NAA)*, 4(2), 133 – 143.
- Nkechinyere, O. M., Ordu, O. K. (2018). The impact of collaborative learning strategy on the academic achievement of senior secondary school Chemistry students in Obio-Akpor Local Government Area. International Journal of Education and Evaluation, 4(2), 11 – 18.*
- Nwafor, C. E. (2012). Effect of experiential teaching method on the achievement of junior secondary school students in basic science.
- Onaolapo, E. (2015). Influence of socratic and interactive methods of teaching financial accounting on performance of secondary school students in Katsina metropolis, Nigeria. Unpublished M.Ed Thesis, ABU, Zaria.
problemsolving.asp on 13/7/2018
- Seyi, D.(2019) Effects of guided-discovery and problem-solving teaching methods on students' academic performance in financial accounting, in colleges of Education in North central, Nigeria.
- Slavin, R. E. (2011). Cooperative learning in post-secondary education: Implications from social psychology for active learning experiences. Paper presented at the annual meeting of the American Educational Association.
- Vygotsky, L. S. (2008). Mind in society: The development of higher psychological processes. In Cole, J. Steiner, V., Scribner, & E. Souberman (Eds). Cambridge: Harvard University Press*
- White, T.H. (2013). *Analysis of Teaching Methods and Techniques in Schooling System*. Spain: Macmillan Press Limited