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Effects of cooperative and peer-tutoring instructional strategies on performance and retention of secondary school students in financial accounting gombe metropolis, Nigeria

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Abstract
This study investigated the effects of cooperative and peer-tutoring instructional strategies on performance and retention of secondary school students in financial accounting Gombe Metropolis, Nigeria. The study was guided by two objectives, two research questions and two null hypotheses. A quasi-experimental design with pre-test and post-test control group was adopted for the study. The population of the study was 525financial accounting students in 2017/2018 academic session. The researcher used an intact three class of 84 SS II students for the study. Two instruments were used for data collection (Accounting Academic Achievement Test and Accounting Diagnostic Achievement Test). After validating the instruments by three experts, the researcher subjected the instruments to pilot tested with 40 secondary school students outside the study area using test and retest method. A reliability coefficient of 0.76 was obtained. A pre-test was administered to the students before the treatment. At the end of the six weeks of treatment, a post-test was administered. Data collected from pre-test and post-test were subjected to statistical analysis using mean score and mean difference to answer the research questions while ANOVA was used to test the hypotheses at 0.05 level of the significance. The result shows among others that cooperative and peer tutoring have positive effects on performance and retention of secondary school students in financial accounting in Gombe metropolis. It was concluded that the use of cooperative and peer tutoring instructional strategies will help to address the current trend of dismal performance of students in principles of accounting in Gombe, metropolis. Based on this one of the recommendations was that financial accounting teachers should adopt cooperative teaching method to students. This will help to promotes the interest of students and create interactive environment for problem solving.

Keywords: cooperative, peer-tutoring performance, retention financial accounting

Introduction

Education is globally-accepted as the most viable tool for sustainable human development. It is the cornerstone of every development forming the basis for literacy, skill acquisition, technological advancement as well as the ability to harness the natural resources of the country. It helps to ensure a safer, healthier, more prosperous and environmentally-sound world. Through Education, manpower develops their skills and knowledge which is an ultimate guarantee for their self-reliance. This explained why FGN (2008) considered education as an instrument for building a free and democratic society, a just and egalitarian society, a united strong and self-reliant nation, a great dynamic economy, and land of bright full of opportunities for all citizens.

At secondary school level in Nigeria, Financial Accounting is expected to equip students with skills, knowledge and attitude to be gainfully employed or become self employed. The subject prepares students for a job or employment within a wide range of business career such as pay-roll clerks, purchasing clerks, audit clerks, book-keepers, cashiers and business teachers who undertake the teaching of accounting to other learners. Despite the laudable objectives of Financial accounting as spelt out by National Policy on Education (2008), the students performance in the subject in both internal and external examinations is alarming, (Adamu & Jibrin, 2017). The poor performance and declining student interest in the subject is a serious constrained that affect the realization of the aims and objectives of the subject. Ayuba (2012) reported that the performance of secondary school students in financial accounting is not encouraging. Scholars have attributed the poor performance of students to many factors, for instance Engin-Demir (2009) [6] stated that the conventional teaching method employed by teachers is not yielding the desire objectives. Ezenwosu and Loretta (2013) [7] earlier reported attributed the poor academic performance of students to teaching method. Based on persistent poor performance of students in related areas, scholars are challenged to seek for an intervention or innovative methods that would enhance academic performance of students in financial accounting. To this end, scholars such as Johnson & Johnson (2009) [14] and Jibrin (2012) [13] recommended the use of cooperative and peer tutoring teaching methods. Cooperative teaching is an instructional method allows students to learn in group under the guidance of a teacher. Jibrin (2016), reports that cooperative learning helps in cognitive development and academic achievement of students in business mathematics. Adamu and Usmand (2017) reported cooperative learning strategy enhance students performance in entrepreneurship.

Peer tutoring instructional strategies consists of student's partnership, where a student teach his peers, linking high achieving students with lower achieving students or those with comparable achievements. The pairing of higher and lower-

achieving students is intended so that students gain knowledge from each other through practice and reinforcement (Jibrin, 2016). Ayuba (2011) [5] considers peer tutoring as one of the effective and powerful instructional method that can be used to develop academic as well as social skills in both the tutor and the tutee (the learner). In a peer tutoring class each student gets more attention from the tutor and more time to speak while others listen. This allows the students take active part in constructing their knowledge. Ayuba (2011) [5] shows that interactive teaching method (cooperative and peer tutoring inclusive) enhances students' self-efficacy, performance and retention. It therefore follows that interactive teaching method promotes creativity, understanding and general performance of students. The assertions prompted the researcher to investigate the effects of cooperative and peer tutoring teaching methods on performance of accounting students in government secondary schools in Gombe metropolis.

Statement of the problem

The performance of students in financial accounting in Nigeria is alarming. West African Senior School Certificate Examination (WASSCE) Examiner reports between 2006 to 2014 shows that less than 35% of financial accounting students do pass the subject (Daily Trust, 14, Dec 2014). According to Rufai (2011), "this is unacceptable and an embarrassment to the whole country. The payment of WASSCE or NECO re-sit registration fees yearly has been constitute additional responsibility for parents whose children have the ambition of studying business subjects. Financial accounting students have been undergoing series of psychological and physical pains resulting as a result of persistent failure. Consequentially, financial accounting is become unpopular in most of secondary schools in Gombe state. What could be the cause of the persistent problem of mass failure among secondary school students in financial accounting? The identified problems which require empirical investigation draws the attention of the researcher to assess the effect of cooperative and peer tutoring teaching methods on performance of Financial Accounting students in Government senior secondary schools in Gombe metropolis.

Objectives of the study

The study investigated the effects of cooperative and peer tutoring teaching methods on the performance and retention of accounting students in government secondary schools in Gombe metropolis. Specifically the study will:

1. Determine the difference among the post-test mean performances of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria.
2. Determine the difference among the delayed post-test mean retentions of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria.

Research Questions

1. As a guide, the following research questions were raised.
2. What are the differences among the post-test mean performances of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria?
3. Determine are the differences among the delayed post-test mean retentions of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria?

Research Hypotheses

The following null hypotheses were raised and tested at 0.05 level of significance

1. There is no significant difference among the post-test mean performances of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria.
2. There is no significant difference among the delayed post-test mean retentions of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria.

Theoretical Framework

This study is based on interactive learning theories with emphasis on Vygotsky's socio-cultural theory of development of 1979. This theory suggests that social interaction leads to continuous step-by-step changes in children's thought and behavior that can vary greatly from culture to culture. Basically Vygotsky's theory suggests that development depends on interaction with people and the tools that the culture provides to help form their own view of the world. There are three ways a cultural tool can be passed from one individual to another. The first one is imitative learning, where one person tries to imitate or copy another. The second way is by instructed learning which involves remembering the instructions of the teacher and then using these instructions to self-regulate. The final way that cultural tools are passed on to others is through collaborative learning, which involves a group of peers who strive to understand each other and work together to learn a specific skill.

The basic notion of Vygotsky's sociocultual theory of development is that learning and development happens in social interaction. It emphasizes the mediating role of social interaction on the construction of knowledge. It shapes the early childhood education curriculum and pedagogy in a significant way (Hedge and Cullen 2011). Vygotsky (1986) [17] believed that formal and conceptual knowledge emerges from a repertoire of daily experience and interaction with adults and peers. Children may work with tools or artifacts together with an adult, via language, signs and symbols; knowledge, cultural norms and rules are gradually internalized to be a part of the children's thinking. At different grade levels, the teacher needs to measure what the students cannot do by themselves but are able to do with help from the teacher or more skillful peers, which is defined as the zone of proximal development (ZDP).

The theory holds that individualistic-collectivist cultural distinction framework, though it has received criticism over its over-simplicity in categorizing sociocultual characteristics and their manifestations, helps us understand children's participatory and interactive behaviours (Johnson & Johnson, 2005).

Sociocultual values may affect children's sociability in peer interaction and collaboration (Anowar & Fohani, 2013) [4]. For example, the engagement level in peer interaction could be lower among Chinese students compared to students in North American cultures (Chen, French and Schneider 2006), but they may engage more in non-social activities. According to Vygosky's ZDP notion, more teacher involvement and coordination might be needed in collaborative learning in collectivist cultures compared to individualistic cultures. The relationship between Vygotsky Theory and this study is that the theory considered collaborative learning method requires learners to develop teamwork skills and to see individual learning as essentially related to the success of group learning which built the impetus of the current study.

Methodology

The research design for the study was quasi-experimental with pre-test, post-test non-equivalent control group design. The design depends upon the natural setting in which the researcher find himself. The non-equivalent control group was used because, it was natural to use existing classroom in a school for a study than to start creating groups through random selection (Jibrin, 2016).

Table 1: Symbolic Representation of Design for the Study

Group	Pre-test	Treatment	Post-test	Delayed post-test
EX_1	O_1	X	O_1	O_2
EX_2	O_2	X	O_2	O_2
CG_3	O_3	-	O_4	O_3

The population for the study comprised 525 SS II students in the 10 public secondary schools offering financial accounting in Gombe metropolis n 2017/2018 academic session. The researchers sampled three schools with population of 84 financial accounting students. The three schools selected were randomly assigned into the experimental and control groups. Thirty three (33) students from GDSS Nasarawo constitutes the experimental group I. Twenty eight (28) students from GDSS Bolari East formed the experimental group II while the 23 students from GDSS Pantami formed the control group.

Two instruments were used for data collection. The first instrument was Accounting Academic Achievement Test (AAAT). The instrument which contained 20 multiple choice questions was used for pre-test. The second instrument was Accounting Diagnostic Achievement Test (ADAT). The instrument which was multiple choice were adopted from WAEC past question papers was used to collected data post-test and retention ability of students. The instruments were subjected to pilot test. Data collected were analyzed using split-half method. A reliability coefficient of 0.76 was obtained. The difficulty index of pre-test and post-test stood at 75.87 and 78.77 respectively while the discriminating of pre-test was 0.6 and that of post-test 0.65..

A pre-test was administered to the students assisted by the subject teachers. The scripts of pre-test were marked by the researcher personally using WASC marking scheme. In the second stage, the teacher taught each of the groups trading profit & loss account using respective instructional strategy guided by drawn lesson plans. The instructions were 1.20 minutes weekly for the period of six weeks. At the end of the exercise, Accounting Diagnostic Achievement Test was administered. To test the retention ability of the three groups of students, post-test was reshuffled and re-administered 3 weeks after the post-test. The researcher employed the service of research assistants who administered and retrieved the answer booklet. The scripts were marked by the researcher using the WASC marking scheme. The whole exercise lasted in seven weeks.

The data collected from the study were coded into Statistical Package of Social Sciences. The package was used to run mean score and mean difference to answer the research questions. The decision rule for research question is as follows:-

Table 2: Decision Rule for Answering Research Questions

S/no	Score	Decision
1.	± 0.1 - 0.99	Very trivial difference (VTD)
2.	± 1.0 - 1.99	Trivial difference (DD)
3.	± 2.0 - 4.99	Moderate difference (MD)
4.	± 5.0 - 9.99	Large difference (LD)
5.	± 10 and above	Very large difference VLD)

In the test of the null hypotheses, ANOVA was used to test the null hypotheses at the 0.05 level of significance.

Results and Discussions

Results of Research Questions

The results of the research questions are presented in Table 1 and 2.

Research Question One

What are the differences among the post-test mean performances of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria?

Table 3: Mean difference among the protest mean performances of control and experimental groups in Financial Accounting.

Instructional strategy	Comparison	Mean Difference	Std. Error	Decision
Conventional method	2.00	-17.59	2.73	.Very large difference
	3.00	-20.45	2.95	Very large difference
Cooperative	1.00	17.59	2.73	Very large difference
	3.00	-2.87	3.03	Trivial difference
Peer-tutoring	1.00	20.45	2.95	Very large difference
	2.00	2.87	3.03	Trivial difference

The descriptive statistics used to answer research question one revealed the mean difference ranging from ±2.89 to ±20.45. The ±2.89 difference between the two experimental groups was very trivial. The mean difference between students exposed to conventional instructional strategy and those exposed to cooperative instructional strategy was ±17.59 and that of students

exposed to Peer-tutoring was ±20.45 in favour of those in the experimental groups. The results suggested that there was very large difference between the mean scores of students exposed to experimental groups and those in control group. The mean difference was in favour of students in experimental groups.

Research Question Two

What are the differences among the delayed post-test mean retentions of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria?

Table 4: Mean difference among the delayed protest mean performances of control and experimental groups in Financial Accounting

Instructional strategy	Comparison	Mean Difference	Std. Error	Decision
Conventional method	2.00	-15.24	2.94	Very Large difference
	3.00	-18.15	3.18	Very Large difference
Cooperative	1.00	15.24	2.94	Very Large difference
	3.00	-2.91	3.27	Trivial difference
Peer-tutoring	1.00	18.15	3.18	Very large difference
	2.00	2.91	3.27	Trivial difference

The result of research question two presented in Table 4. The mean difference between students exposed to cooperative instruction and those exposed to conventional strategy ±15.24 while the difference between students exposed to Peer-tutoring and those exposed to conventional method was ±18.15. The analysis suggested that the mean difference was very large. The mean retention difference between the two experimental groups which was ±2.91 suggested that trivial difference exists between the two groups. It therefore concluded that there was very large difference between the retention ability of financial accounting students in experimental groups those in control group in favour of students in experimental groups.

Results of the Hypotheses

Results of Test of null hypotheses are presented in Table 5 to 8.

Hypothesis One

There is no significant difference among the post-test mean performances of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria.

Table 5: Analysis of Variance among the post-test mean performances of secondary school students taught financial accounting using three difference Instructional strategies

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7203.202	2	3601.601	31.320	.000
Within Groups	9314.357	81	114.992		
Total	16517.560	83			

Table 6: Post-hoc Tukey HSD multiple comparisons among the protest mean performances of control and experimental groups in Financial Accounting

Instructional strategy	Comparison	Mean Difference	Std. Error	Sig.	Decision
Conventional	2.00	-17.59*	2.73	.000	Significant
	3.00	20.45*	2.95	.000	Significant
Cooperative	1.00	17.59*	2.73	.000	Significant
	3.00	-2.87	3.03	.614	Not Significant
Peer-tutoring	1.00	20.45*	2.95	.000	Significant
	2.00	2.87	3.03	.614	Not Significant

The analysis of variance (ANOVA) in Table 5 indicated the F-value of 31.320 and the p-value of.000 at the 0.05 level of significance. The result revealed that there was significant difference among the mean achievement of the three groups of the students in financial accounting. The hypothesis was rejected. The Tukey HSD multiple comparison in Table 6 revealed that the observed significant difference exist between each of the experimental group and the control group. The p-value of.000 obtained suggested that the difference was significant. The obtained p=.614 between the two experimental groups suggested that there was no significant difference**.**

Hypothesis Two

There is no significant difference among the delayed post-test mean retentions of secondary school students taught financial accounting using cooperative, peer-tutoring and conventional instructional strategies in Gombe metropolis, Nigeria

Table 7: Analysis of Variance among the delayed post-test mean performances of secondary school students taught financial accounting using three difference Instructional strategies

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5557.874	2	2778.937	20.867	.000
Within Groups	10787.126	81	133.174		
Total	16345.000	83			

Table 8: Post-hoc Tukey HSD multiple comparisons among the delayed protest mean performances of control and experimental groups in Financial Accounting

Instructional strategy	Comparison	Mean Difference	Std. Error	Sig.	Decision
Conventional	2.00	-15.29*	2.94	.000	Significant
	3.00	-18.15*	3.18	.000	Significant
Cooperative	1.00	15.24*	2.94	.000	Significant
	3.00	-2.91	3.26	.647	Not Significant
Peer-tutoring	1.00	18.15*	3.18	.000	Significant
	2.00	2.91	3.26	.647	Not Significant

The analysis of difference among the mean retention among the three groups of students presented in Table 7 revealed the F-value of 20.867 and p=.000 at the significant level of 0.05. The observed p-value suggested that there was significant difference among the mean retention ability of the three groups of students. The hypothesis was therefore rejected. The Tukey HSD multiple comparisons in Table 8 indicated that the observed significant difference is between each of the experimental groups and the control group where p=.000. The mean difference between the two experimental group was not significant, the p-value obtained was.647.

Discussions of the Findings

The results of research question one and null hypothesis one shows that cooperative teaching method and peer tutoring instructional strategy improves the academic achievement of secondary schools in financial accounting. has positive effect on the performance of financial accounting students. The result of the study was in line with that Shimazoe and Al-drich (2010); Anowar and Rohani (2010) who reported that there was high level of achievement difference between students taught circle geometry using cooperative learning strategy and conventional learning strategy. Similar studies conducted by Adamu and jibrin (2012) [13] indicated that cooperative learning is more effective in comparison to traditional methods for improving academic achievement. The study conducted by Anowar and Rohani (2013) further revealed that students taught mathematics using cooperative teaching method and peer tutoring performed better than those in the traditional method. Similar study conducted by Gull and Shehzad (2015) [8] also shows that interactive teaching strategy has positive effect on students' academic achievement.

The finding of research question two and test of corresponding null hypothesis revealed that the retention ability of students taught financial accounting using cooperative and peer tutoring instructional strategies was better than those in the traditional teaching method. The finding of the study further affirmed the earlier study of Jackson (2012) [11] who reported that adoption of good and thought provoking teaching methods, under conducive learning environment, facilitate better learning and retention of learnt materials by students. This agrees with the findings of Jibrin and Zayum (2012) [13], Hoidn and Karkkainen (2014) whose studies shows that students taught using interactive method (cooperative and peer tutoring inclusive) retained more knowledge than those taught using conventional teacher centered teaching method. Similarly, research by Harpiansi (2014) [9] revealed that interactive teaching strategy have higher recalling ability than those taught using other instructional strategies. Adamu and Usman (2017) [3] opined that students taught entrepreneurship education using interactive teaching method performed better and retained more knowledge in the post-test scores than those taught using lecture teaching method

Conclusion and Recommendations

The results reveal that there was students taught principles of accounting using cooperative and peer tutoring teaching method performed significantly better than those in the control group. Evidences from the research work tend to support the fact that cooperative and peer tutoring teaching methods have comparative advantage over the use of conventional lecture method in facilitating academic achievement of accounting students. To address the current trend of dismal performance students in principles of accounting, the researchers recommended that financial accounting teachers should incorporating cooperative and peer tutoring teaching methods in principles of accounting classroom in Gombe metropolis.

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