

**COMPARATIVE EFFECTS OF COOPERATIVE AND GUIDED DISCOVERY
METHODS ON SECONDARY SCHOOL STUDENTS' PERFORMANCE IN
ACCOUNTING IN PLATEAU STATE, NIGERIA**

BY

TITILAYO TOPE OLARINOYE

**DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION, AHMADU
BELLO UNIVERSITY ZARIA, NIGERIA**

AUGUST, 2015

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Titilayo Tope OLARINOYE

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**A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES,
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EDUCATION DEGREE**

**DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION, AHMADU
BELLO UNIVERSITY ZARIA, NIGERIA**

AUGUST, 2015

DECLARATION

I declare that this thesis entitled Comparative Effects of Cooperative and Guided Discovery Methods on Secondary School Students' Achievement in Accounting in Plateau State, has been carried out by me in the Department of Vocational and Technical Education. The information derived from the literature has been acknowledged in the text and the list of references provided. No part of this thesis was previously presented for another degree or diploma.

TITILAYO TOPE OLARINOYE

Date

CERTIFICATION

This thesis entitled COMPARATIVE EFFECTS OF COOPERATIVE ANDGUIDED DISCOVERY METHODS ON SECONDARY SCHOOL STUDENTS' ACHIEVEMENT IN ACCOUNTING IN PLATEAU STATE, NIGERIAby TITILAYO TOPE OLARINOYE meets the regulations governing the award of the degree of Master of Business Education Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literacy presentation.

PROF. A.A. UDOH
Chairman, Supervisory committee

Date

DR. S.S. AMOOR
Member, supervisory committee

Date

PROF. A.A UDOH
Head, Department of Vocational and
Technical Education

Date

PROF. A. Z. HASSAN
Dean, school of Postgraduate Studies

Date

DEDICATION

This work is dedicated to the ALMIGHTY GOD and to my husband MR OLAMILEKAN ODUMASA.

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LIST OF ABBREVIATIONS

AAT	Accounting Achievement Test
ANOVA	Analysis of Variance
CS	Condition Stimulus
NECO	National Examination Council
UCR	Unconditional Response
UCS	Unconditional Stimulus
WAEC	West Africa Examination Council

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OPERATIONAL DEFINITION OF TERMS

The following terms are defined as they were used in this study.

Cooperative method: this is a method of teaching which involves the use of small groups so that students work together to maximize their own and each other's learning.

Demonstration method: It is a traditional classroom strategy whereby the teacher is called the demonstrator. It is used in portraying ideas such as defining words and it requires observation on the part of the students. For the purpose of this study, demonstration method was used as the control method.

Guided discovery method: It is an inductive approach which involves probing, finding out, investigating, analyzing, searching, experimenting, collecting or validating knowledge and information.

ABSTRACT

This study investigated the relative effectiveness of two instructional methods, namely, Cooperative, and Guided Discovery methods on students' performance in Accounting in senior secondary schools in Plateau State. Five research questions were raised to guide the study, five hypotheses were formulated and tested at 0.05 level of significance. Quasi-experimental design was used for the study. The population for the study comprised of all the SSII students offering Accounting in Government Senior Secondary Schools with a population of 1,540 in plateau state of Nigeria. Two schools that offered Accounting were selected as sample for the study. The instrument used for data collection was the Accounting Achievement Test. Students in the experimental groups were taught using the two methods separately. The experiment lasted for four weeks after which a post-test was administered. Data were analyzed using the mean, standard deviation, and t-test. The result of the study indicated that students taught using guided discovery method show significant achievement than students in cooperative and control group. However, the performance score of students in control group and those in cooperative group does not significantly differ. It can be concluded that while cooperative method enhance students' performance, guided discovery method of teaching enhances performance significantly (irrespective of the gender or location) than any of the method used in the study. This study therefore recommended that the secondary school sector should be improved through training of teachers in the use of effective instructional method in the classroom, especially in the use of Guided Discovery in accounting instruction in government senior secondary schools in Plateau State.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The process by which people obtain knowledge, skills, values and attitudes is called education. The most common way to acquire a sound education is to attend school. The report and recommendation of the curriculum conference of 1969 formed the basis for the National policy on education for Nigeria, which is the country's educational policy document. In this document, Federal Government placed emphasis on Vocational and Technical Education in order that the graduates may be equipped with skills, knowledge and attitudes for gaining employment or for becoming self employed (National policy, 2004). Part of the efforts towards achieving these objectives was that the range of courses in Vocational and Technical institutions would be widened to include Accounting, Office Education and Distributive Education (National policy,2004).

Accounting, a core subject in Business Education is offered in both senior secondary schools and tertiary institutions in Nigeria. According to Ekponko, (1986) big and small organizations, government as well as individuals in their daily activities deal with money and monetary transactions with one another. Therefore the need for accounting cannot be over emphasized especially in relation to keeping of records. According to Asaolu (2002), Financial accounting is the process of recording, classifying, selecting, measuring, interpreting, summarizing and reporting financial data of an organization to the users for objective assessment and decision making. Accounting data are processed into accounting information through the use of accounting principles and conventions. The accounting principles are known as "generally accepted accounting principles." They are the basic fundamentals which guide accountants in recording,

appreciating and assessing accounting information as well as the preparation and interpretation of financial statements. The accounting information system is proven, time honored, and its format is universally understood. Books of accounts prepared by accountants in one part of the world are easily understood by their counterparts in other parts of the world because the information system is based on principles that are widely accepted and globally used. According to the National Examination Council (NECO 2004), the objectives of studying financial accounting at senior secondary school are as follows:

1. To enable senior secondary school students appreciate the basic rules, functions and principles of accounting
2. To lay proper foundation for further study of accountancy and allied courses at higher level and
3. To enable the students understand basic accounting principles, practice and their applications to modern Business activities.

To achieve the above stated objectives, financial accounting teachers employ various instructional methods in the classroom. According to Cantrell (2004), teaching methods are in a continuum, ranging from Cooperative to Guided discovery. Cooperative learning method is the instructional use of small group so that students work together to maximize their own and each other's learning. Students work together to obtain group goals that may not be obtained by working alone or competitively.

Demonstration method of teaching is conventional and widely used in the classroom. Also, Cantrell (2004) reported the characteristics of Demonstration method to include the following: leader-centered, leader-active, learner passive and content

emphasis. Examples of Demonstration methods are lecture, discussion, exposition, guest speaker, panel discussion, storytelling, dramatization, and reading of textbooks, manuals or handouts. The Guided discovery method is an approach where the learner generates his/her own form of information. It is characterized by the following features: learner-centered, leader-facilitated, learner-active and learning process emphasis.

In general, cooperative is considered to be group centered with an emphasis on team learning, demonstration is considered to be leader centered with an emphasis on content delivery while guided discovery is considered learner centered and leader facilitated with the emphasis on the process of learning. In a typical learning situation this suggests that for cooperative learning classroom, students work together to obtain group goals that may not be obtained by working alone or competitively, for demonstration, the leader is actively involved (for example lecturing, reading aloud, showing a video) and the learner is passively taking in the information (for example listening, reading an overhead, watching a video).

In contrast to cooperative method, learners engaged in guided discovery are actively involved (for example: conducting investigations, processing information and data) while the leader's role is to help facilitate the process of learning (Cantrell 2004). Examples of guided discovery methods are problem solving and inquiry methods. Inquiry learning is a method of learning that has the advantage of allowing learners to use process skills to generate content information. It actively engages learners in first hand real world learning. It encourages learners to explore the content through the use of concrete experiences. Teachers are released from the role of authority and giver of knowledge to

become facilitator and fellow investigator. This replaces the notion that the teacher must know all the answers.

Unfortunately, more than twenty (20) years after the implementation of Vocational and Technical Education programme in this country, it is yet to enjoy its benefits fully (Sambo,2005). Also, according to Enemali (1994), it is the inability of Technical Education programme to adequately respond to the needs of students for employable skills that has resulted in the production of a pool of inadequately prepared indigenous manpower for effective participation in the economic, social and political life of Nigeria. Nwofor, (2002) in his study found that the prevailing teaching method predominantly employed by most accounting teachers in Nigeria is teacher's-centered involving only telling, and is perceived to be narrow in orientation, teacher dominated and does not encourage students to be creative. Among the two methods of teaching accounting identified above, the method that is most effective is what appears not to have been empirically determined at least in Nigeria and Plateau State in particular. All these variables constitute a major sfocus for this study.

1.2 Statement of the Problem

According to Ogunu (2000), poor academic performance has been identified as a problem in Nigerian secondary school public examinations. For example, WAEC (2000) analysis of percentage performance of candidates in twenty popular subjects in West African Senior Secondary Certificate Examination for 1998, 1999, and 2000 revealed 52.48%, 58.38% and 51.21% percentage failure in financial accounting. Akintelure (1998) blamed the problem on accounting teachers' insensitivity to the nature of financial accounting when planning instructional activities in the classroom. According to her,

financial accounting is not one of the subjects that can be mastered by mere memorization of the basic rules. It requires total determination, sound theoretical knowledge and intensive practice in application. The poor performance has been traced to several factors which may include the methods of teaching employed by the teachers which is not in line with the modern methods.

The researcher of this current study has interacted with teachers and students directly involved on what they felt were the reasons for the failure of accounting students in their final examination. Based on the interaction, the students and teachers gave different opinions. Some students said they do not like a subject that involves calculation; some said they do not like the way and manner with which they were taught the subject while others blamed the failure on their teacher's presentation of the subject. The teachers on the other hand said the failure was due to students' lack of interest and unseriousness in the subject. Some blamed the Government and school authority for refusing to provide adequate instructional materials with which they can effectively teach the subject using different methods.

All these indicate that there is a problem that needs to be properly addressed. This trend could affect the overall performance of accounting students in Plateau State if it is not checked. It is therefore, based on these problems that the researcher explored by means of empirical evidence, to establish the most effective method among the cooperative and guided discovery methods that will lead to greater achievement of accounting students in senior secondary schools in Plateau State using demonstration method as a control variable.

1.3 Objectives of the Study.

The major purpose of this study was to compare the effects of Cooperative and Guided Discovery methods on secondary school students' achievement in accounting in Plateau State. The specific objectives were to;

1. determine the effect of cooperative method on students' academic performance in accounting in government secondary schools in plateau state.
2. determine the effect of Guided discovery method on students' academic performance in accounting in government secondary schools in plateau state .
3. compare the effects of cooperative and guided discovery methods on students' academic performance in accounting in government secondary schools in plateau state.
4. determine the effect of cooperative method on the academic performance of male and female students in accounting in government secondary schools in plateau state
5. determine the effect of Guided discovery method on the academic performance of male and female students in accounting in government secondary schools in plateau state

1.4 Research Questions

In line with the specific objectives, the following research questions were formulated to guide the study.

1. What is the difference in the academic performance of students taught accounting using cooperative and demonstration (control) methods?
2. What is the difference in the academic performance of students taught accounting using guided discovery and demonstration (control) methods?

3. What is the difference in the academic performance of students taught accounting using cooperative and guided discovery?
4. What is the effect of cooperative method on the academic performance of male and female students in accounting in government secondary schools in plateau state?
5. What is the effect of guided discovery method on the academic performance of male and female students in accounting in government secondary schools in plateau state?

1.5 Research Hypotheses

In line with the research questions, the following null hypotheses were formulated:

- H₀₁ There is no significant difference in the academic performance of students taught accounting using cooperative and demonstration (control) methods.
- H₀₂ There is no significant difference in the academic performance of students taught accounting using guided discovery and demonstration (control) methods.
- H₀₃ There is no significant difference in students' academic performance when cooperative and guided discovery methods were used to teach accounting.
- H₀₄ There is no significant difference in the academic performance of male and female students taught accounting using cooperative method.
- H₀₅ There is no significant difference in the academic performance of male and female students taught accounting using guided discovery method.

1.6 Significance of Study:

The findings of the study will be significant and most beneficial to students, teachers, curriculum planners and Plateau state policy makers.

Students will benefit from this study in the sense that the most effective method of teaching accounting revealed by this study, would be used in the classroom to teach the students accounting so as to make the students perform better academically in their final examination. The findings of this study will be of assistance to practicing accounting teachers to select and use the most effective methods of teaching accounting in Plateau State senior secondary schools, thereby exposing the students to meaningful learning.

The study will be of significance to curriculum planners so as to enable the curriculum planners consider the most effective method of teaching accounting revealed by this study when designing a curriculum for accounting. And also to advise text book authors to put into consideration the method revealed by this study when writing accounting textbooks.

Lastly, the findings of this study will also be of assistance to Plateau State policy makers in the area of Vocational and Technical Education to include appropriate in-service training programme and encouraging accounting teachers to attend seminars, workshops and conferences on the use of teaching methods for business subjects and accounting in particular.

1.7 Basic Assumptions of the Study

To test the foregoing hypotheses, the following assumptions have been made:

I Cooperative method has effect on students' academic performance in accounting.

- ii. Guided discovery method has effect on students' academic performance in accounting.
- iii. Different instructional methods (cooperative and guided discovery) have different effect on students' academic performance in accounting
- iv. Male students taught accounting using the cooperative method perform better than their female counterpart.
- v. Male students taught accounting using the guided discovery method perform better than female students taught using the same method.

1.8 Delimitation of the Study.

This research study was delimited to the comparative effect of two instructional methods (cooperative and guided discovery) on secondary school students' performance in accounting because these were the variables being emphasized by this study. This study was also delimited to SSII students of two government senior secondary schools in plateau state because each of these schools offered financial accounting as a commercial subject since its inception and the teaching staff of these schools were of high quality with a fairly long teaching experience. The research was also delimited to financial accounting because it is one of the vocational subjects which is a core subject for all commercial students in these government schools. At the same time, this study was delimited to the Final Account of a sole trader which consists of Trading account, Profit and Loss account and Balance sheet. This topic of coverage was extracted from the financial accounting syllabus for senior secondary school II because it is a topic that requires intensive practice in application.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

An extensive search was made to obtain material which was suitable in developing skills as they relate to teaching and learning of accounting. The literature reviewed represented some of the experts' views concerning the application of the three teaching methods in developing skills in accounting among the students. In order to give credence to the study, the chapter is thus organized under the following sub-headings.

- 2.1 Theoretical framework
- 2.2 The Concept of Teaching and Learning Business Subjects
- 2.3 General Guides to Teachers of Accounting
- 2.4 Methods of Teaching Accounting in Secondary Schools
- 2.5 Cooperative Method
- 2.6 Demonstration Method
- 2.7 Guided Discovery Method
- 2.8 Gender and School Location as Factors of Achievement in Schools
- 2.9 Empirical Studies.
- 2.10 Summary of Literature Reviewed

2.1 Theoretical Framework

Cognitive learning theory and Operant conditioning theory which this study depends on is rooted in the work of Ivan Pavlov and B.F. Skinner. According to Fritscher, {2009} cognitive learning theory and operant conditioning theory are learning theories that explain human behavior by understanding the thought processes. The theories postulate that humans are logical beings that make the choices that make the

most sense to them. The theories focuses on different aspect of instruction and how those aspects can either be facilitated or hindered by learning. That means that if students are thought by particular means like cooperative and guided discovery method, it enhances learning depending on the way it is taught. These theories are significant to this study in that if students are taught financial accounting using cooperative and guided discovery method, it will enhance their performance. The theoretical framework of this research study was therefore based on Ivan Pavlov and B.F. Skinner theories on learning because the theorists talked about learning and the study is focused on learning.

Pavlov, a Russian psychologist has contributed much to the respondent conditioning mode of learning. Respondent conditioning termed classical conditioning by Pavlov, is the patterning of a reflex to a neutral stimulus which under normal circumstances cannot cause a reflex to occur. According to Sam, (1990) Pavlov used meat as his unconditioned stimulus (UCS), for this cause the dogs to salivate (UCR) in his experiment where dogs were used as subjects. For the condition stimulus (CS) he used the sound of a bell which under normal circumstances cannot cause the animals to salivate. He began by presenting a dog with meat, which produce salivation on each occasion. His next step was to ring the bell a few seconds before presenting the meat, the dogs continued to salivate. The dogs salivated to the sound of the bell alone and he concluded that learning had been established.

B.F Skinner an American has contributed much to operant conditioning theory of learning. He used a device known as Skinner box which was sound proofed so that the organism, a pigeon, rat or mouse, placed in the box will not attend to outside stimuli. The box was designed in such a way that when inside was press a pellet of food was released

into the box. Skinner began his experiment by placing a hungry organism, a rat inside the box. The rat being hungry, indulged in a series of operant behavior by pecking the walls and scratching the walls in its search of food. Accidentally it pressed the lever and immediately a pellet of food was released into the box which it ate. It continued making such unconditioned responses till it by chance again pressed the lever to release food. After a series of such random activity, the rat got to the point where it presses the lever to obtain food. To test that learning has occurred it was placed in the box again where it was hungry. Instead of indulging in random activities it went straight to press the lever, learning had occurred. The rat behavior had been modified from a state of not pressing the lever when hungry, but rather indulges in random activities to a new state of pressing the lever when hungry and curtaining its random actions. The followings are various ways by which learning can take place:

Ways of learning

The word “learning” has been conceptualized in so many ways by scholars. Among them, Callaway (1992) described learning as a complex and dynamic process of acquisition of knowledge and skills to aid further understanding. He went on to observe that it takes a long period of time to produce or effect important changes in human behavior and therefore, learning experiences are not static. Such learning experiences frequently undergo the relatively permanent change in behavior that occurs as a result of practice or experience. This definition has three (3) important elements.

- i. Learning is a change in behavior for better or worst
- ii. It is a change that takes place through practice or experience
- iii. The change must be relatively permanent.

Miller (1990) identified three (3) ways in which learning can take place. These are:

- i. Learning by trial and error, trial and error involve a repetition of action in order to find a solution to a particular problem,
- ii. Learning by observations. According to him, this involves a situation where the learner watches at others performing an act which can provide visual clue to the solution of the problem.
- iii. Learning by doing. Many teachers are too verbal in their method of teaching. Words, according to Miller,(1990) are important and no teacher can do without them, but words usually convey only part of the meaning. For a student to acquire the practical skills, they must participate physically in the learning by doing. Other learning types includes the following:

Learning Types

Learning according to Nduanya (1989) is a relatively permanent change in behavioral tendency, and it is as a result of reinforced practices. Although there are explanations of the levels of learning, one of the most comprehensive is provided by Nduanya (1989), which falls under eight (8) categories. These are:

- i. **Signal learning:** it is also referred to as classical conditioning. This is generally a reflex or inborn response to a stimulus in the environment. A classical example is the Pavlov experiment in which a dog salivates at the sight of food accompanied by the ringing of a bell. Repeatedly, the dog salivates at the sound of a bell which has become a signal for the expectation of food. Signal learning is applicable in preparation for teaching students, where the teacher requires the setting up of an environment to stimulate learning.

- ii. **Stimulus response learning:** this is also referred to as operant conditioning. This type of learning according to him results from trial and error. The environment is manipulated by providing certain kinds of reward or reinforcement that will result repeatedly in the operation of particular activities. Over a time, the frequency and efficiency of the operation of the activities will increase with the regularity of reinforcement, which follows consequently; practice and performance which is where trial and error become increasingly perfected.
- iii. **Chain of behavior learning:** this represents the linkage of two or more units of stimulus response in a single activity. In many types of activities, learning starts from simple to complex activities. For example, in preparing the balance sheet of a sole trader or partnership or limited liability company, requires first, the ability to open the "T" account, post items to the liability and also to the assets side accurately.
- iv. **Verbal association learning:** this is the type of learning signified by associating verbal unit with concrete object or abstract ideas. For example a child at first associates all round objects with "ball" or all four-legged creatures with "animals". Subsequently, they learn to associate abstract ideas with other objects as in the case of identifying a red base, a black pen, a white dog etc. verbal association forms the bases for skill acquisition.
- v. **Multiple discrimination learning:** this is a higher level of intellectual acquisition whereby the students are able to distinguish among objects which are common attributes. For example, cash book have common element, but cash books of profit making organizations are different from cash books of non-profit making organizations.

- vi. **Concept learning:** concepts according to Nduanya (1989) are described as key words or phrases or mathematical symbols representing a class of objects. For example “debit” which represents money the organization has received. Or “credit” which represents money that the organization has paid out.
- vii. **Principles learning:** this is the combination of two (2) or more concepts to create a more conclusive meaning or methodology or process, for example, if goods are sold, money is received. Here the three (3) concepts of goods sold and money are combined to give meaning to experience.
- viii. **Problem solving:** this involves the use of concepts, principles and generalization to achieve other goals. For the performance of some tasks require a total organization of knowledge already acquired to establish new knowledge, and form the basis of scientific thinking. Generally most complex learning originates from simple types. Thus, there are pre-requisites learning activities that must be acquired before a higher learning can be achieved and improved. .

2.2 Concepts of Teaching and Learning Business Subjects.

In trying to understand how individuals learn new skills and ideas, it is necessary to know what part the teacher plays and what part the learner plays. The teacher must carefully plan his own activities and those of his learners. These ways and means of teaching according to Osuala (2002) and Obi (2005) are called teaching methods. The teacher cannot select these methods at random if his teaching has to be successful. He will not know which method to select or how to use these, unless he first understands what is happening to the learner when the methods are used. According to Osuala (2002) and Obi (2005) before a teacher begin to plan learning experience for example in

accounting, he should consider the following fact which underlay all attempts of individuals to learn new skills.

- i. We learn more, when we are ready or have the interest to learn. When we have a strong purpose, a well fixed reason for learning something.
- ii. The more often we use what we have learnt, the better we can perform or understand it. If the things we have learnt are useful to us for example, skill acquisition in business subjects, so we are satisfied with what we have accomplished, we retain better what we have learnt and are more likely to desire to learn more. Learning something new is made easier if the learning can be built upon something we already know. It is better to start from the simple steps, which are related to things we can now do or already understood and proceed to new and more complex task.

The keeping of systematic records of accounts dates back to the middle age. The Babylonians, Egyptians, Greeks and Romans were the pioneers. Accounting was learnt by apprenticeship in the middle age. Later in colonial history, private teachers started giving instructions in reading, writing and casting accounts. These teachers started private schools later. One of those schools was established in Plymouth, New England in 1655 by one Mr. Morton (Obi, 2005). What an accounting teacher wants from his students is their ability to perform manual skills. This involves the movement of their hands, coordinated with eyes and sometimes their ears (Miller, 1990) careful consideration reviews that when such skills are learned they become fixed muscular habit.

Financial accounting is part of the business studies curriculum in the group of vocational subject. Accounting to WAEC (2004), financial accounting is the most popular subject that students offer among the vocational elective subject. The keeping of accounting books is essentially an act and the aims of those who study the subject are essentially utilitarian. According to Osualu (2002), “financial accounting is the process of recording, classifying, selecting, measuring, interpreting, summarizing and reporting financial data of an organization to users for objective assessment and decision making”. Accounting data are processed into accounting information through the use of accounting principles and conventions. The accounting principles are known as “generally accepted accounting principle”. They are the basic fundamentals which guides accountant in recording, appreciating and assessing accounting information as well as the preparation and interpretation of financial statement. The accounting information system is proven, time honored and its format is universally understood. Books of account prepared by accountant in one part of the world are easily understood by their counterpart in other part of the world because the information system is based on principle that are widely accepted and globally used.

The main objective of teaching accounting is not only to develop the intellectual skills of students but also to provide them with opportunities to work individually, in pairs, small and large groups. Students in addition to intellectual skills also need to equip themselves with professional skills like writing, speaking out, presenting, computer and information literacy, decision making and term work. In order to achieve this, new concepts, strategies and methodologies have to be introduced in the teaching of accounting. In the old paradigm teachers were consider as the sole source of information

and students approached them for every possible solution for problems encountered. However, in the modern paradigm the teachers are considered as facilitators and mainly provide their services in the form of guidance to students. This modern approach allows room for students to develop their accounting skills at their own pace and seek information as much as required, thus providing opportunities for self-development. The teaching strategies used must therefore be in line with the contextual learning theory where the aim of education is the integration of content learnt with the real world experience.

Institution across the nation are responding to political, economic, social and technological pressure to be more responsive to students need and more concerned about how well students are prepared to assumed future societal roles. Schools are already feeling the pressure to lecture less, to make learning environments more interactive, and to use collaborative learning strategies when appropriate. According to Meador (2006) instructional strategies include all approaches that a teacher may take to actively engage students in learning. These strategies drive a teacher's instruction as they work to meet specific learning objectives. Effective instructional strategies meet all learning styles and development needs of the learners. Instructional strategies determine the approach a teacher may take to achieve learning objectives. They are used by teachers to create learning environments and to specify the nature of the activity in which the teacher and the learner will be involved during the lesson. This will further be discussed under the subsequent paragraph.

2.3 General Guides for Teachers of Accounting

Financial accounting teachers are expected to employ various instructional strategies in the classroom. Osuala (2002) suggest the followings points as general guides to teachers of accounting for effective teaching and learning in their classes

- i. The teacher should have a sound academic background in accounting to be able to impart knowledge adequately.
- ii. The accounting teacher should be knowledgeable in the appropriate methodologies of teaching accounting and should be able to select them appropriately.
- iii. The accounting teacher should always insist on using teaching material appropriately.
- iv. He should encourage his student to engage in repeated actual practice and drill in the subject to be able to acquire skills.
- v. The accounting teacher should be hard working. He should not be tired of giving assignments and tests repeatedly.
- vi. The accounting teacher should ensure that the environment is comfortable for learning. Fresh air, good lighting, furniture conveniently arranged thereby minimizing possible distraction.
- vii. The accounting teacher should be able to communicate very well. He should be able to speak the language of the subject but his vocabulary should be adjusted to the student level.
- viii. The teacher should be generally friendly, firm and discipline too.

- ix The accounting teacher should not only appreciate the usefulness of the computer in data processing but should be able to apply his knowledge of the computer and other electronic information techniques such as the internet, electronic mail (E mail) etc to teach his students this will update the teacher and the students in business information technology.
- x. The accounting teacher should introduce his subject to new students in manner that will:
 - a. Make the students develop interest in the subject.
 - b. Build confidence and ability to understand and succeed in the students
 - c. Make the student understand that the teacher has personal interest and concern for them to succeed in the subject.

In addition to the learner and the teacher, the teaching-learning process according to Majasan (1995) is affected by the following factors, such as the organization for teaching, repetition and skill development and the learning environment.

- i. Organization for teaching: according to Miller (1990) the manner in which an instructional programme is organized has a substantial influence on learning. Advanced planning is an essential component to the effective organization of instruction. There must be clear direction for learning. The activities being learnt must be meaningful to the learners. There must be a consistent system of evaluation.
- ii. Repetition and skill development: repetition and guided practice are necessary in skill development. Practicing how to prepare the trading profit and loss account for example requires the repetition of the processes to enable the learner to understand. When these processes are repeated, the learner has developed skills.

- iii. Learning environment: another factor that influences the teaching-learning process is the setting where teaching-learning takes place. Regardless of the nature of the learning environment, physical comfort according to Osuala. (2002) is a primary factor in effective learning.

Finally, teaching-learning is influenced by the teacher. Physical differences among individual teachers have no influence on the learners, but factors related to personality and behaviors of the teachers have positive or negative influences on his students.

2.4 Method of Teaching Accounting in Secondary Schools

In order to achieve the objectives of studying financial accounting in senior secondary school, diverse methods need to be employed. According to Obi (2005) a method is the procedure by which the teacher meets the learner at his level, starting with his interest and his problems, and then establishing conditions that enable him to proceed to his set goals in the most possibly effective manner. Ogwo (1999), Nwofor (2002), Osuala (2002), Obi (2005) have identified cooperative, demonstration and guided discovery as instructional strategies to be used for teaching accounting in secondary school in Nigeria. According to Majasan (1995) methodology of instruction is the theory of the nature, place and kinds of method used in teaching. It is the core of pedagogy of the teaching profession. It is also the main tools of teacher with all other tools as support to make him affective. There are two method of teaching. These are:

- i. Formal teaching: this includes lecture and complete handling by the teacher without involving the students

- ii. Informal teaching: this involves participation of the students, for example, team project, seminar, assignment etc.

Teaching involves the teacher, the learner, the subject been taught and the environment in which it takes place. The method of teaching accounting in Nigeria recommended by Nwofor (2002), Obi (2005) and Osuala (2002) are the cooperative, demonstration and the guided discovery as briefly explained in subsequent paragraphs.

2.5 Cooperative method.

Teacher has the opinion to structure lessons competitively, individualistically, or cooperatively. The decisions, teachers make in structuring lesson can influence students interactions with knowledge skills and attitudes (Carson, 1990) in a completely structured classroom, students engage in a win or lose structure in an effort to determine who the best student in the class is (Johnson, David and Smith 1991). In competitive classroom, students perceive that they can obtain their goals only if the other students in the class fail to obtain their own goals (Johnson, Johnson and Holubec, 1993). In cooperative learning classroom, students work together to obtain group goals that may not be obtained by working alone or competitively. According to Smith (1991) and Uga, (1996) defined cooperative learning methods as the instructional use of small groups so that students work together to maximize their own and each other's learning. In this classroom structure, students discuss subject matter, help each other to learn, and provide encouragement for member of the group (Johnson, Johnson and Holubec, 1993). In a cooperative learning situation, interaction is characterized by positive goals interdependence with individual accountability. According to Rogers and Johnson (1997) students are more positive about school, subject areas and teachers when they are

structured to work cooperatively. Students are more positive about each other's when they learn cooperatively than when they learn alone, competitively or individualistically regardless of differences in ability, ethnic background, handicapped or not (Rogers and David 1989). According to Mckeachie (1986), students are more likely to acquire critical thinking skills in small groups as opposed to listening.

Essential Elements of Cooperative Learning.

The essential element of cooperative learning according to Smith (1991) are well structured cooperative learning groups which are differentiated from poorly structured ones on the bases of five elements:

i. Positive interdependence:

Student must believe that they are linked with other in a way that one cannot succeed unless the other members of the group succeed. They have common goal, share resources or a division of labor.

ii. Face to face promotive interaction:

Students are expected to explain orally to each other how to solve the problem or problems.

iii. Individual accountability:

The purpose of cooperative learning is to make each member a strong individual in his or her own right. Students learn together so that they can subsequently perform better as individuals. To ensure that each member is strengthened, students are held individually accountable to do their share of the work.

iv. Team work skills

Contributing to the success of a cooperative effort requires team work skills. Students must have the needed leadership, decision- making and conflict management skills. These skills have to be taught just as purposefully and precisely as academic skills.

v. Group processing

Groups used to describe what member actions are helpful and unhelpful and make decisions about what to continue. Such processing enables learning groups to focus on group maintenance, facilitate the learning of collaborative skills, ensures that members receive feedback on their participation and remind students to practice collaborative skills consistently.

Advantages of Cooperative Learning Method.

Andrew (1997) and Ehiamentolor (1990) enumerated three advantages of cooperative learning method as:

- i. The frame of references is looked after by the group as a whole.
- ii. Students learn from each other. This fosters cooperation among the students in the group.
- iii. A group of students can collectively advance their level of thinking.
- iv. Cooperative learning increases student's retention of information (Abu and Flower 1998)

Disadvantages of Cooperative Learning Method.

Andrew (1997) also enumerated the following disadvantages:

- i. It makes lazy students within the group to earn cheap marks
- ii. It makes individual assessment of the students by the teacher difficult.

iii. Cooperative learning method is not an efficient method of imparting accounting skills to the students because is just facilitator.

2.6 Demonstration Method (Control)

The demonstration method of teaching is conventional and widely used in the classroom. The characteristics of demonstration method include the following: leader centered, leader active, learner passive and content emphasis. Ogwo (1999) define demonstration as the most effective method in teaching skill or performance oriented subjects in Vocational and Technical Education. According to him, the method is exalted by example and activity by the teacher while the learners observe and listens to the teacher.

Osuala (2002) defined it as the method in which the teacher actually performs the operation of a machine or does some type of job. It is particularly appropriate for introducing the student to machine operation or to office routine requiring manipulating skills. Demonstration according to Okoro (1999) is an essential teaching method in Vocational and Technical Education. It consists in showing the learner how the new skills should be performed. Specific procedure including manipulative skills can be presented more efficiently by a step by step demonstration (Adigun, 2003). According to Adigun (2003), demonstration remains the major teaching method in those subjects including accounting in which a high degree of accurate and skills for performance is required. Accounting teachers should use demonstration when explaining the principles showing the procedural step in preparing the final accounts and balance sheet of an organization.

Careful planning is essential for preparing for demonstration by the accounting teacher Osuala, (2002) and Adigun (2003) suggested the following to be observed by the teacher when planning for demonstration.

- i. Discuss the need for the demonstration.
- ii. Demonstrate one step at a time, by emphasizing the key points.
- iii. Encourage the students to ask questions.
- iv. Limit the demonstration to those activities that can be understood on time.
- v. Summarizing the procedure at the end of the demonstration.
- vi. Let one or two students perform the operation while other students watch.
- vii. Giving all the students an opportunity to perform the operation when necessary.
- viii. Be sure that there are no distracting influence which will prevent the leaner from directing their full attention to the teacher.

Types of Demonstration:

Okorie (2001) enumerated three (3) types of demonstration method that are useful to the teachers of vocational and technology education. They are as follows:

- i. The class demonstration.
- ii. The group demonstration.
- iii. The individual demonstration.

Importance of Demonstration

Demonstration increase students understanding of the concept demonstrated. Okorie (2001) enumerated the seven (7) importance of demonstration for the vocational and technical teachers' these are:

- i. It ensures that all the human sense of sight i.e. seeing, the sense of hearing, the sense of

feeling and the sense of memory of recall are in place.

- ii. It helps to motivate students, especially when skilled teachers carry it or use it in the class. This helps in catching student's attention.
- iii. The participating nature of demonstration method helps effective communication amongst students, for no effective learning will take place without two-way traffic approach.
- iv. It saves time and energy, especially for the teacher.
- v. The method helps to enhance the prestige of the teacher, as students get convinced of the teacher's command of the subject.
- vi. A measure of positive reinforcement is ensured i.e. the student can repeat what the teacher has demonstrated.
- vii. It gives a real-life situation of the course of study, for students acquire skill in real life situation using tools and materials on real job.
- viii. Process and product evaluation is ensured.

Advantages of Demonstration Method:

The following are the advantages of the demonstration method enumerated by Osuala (2001).

- i. It has high interest value since it often involves the use of gadgets and equipment which may be new to the students.
- ii. It is economical in terms of time and finance.
- iii. It is very effective as an introduction to skill learning.
- iv. It is appropriate when teaching students to operate a machine.
- v. It increases learned materials; this is because people tend to remember quickly what

they see more than what they hear.

Vi Finally, demonstration method is probably the teachers' greatest aid in training students in founder mental skills and practice in the shortest possible time.

Disadvantages of the Demonstration method:

The following are the disadvantages of the demonstration method enumerated by Osuala (2001).

- i. It provides less opportunity for the students to discover things to solve problems on their own.
- ii. Active participation is reduced as the students mainly act as observe only.
- iii. Problems of audibility may arise when classes are larger.
- iv. It is difficult to evaluate thoroughly during demonstration.
- v. Demonstration cannot completely replace talking.
- vi. If not properly planed, the teacher will spend much of the time on only one aspect, while it is of interest to the teacher rather than to the students.
- vii. There is sometimes over anxiety on the part of the students when they see new materials, some end up just looking at the beauty of the materials and end up paying little attention on what the teacher does.

2.7 Guided Discovery Method

The guided discovery method is a method of learning that has the advantage of allowing learners to use process skills to generate content information. It actively engages learners in first hand real world of learning. It encourages learners to explore the contents through the use of concrete experiences. Teachers are released from the role of authority and giver of knowledge to become facilitator and fellow investigator. This replaces the

notion that the teacher most knows all the answer. According to Gajere (2002) the discovery method of teaching involves probing, finding out, investigating, analyzing, thinking, searching, experimenting, collecting or validating knowledge and information. From the above, it is clear that the guided discovery method means finding out. Teaching by guided discovery method is teaching in which the students find answers to questions and problems. In other words instead of telling the learners the answers, the teachers possess a leading question which will help them to find the solutions of those problems. In another dimension, Ogunsanya (1984) said that the emphasis on the guided discovery method as a method of teaching is always that, it is a search oriented technique in which the teacher motivates the students to use his past experiences and knowledge in and outside his environment to find solution to problems.

Advantages of the Guided Discovery Method

The following advantages of the guided discovery method are enumerated by Gajere (2002):

- i. Through the guided discovery method process, the learner acquires discovery skills and reflection thinking skills which when appropriately used equips the learner as a problem solver.
- ii. The active involvement of the learners in the guided discovery process motivates him, arouses his curiosity and puts his interest in high gear.
- iii. The guided discovery approach fosters real learning which results in functionality and self-reliance.
- iv. It develops the spirit of patience, perseverance and sense of responsibility which are essential ingredients for the acquisition of skills.

v. It teaches attitudes, values, skill and knowledge among the students.

Disadvantages of the Guided Discovery Method.

In the same vein, Gajere (2002) enumerated the following disadvantages of the guided discovery method of teaching.

i. It is time consuming. Sometimes several days or week may be required to complete search.

ii. It puts a lot of responsibility in the students.

iii. It can be very costly in terms of trip making to places where facts can be obtained.

iv. If the problem is too hard, it may be difficult for students to probe successfully without losing interest.

v. If on the other hand, the problem is too easy students may regard it as a waste of time and not take part.

2.8 Gender and Environment as Factors of Achievement Among Accounting Students at Secondary School Level in Nigeria.

A lot of research studies investigating biasing factors in achievement testing have been conducted. Review of literature identifies the issue of gender difference in urban and rural location of secondary schools as major factors of results obtained from achievement test. Results of studies on gender difference in achievement tests vary, majority of the studies tend to favor males than females. However, Sherman (1980) focused on sex related difference in spatial visualization of males and females. The outcomes of the studies have pointed to male superiority over the female. While Anibokun (1979), did not find any statistical difference in the achievement of male and female.

Valentine (1999) found sex difference in favor of Iranian male over the female in his sample of secondary school students. Also, Ananstasi (1996) advocated the existence of psychological difference between male and female, which is reflected in the results of psychological testing. The issue of gender differences according to Macoby (1994) is well established with boys obtaining higher scores in numerical figures. Khingelhofer (1997) used African and Asia students Tanzania and there was male superiority over female students. Mccatty (1994) used the test on students in Nigeria Technical College and also found that the resuslt favored male students. On the other hand, researchers like Banu (1992), Obioma (1984) and Ugwanyi (1998) in their different studies on the effectiveness of teaching methods, also discovered that female students performed relatively better than their male counterpart

On the issue of urban and rural factors in achievement, many researchers have discovered location to be significant factors in students' achievement in school. Results of the students reviewed have generally been directional. Obioma (1989) and Muazu (1996) all find in their separate studies that students in urban schools performed better than their counterparts in rural schools. Jegede (1984) on the other hand found no significant difference between the achievement of students in rural and urban schools. The location as it relates to school achievement is seen by many researchers as being synonymous with environment. Urban schools are seen as providing students with richer studying environment, learning material, qualified teachers, electricity etc than rural schools Yilwa (1996). Gaya (1992) listed factors responsible for poor student performance in Chemistry to include lack of facilities, unqualified teachers, poor method of teaching, lack of classroom, lack of textbooks, English language barrier and lack of

covering syllabus, most of these facilities are lacking in most rural schools. Finally, Vernon (1979) reviewed early literature and discovered that test scores are generally lower in rural areas than in urban areas.

2.9 Empirical Studies

In the review of related studies presented here, areas concerned with the present research study are highlighted;

The effect of guided discovery and expository teaching methods on students' achievement in physics in selected secondary schools in Nsukka was investigated by Ugwanyi (1998). The study employed the quasi experimental design and the entire SSII physics students in public senior secondary schools constituted the population of the study. The researcher administered pre-test to the students in order to ascertain the entry level of the subjects. After the treatment, a post-test was administered to the students in order to ascertain the effects of the treatment. The purpose of the study was to find out the extent to which expository and discovery methods actually affect performance in physics with a view to recommending a better opinion. Three hypotheses were formulated and tested at 0.05 level of significance. Analysis of variance (ANOVA) test was used to verify the initial abilities of the students in physics before they were treated with either expository or guided discovery methods. The 2 x 2 analysis of variance was used to test the hypothesis instead of analysis of co – variance since the initial ability levels of the students were equated.

. It was revealed that sex has a significant effect on performance of students, as female students performed significantly better than their male counterparts. The findings of the study were that guided discovery method of instruction in physics was more

effective than the commonly used expository method. In other words, guided discovery increases the degree of students' interest, and consequently students develop principles based on their observation and in addition encourage enquiry and group work. Physics teachers should therefore harness the method for effective teaching and learning.

The research lacked bases for generalization because the number of selected secondary schools in Nsukka was not mentioned. A study of this magnitude supposed to have mentioned the number of schools selected for the study in order to determine whether the sample size was a fair representation of the population. However, the study served as a guide in the selection of a research design for this current study.

Busari (2001) conducted an experimental study on comparative effects of four instructional strategies on student's achievement and retention in chemistry in some selected secondary schools in Lagos state. The purpose of the study was to compare the effect of instructional strategies on:

- i. Students achievement in chemistry.
- ii. Their retention of the learned task. The design of the study was a randomized experimental and control group, pretest – posttest instructional design.

Two null hypotheses were formulated and tested at the 0.05 level of significance. The sample for the study consisted of 218 SS II chemistry students randomly drawn from seven (7) schools in Lagos state. There were 130 students in the experimental group and 88 students in the control group. The researcher made use of the following instruments.

- i. Pre-Achievement Test (PAT).
- ii. The Chemistry Achievement Test (CAT).
- iii. The Chemistry Achievement Test (RAT).

The result indicated that: there was no gain, post-instruction in all the groups, except the lecture method group. Each of the instructional strategies except the lecture method contributed positively to the learning of chemical concepts. The research helped in directing the current researcher on the choice and formulation of the instrument for data collection. However, the researcher did not state the statistical tool that was used in analyzing the data. However, this study will make use of the appropriate tool..

Olaniyi (2002) conducted an experimental research on the relative effect of values clarification and problem-solving instructional strategies on students learning outcomes in integrated science. The design for the study was the pre-test, post-test control group quasi-experimental design, all the junior secondary schools in the state constituted the population for the study, three (3) schools were used as sample for the study. Two (2) research hypotheses were assigned at random to the experimental group and one (1) control group. The instrument used was a test of environment conservation knowledge (TECK). The result indicated that there was a significant main effect of treatment on student achievement in selected environmental concept. Also there was no significant effect of treatment on students' gender.

The findings of the above study revealed that problem-solving as an instructional strategy has greater effects on students learning outcomes in integrated science and it is useful for effective teaching and learning when employed in the classroom.

However, the study contributed immensely in the choice of a suitable research design for this current study. However, the researcher did not state the exact figure of the population for the study which makes it difficult to determine whether the sample size is an adequate representation of the population.

Uwameiye and Ogunbameru (2005) investigated the effect of the conventional method of teaching vis-à-vis the effect of an alternative method of teaching (guided discovery method of teaching) on students' performance in financial accounting. The research was carried out using quasi-experimental design of pre-test, post-test control group. Two groups, the experimental and control were subjected to different treatments (instructional methods). Both groups were also subjected to pretest and posttest using the same instruments. Two types of instruments that were employed for data collection in the study included: Instructional Package for Financial Accounting (IPFA) and Financial Accounting Achievement Test. The population which comprised all twenty-two Senior Secondary School two (SS2) financial accounting students with the population of 820 students in Okitipupa Local Government Education Area of Ondo State in Nigeria. Purposive sampling technique was adopted and used to select schools for the study. A survey of co-educational public secondary day schools was carried out to identify schools that have at least one graduate financial accounting teacher with relevant professional teaching qualification teaching the group used for the study was chosen. Chosen schools were randomly assigned to experimental and control group while students in the sample schools remained in their intact classes. Findings of the study indicated a difference in pretest and posttest mean performance scores of students in control and experimental groups; and mean performance score of students taught with guided discovery method and those taught with conventional method in financial accounting achievement posttest scores. In other words the effectiveness of the instructional method employed in the classroom can be evaluated based on the obtained mean achievement score of the group. Also, the different treatment given to the experimental and control groups effected

positive changes on the students mean achievement scores in the post-test financial achievement test. The study also revealed no difference in the mean performance scores of male and female students taught with guided discovery and conventional method of teaching respectively.

The present study is related to this particular empirical study as both discussed related variables in student's academic achievement in senior secondary schools. A research of this magnitude however, did not state the exact number for the sample size which makes it difficult to generalize the findings. However, the study served as a guide to this present study in the selection of purposive sampling technique as an appropriate sampling technique for this study.

Bamidele and Oloyede (2013) investigated the relative effectiveness of three types of concept maps (hierarchy, flowchart and spider) on the performance of students in Chemistry. This is with a view to find out which of the concept mapping types is more superior in enhancing students' performance in the numerical aspect of Chemistry. The pre-test, post-test experimental design was used for the study. The population for the study comprised of all the Chemistry students in Senior Secondary School in Osun State of Nigeria. Students in Senior Secondary class two (SSII) in their intact classes from three schools in Ife-Central local government area of the state formed the sample of the study. A total of one hundred and fifty six (156) students formed the sample for the study. The age range of the students was between 13 and 17 years. The three schools were randomly assigned to the hierarchical, flowchart and spider concept mapping strategies. Selected sample were randomly assigned to the treatment groups. A pre-test was used to determine the entry level of the subjects. The instrument used for data collection was the

Problem Solving Achievement Test in Chemistry (PSATC). Students in the three groups were taught using the three kinds of concept maps separately. The experiment lasted for five weeks after which a post-test was administered to determine the effects of the treatment

In testing the hypotheses 1 the posttest score of the students in the three groups were subjected to the Analysis of Variance (ANOVA) to determine possible differences in the problem solving ability of the students after exposure to the treatment. From the results of the analysis it was observed that there was no significant difference in the performance of the three groups exposed to the different concept mapping strategies. Thus the hypothesis was accepted. However, to find out which of the three groups has a better performance though not significantly different, the mean of the three groups in the pre-test were compared. The mean of the group that used spider concept mapping strategies was higher than the other two groups (\bar{x} =55.8, 53.8, 51.6 for spider, hierarchical and flowchart concept map respectively).

The findings of the study showed that the three concept mapping strategies were effective in enhancing students' performance in chemistry. The mean scores of the three groups in the pre-test was much lower than the mean scores of the groups in the post-test. This was due to the distinctive characteristics of the concept maps generally. The result of the study also indicated that there was no significant difference in the performances of the students in the three groups with respect to the kind of concept map used. ($F = 1.088$; $p > 0.05$). This implies that the concept mapping strategies were not all that different in their superiority. The methods all produced a similar effect on the students with respect to their performance in Chemistry. However, it was found out that the methods enhanced

the performance of students in their problem solving skills in Chemistry as already reported by research studies.

2.10 Summary of Literature Reviewed

The theoretical framework was based on learning theories that explained human behavior by understanding the thought process. Gender and environment were identified as factors of achievement among accounting students at secondary school level in Nigeria.

This present study reviewed related studies by several researchers in areas concerned with this present study. Most of the researchers compared the effects of different instructional methods such as demonstration, values clarification, guided discovery, expository, as well as concept map methods on students' academic achievement and learning outcomes.

Based on the reviewed empirical studies, the researcher has observed that none of the researchers has stressed on the relevance of any of the methods on gender academic performance of students in financial accounting. This is the main gap the study has filled.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presented the various procedures that were used for collecting and analyzing the data. These mainly include:

- 3.1 Research Design
- 3.2 Population of the Study
- 3.3 Sample Size and Sampling procedure.
- 3.4 Instrument for Data Collection
 - 3.4.1 Validity of the Instruments
 - 3.4.2 Pilot Study
 - 3.4.3 Reliability of the Instruments
- 3.5 Procedure for Data Collection
- 3.6 Procedure for Data Analysis.

3.1 Research Design.

This study employed Quasi-experimental design of pre-test and post-test control group. This design was used because of two reasons. First, the classes in these schools were large. The second reason was to avoid disruption in the normal school set up. According to Sambo, (2005) this design has a great amount of currency in research on teaching. This is because it is natural to use existing classroom in a school for a study and a lot simpler than to start creating classroom groups through random selection and random assignment. When this design is appropriately used, it controls most of the threats to internal and external validity.

3.2 Population of the Study

The population of this study comprised of all the SS II students offering accounting in government senior secondary schools with a population of 1,540 in Plateau State for 2014/2015 session. The breakdown is as presented in Table 3.1.

Table 3.1 **Population of the study.**

S/N	AREA	NO. OF NO	NO OF NO	TOTAL NO	
	DIRECTORATE OFFICES	SCHOOLS	FEMALE STUDENT	MALE STUDENTS	OF STUDENTS
1	Jos North	6	112	256	368
2	Jos South	4	91	153	244
3	Jos East	3	47	78	125
4	Riyom	1	17	16	33
5	Barkin Ladi	2	26	33	59
6	Bassa	2	18	32	50
7	Pankshin	3	49	79	108
8	Bokkos	2	37	29	66
9	Kanke	2	18	32	50
10	Kanam	1	9	17	26
11	Mangu	2	19	41	60
12	Langtang North	2	35	38	73
13	Langtang South	2	21	26	47
14	Mikang	2	52	61	113
15	Quaan Pam	2	11	10	21
16	Wase	2	11	21	32
17	Shendam	2	18	27	45
Total		40	591	949	1540

Source: Plateau State Education Research Centre

3.3 Sample Size and Sampling Procedure.

Purposive sampling technique was adopted and used to select the two schools {one urban and one rural} that were used for this study in order to minimize intervening variables. Purposive sampling technique was also used to select the students for this study as only thirty (30) SSII accounting students who passed the pre-test from each of the two schools were selected as sample size, making a total of sixty (60) students. The thirty (30) students from each schools were grouped into three (3) groups. (i.e 10 students in each group) to represent the two experimental group i.e students taught using cooperative and guided discovery method and the control group. The purposive sampling ensured “a careful consideration of some factors that can affect the representation of the sample population (Ikponmwosa, 2009 and Sambo, 2008) purposive sampling according to Sambo (2008) is a sampling procedure in which the researcher uses his experience to choose elements and or individuals to be included in a sample based on some subjective criteria. The sampling technique ensured as much as possible the inclusion of subjects in the sample. Table 3.2 shows the distribution of the sample population.

Table 3.2**Sample Size of the Study**

School		Sample of SSII Accounting Students			Total
		Control group	Experimental groups		
Government	Senior		Coop.	G/dis.	
Secondary	School	10	10	10	30
Laranto, Jos North					
Government	Senior				
Secondary School	Tunkus	10	10	10	30
Total		20	20	20	60

Source; Field Study, 2015

3.4 Instrument for Data Collection

The researcher developed the instruments for this study that was used for the collection of data. The researcher relied heavily on the test items of the West African Examination Council (WAEC) 2013. Two types of instruments that were employed for data collection in this study included;

1. Accounting Achievement Test (AAT) I and
2. Accounting Achievement Test (AAT) II.

Accounting Achievement Test (AAT) I

The Accounting Achievement Test I was administered to the students before the treatment was given. It represented the pre-test of this study. The purpose of this test was to ascertain the entry behavior of the students in accounting. This instrument was made up of twenty (20) multiple choice objective questions with four (4) options A-D each, where the students were expected to choose the correct option.

Accounting Achievement Test (AAT) II

The second instrument that was administered in order to collect data after the treatment was given to the students is called the Accounting Achievement Test (AAT) II. This instrument represented the post-test for this study so as to determine the effects of the treatment. This instrument was prepared based on the table of specification that was developed using the Final Account of a Sole Trader which consists of;

- i. Trading Account
- ii. Profit and Loss Account
- iii. Balance Sheet.

This was because it is the basis for Accounting at this level. It was made up of forty (40) multiple choice objective questions with four (4) options A-D each, where the students were expected to choose the correct option. Details of the scores are attached in appendix X. However, the summary relating to each of the research question and hypothesis is as shown in the analysis of each of the research question and hypothesis.

3.4.1 Validity of the Instruments.

The instrument designed for the study was subjected to both face and content validity for it to be consistent and fit for use in gathering data from the respondents. The drafted pre-test and post-test questions having been reconstructed and restructured based on the inputs by the researcher's supervisors, were subjected to thorough scrutiny and proof reading by experts in Business Education not below the rank of senior lecturer for further necessary corrections and approval. This supports the view of Berg{1995} who stated that any research instrument to ascertain its validity should be given to a panel of experts to determine if its items {contents} can elicit the desired data they are intended to

elicit and this in essence is to ensure its content validity and also to ensure that necessary adjustments were made thereafter.

3.4.2 Pilot Study.

In a bid to ascertain the reliability and consistency of the instrument designed for the study, the researcher conducted a pilot study with 22 SSII commercial students of Nan-mark senior secondary school in Furaka, Plateau State. The reason for the choice of Nan-mark senior secondary school is that the school is not within the scope of the study nor for the part of the sample size, but has the similar characteristics as the sample population. The conduct of the study was to enable the researcher ascertain the possibility of any difficulty that may arise in the process of answering the questions and afford the researcher the opportunity of students providing necessary information that may be useful for the study. Possible problems of respondents not understanding certain statement in the instrument and provision of valid answers during the process of carrying out the main study could have been solved. The result is as shown in reliability of instrument.

3.4.3 Reliability of the Instrument.

A measuring instrument is said to be reliable if it measures consistently under varying condition and at different times of person's performance or trait. (Ajayi and Razaq 2000). According to the authors, the assessment of reliability is intimately concerned with the purpose of testing. The data collected from the pilot study were used to measure the reliability of the instruments using the Kuder Richardson formula 21. A reliability coefficient of 0.82 was obtained. According to Gronland (1985), this value is within the acceptable range for any computation of the reliability of the instrument

3.5 Procedure for Data Collection.

The researcher obtained a letter of introduction as in appendix I from the researchers' department that enabled her to conduct research. The researcher visited the schools selected and solicited the cooperation of the school principal and accounting teacher. The AAT I {pre-test} was administered to the SSII students of both schools by the researcher with the help of the accounting teachers (appendix V). The result of the pre-test determined the selection of the students for the study. Students that passed were selected as they had almost equal knowledge of financial accounting while those that did not pass did not constitute sample for the study. The lesson was conducted for a duration of four {4} weeks, using the lesson plan for each method as attached in appendices II, III and IV. At the end of the treatment {four weeks}, a post-test (appendix VI) was administered to both experimental and control groups. The answer scripts were scored 100 marks as stated in the marking scheme (appendix IX). The test result of each test for the experimental and control groups were collected separately and then subjected to statistical analysis

3.6 Procedure for Data Analysis

Data for this study were analyzed as follows;

The bio data of the respondents were analyzed using the frequency and percentage. The five (5) research questions were analyzed using the mean and standard deviation. Null hypotheses 1, 2, 3, 4 and 5 were analyzed using the t-test statistics. The t-test statistics is a parametric statistics that can be used to determine if two sets of data are significantly different from each other and is mostly applied when the test statistics would follow a normal distribution. According to Flom, {2010} and Adedayo {2006}, t-test can be used

to compare two independent samples or treatments. The t-test statistics is useful when it is for testing for significance of sample mean between two groups or two sets of scores. It also necessitated the use of t-test statistics in testing all the null hypotheses because there are two set of post-test score.

The significance of the hypothesized frequencies was determined at 0.05 level of significance. The obtained value was considered significant if it is greater than the critical value {table value} and thus rejects the null hypothesis. If however, the obtained value is less than the critical value, it was considered insignificant and thus the null hypothesis was accepted {Osuala, 2005}.

CHAPTER FOUR
PRESENTATION AND ANALYSIS OF DATA

This chapter presents the data from the field study for analysis. The analysis was conducted in four categories:

1. Analysis of demographic data.
2. Answers to research questions.
3. Test of hypotheses.
4. Summary of major findings.
5. Discussions of findings.

4.1 Demographic Characteristics of Respondents

The demographic data i.e (Gender/sex, location and groups) were analyzed using the frequency and percentage as in tables 4.1.1 - 4.1.3

Table 4.1.1 Distribution of respondents by gender

Gender	F	%
Male	30	50.00
Female	30	50.00
Total	60	100.00

Source: field study 2015

Based on the above table (4.1.1) it can be seen that thirty (30) male students representing 50% of the total sample participated in the study. Equal number and percentage of female also participated.

Table 4.1.2 Distribution of respondents by location

Location	F	%
Urban	30	50.00
Rural	30	50.00
Total	60	100.00

Source: field study 2015

Based on the above table (4.1.2) it can be seen that thirty (30) students from urban school representing 50% of the total sample participated. Equal number and percentage of students from the rural school also participated.

Table 4.1.3 Distribution of respondents by group (Experimental and control)

Groups		%
Cooperative	20	33.333
Guided discovery	20	33.333
Control	20	33.333
Total	60	100.00

Source: field study 2015

Based on the table (4.1.3) above, it can be seen that three groups participated in the research study. Twenty (20) students representing 33.333% of the total sample participated in the cooperative group. Twenty (20) students representing 33.333% of the total sample participated in the Guided discovery group. Equal number and percentage of students also participated in the control group

4.2 Answers to Research Questions.

RQ1: *What is the difference in the academic performance of students taught accounting using cooperative and demonstration (control) methods?*

Table 4.2.1 provides a summary of data raised to address this research question. However, the details is as in appendix X

Table 4.2.1 Comparative mean performance scores of cooperative and demonstration (control) methods.

<i>Variable (Methods)</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Cooperative method	20	61.7500	8.77721
Demonstration (Control)	20	67.2500	8.80714

Source: field study 2015

The above table shows the comparative performance scores of one treatment group treated using cooperative method as compared to control group. The mean performance indicates that there is a mean difference of -5.50 when cooperative method was used to teach the students (M=61.75; SD = 8.77), as compared to students taught accounting using demonstration (control) method (M= 67.25; SD= 8.80),

RQ2: *What is the difference in the academic performance of students taught accounting using guided discovery and demonstration (control) methods?*

Table 4.2.2 provides a summary of data raised to address this research question. The details of the scores is as attached in appendix X

Table 4.2.2 Comparative mean performance scores of guided discovery and demonstration (control) methods.

<i>Variable</i>	<i>Method</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Posttest score	Demonstration (Control)	20	67.2500	10.50063
	Guided discovery method	20	75.5000	8.80714

Source: field study 2015

The above table shows the comparative performance scores of one treatment group treated using guided discovery method as compared to control group. The mean

performance indicates that there is a mean difference of 8.25 when guided discovery method was used to teach the students (M=75.50; SD = 10.50) as compared to students taught accounting using demonstration (control) method (M= 67.25; SD= 8.80). This implies that students taught accounting using the guided discovery method perform better with a mean gain of +8.25.

RQ3: What is the difference in the academic performance of students taught accounting using cooperative and guided discovery?

Table 4.2.3 provides a summary of data raised to address this research question. However, the details of the scores is as in appendix X

Table 4.2.3 Comparative mean performance score of students exposed to cooperative and guided discovery methods of teaching.

<i>Variable</i>	<i>Method</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Posttest score	Cooperative method	20	61.7500	8.77721
	Guided discovery method	20	75.5000	10.50063

Source: field study 2015

The above table shows the comparative performance scores of two treatment groups treated using cooperative and guided discovery methods. The mean performance indicates that students taught with guided discovery method (M=75.50; SD=10.50) performed better with a mean gain of +13.75 when compared to students taught accounting using the cooperative method (M=61.75; SD = 8.77). This therefore implies teaching students using the stated methods can enhance performance.

RQ4: What is the effect of cooperative method on the academic performance of male and female students in accounting in government secondary schools in plateau state?

Table 4.2.4 provides a summary of data raised to address this research question. Details of the scores are attached in appendix X

Table 4.2.4 Comparative mean performance scores of male and female students exposed to cooperative method of teaching.

<i>Variable</i>	<i>Sex</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Cooperative method	Male	10	58.5000	6.68747
	Female	10	65.0000	9.71825

Source: field study 2015

A mean difference has been observed between male and female students. It was observed that the females had a better mean score when cooperative method was used compared to their male counterpart. Although, mean difference of -6.50000 was observed between both gender when exposed to the treatment but this mean difference do not significantly differ. Implying that both gender benefit at equal measure when exposed to the cooperative method. It therefore means that the method is not gender sensitive.

RQ5: What is the effect of guided discovery method on the academic performance of male and female students in accounting in government secondary schools in plateau state?

Table 4.2.5 provides a summary of data raised to address this research question. Details of the scores are attached in appendix X

Table 4.2.5 Comparative mean performance scores of male and female students exposed to guided discovery method of teaching.

<i>Variable</i>	<i>Sex</i>	<i>N</i>	<i>Mean</i>	<i>Std. Deviation</i>
Guided discovery method	Male	10	71.5000	8.83491
	Female	10	79.5000	10.91635

Source: field study 2015

A mean difference has been observed between male and female students. It was observed that the females had a better mean score when guided discovery method was used compared to their male counterpart. Although, mean difference of -8.00000 was observed between both gender when exposed to the treatment but this mean difference do not significantly differ. Implying that both gender benefit at equal measure when exposed to the guided discovery method. It therefore means that the method is also not gender sensitive.

4.3 Test of Hypotheses

H0₁: *There is no significant difference in the academic performance of students taught accounting using cooperative and demonstration (control) methods.*

Table 4.3.1 provides a summary of data raised to address this hypothesis. However, the details is as in appendix X

Table 4.3.1 Independent sample t-test of differences in performance of students treated with cooperative method as compared to the control group.

<i>Variable</i>	<i>Method</i>	<i>N</i>	<i>Mean</i>	<i>S.D</i>	<i>Df</i>	<i>t-cal.</i>	<i>t-crit.</i>	<i>P</i>
Posttest score	Cooperative method	20	61.7500	8.77721	38	1.978	1.96	.055
	Demonstration (Control)	20	67.2500	8.80714				

Source: field study 2015

The table tests the differences in performance scores when cooperative, and demonstration (control) methods were used to teach. Result did not show a significant main effect for methods $t(38) = -1.978; p = .055$, implying that when cooperative and demonstration (control) method of teaching were used to teach, the academic performance of students taught accounting using the cooperative method and those taught using demonstration (control) method did not significantly differ. Therefore, the null hypothesis which states that academic performance of students taught accounting using

cooperative and demonstration (control) method would not differ when exposed to cooperative and demonstration (control) methods of teaching is retained.

H0₂: *There is no significant difference in the academic performance of students taught accounting using cooperative and demonstration (control) methods.*

Table 4.3.2 provides a summary of data raised to address this hypothesis. The details of the scores is as in appendix X

Table 4.3.2 Independent sample t-test of differences in performance of students treated with guided discovery method as compared to the control group.

<i>Variable</i>	<i>Method</i>	<i>N</i>	<i>Mean</i>	<i>S.D</i>	<i>df</i>	<i>t-cal.</i>	<i>t-crit.</i>	<i>p</i>
Posttest score	Demonstration (Control)	20	67.2500	8.80714	38	2.692	1.96	.011
	Guided discovery method	20	75.5000	10.50063				

Source: field study 2015

The table tests the differences in performance scores when guided discovery and demonstration (control) methods were used to teach. Result shows a significant main effect for method, $t(38) = 2.692$; $p = .011$. This implies that guided discovery method significantly affected students' performance in accounting more than the students taught using demonstration (control) method. Therefore, the null hypothesis which states that academic performance of students taught accounting using guided discovery and demonstration (control) method would not differ when exposed to guided discovery and demonstration (control) methods of teaching is rejected.

H0₃: *There is no significant difference in students' academic performance when cooperative and guided discovery methods were used to teach accounting.*

Table 4.3.3 provides a summary of data raised to address this hypothesis. However, the details of the scores is as in appendix X

Table 4.3.3 Independent sample t-test of differences in performance of students exposed to cooperative and guided discovery methods.

<i>Variable</i>	<i>Method</i>	<i>N</i>	<i>Mean</i>	<i>S.D</i>	<i>df</i>	<i>t-cal.</i>	<i>t-crit.</i>	<i>P</i>
Posttest score	Cooperative method	20	61.7500	8.77721	38	4.493	1.96	.000
	Guided discovery method	20	75.5000	10.50063				

Source: Field Study 2015

The table tests the differences in performance scores when cooperative and guided discovery methods were used to teach. The result indicates that there is a significant difference in performance $t(38) = -4.493; p=.000$, implying that performance differ when varied methods are used in teaching. Therefore, the null hypothesis which state that there is no significant difference in students' academic performance when cooperative and guided discovery methods were used to teach is rejected.

H0₄: *There is no significant difference in the academic performance of male and female students taught accounting using cooperative method.*

Table 4.3.4 provides a summary of data raised to address this hypothesis. However, the details of the scores is as in appendix X

Table 4.3.4 Independent sample t-test of differences in performance of male and female students exposed to cooperative method.

<i>Variable</i>	<i>Sex</i>	<i>N</i>	<i>Mean</i>	<i>S.D</i>	<i>df</i>	<i>t-cal.</i>	<i>t-crit.</i>	<i>P</i>
Cooperative method	Male	10	58.5000	6.68747	18	1.742	2.79	.098
	Female	10	65.0000	9.71825				

Source: field study 2015

The table above shows a test of hypothesis to ascertain whether the academic performance scores of male and female students would differ when exposed to cooperative method of teaching. Result did not show a significant main effect for sex, $f(18) = 1.742$; $p = .098$ implying that when cooperative method was used to teach, the academic performance of both male and female students did not significantly differ. Therefore, the null hypothesis which states that academic performance of male and female students would not differ when exposed to cooperative method of teaching is retained.

H0₅: *There is no significant difference in the academic performance of male and female students taught accounting using guided discovery method.*

Table 4.3.5 provides a summary of data raised to address this hypothesis. However, the details of the scores is as in appendix X

Table 4.3.5 Independent sample t-test of differences in performance of male and female students exposed to guided discovery method.

<i>Variable</i>	<i>Sex</i>	<i>N</i>	<i>Mean</i>	<i>S.D</i>	<i>Df</i>	<i>t-cal.</i>	<i>t-crit.</i>	<i>P</i>
Guided discovery	Male	10	71.500	8.834	18	1.801	2.11	.088
	Female	10	79.000	10.91				

Source: field study 2015

The table above shows a test of hypothesis to ascertain whether the academic performance scores of male and female students would differ when exposed to guided discovery method of teaching. Result did not show a significant main effect for sex, $f(18) = 1.801$; $p = .088$, implying that when guided discovery method was used to teach accounting, the academic performance of both male and female students did not significantly differ. Therefore, the null hypothesis which states that academic performance

of male and female students would not differ when exposed to guided discovery method of teaching is retained.

4.4 Summary of Major Findings

This study established that:

1. There is no significant difference in the academic performance of students taught accounting using cooperative and demonstration (control) method. ($p=.055$)
2. Guided discovery method affected students' academic performance in accounting more than the demonstration (control) method. ($p=.011$)
3. Guided discovery method significantly affected students' performance in accounting more than cooperative method. ($p=.000$)
4. There is no significant difference in the academic performance of male and female students taught accounting using cooperative method. ($p=.098$)
5. The academic performances of both male and female students in accounting do not significantly differ when exposed to guided discovery method. ($p=.088$)

4.5 Discussion of Major Findings

Based on the data so far analyzed it was discovered that:

The findings of this study shows that guided discovery method enhances performance significantly than any of the methods used in the study and which was further proven by research question 2 and hypothesis 2 where the mean performance indicates that students taught with guided discovery method ($M=75.50$; $SD = 10.50$) performed better with a mean gain of 8.25 when compared to students taught accounting using demonstration (control) method ($M= 67.25$; $SD= 8.80$), also result did not show a significant main effect for methods $f(38) = -1.978$; $p= .055$ for between and among the

different groups. Research question 3 and hypothesis 3 mean performance also indicates that students taught with guided discovery method ($M=75.50$; $SD=10.50$) performed better with a mean gain of $+13.75$ when compared to students taught accounting using the cooperative method ($M=61.75$; $SD = 8.77$), also result shows a significant difference in performance $f(38) = -4.493$; $p=.000$. Since results of the findings shows that performance differ when varied methods are used in teaching, one can confirm that it is in line with Busari {2001} who found out in his study that different instructional strategies have effects on student's performance. This is also in accordance with Toby (1997) opinion that individual/group mean performance score should serve as a basis for making judgment on whether a group/individual has achieved a pre-determined, stated objectives or not. He is of the opinion that mean performance score should be regarded as a reliable performance indicator of the treatment given (instructional method). In other words the effectiveness of the instructional method employed in the classroom can be evaluated based on the obtained mean performance score of the group.

The fourth and fifth finding of this study revealed that the academic performance of both male and female did not significantly differ when cooperative and guided discovery method were used. The results of research question 4 and hypothesis 4 did not show a significant main effect for sex, $f(18) = 1.742$; $p = .098$, when cooperative method was used. Also, research question 5 and hypothesis 5 did not show a significant main effect for sex, $f(18) = 1.801$; $p = .088$, when guided discovery method was used. This study is in accordance with Uwameiye and Ogunbameru (2005) who found out in their study that gender has no significant effect on male and female students taught using guided discovery and conventional teaching method. However, the study is contrary to

Valentine {1999} who found sex difference in favor of Iranian male over the female in his sample of secondary school students.

The 53.75% percentage failure in control group post test mean score is a replicate of failure trend in accounting students' performance in public examination. This confirms the findings of Ogunu (2000), and WAEC (2004) analysis of WASSCE 1998, 1999 and 2000 students' performance in financial accounting, with reported failure rate of 53.48%, 58.38% and 51.2%. Going by the present scenario in students' performance in public examination and Table 4.3 statistical analysis on the effect of two instructional methods on students' performance, the "teaching" method which is predominantly used by accounting teachers in the classroom is a contributory factor to students' persistent failure in public examination in Nigeria.

In addition, the result of this study was only influenced by the treatment given to the experimental groups. (Cooperative and guided discovery). For example, the effect of instruction was controlled because the same type of test were given to both experimental and the control groups.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter is presented under the following subheadings;

- 5.1 Summary
- 5.2 Conclusion
- 5.3 Recommendations
- 5.4 Limitation of the Study
- 5.5 Suggestion for Further Studies

5.1 **Summary**

The main purpose of this study was to investigate the comparative effects of cooperative and guided discovery method on secondary school students' academic performance in Accounting in Plateau state. The major factor considered was the most effective method(s) for teaching students accounting. This enabled the researcher to group the subjects into the instructional groups. This was to find out whether students' academic performance were affected positively by the Cooperative and guided discovery method of teaching.

The review of related literature gave broad spectrum of various methods of teaching accounting in secondary schools. It reviewed Ivan Pavlov and B.F Skinner's learning theory as the study itself is related to learning. It also reviewed the meaning, importance, advantages and disadvantages of the instructional methods being addressed by this study. A number of relevant and related literatures by different authors were reviewed on the research problem. The design adopted for the study was quasi-experimental design of pretest, posttest control group. Purposive sampling was used to

select the sample for the study. The population of the study was one thousand, four hundred and fifty two (1,540) students which included the SSII students offering accounting in Senior Secondary School in Plateau State. Sample were drawn from two Senior Secondary Schools (one urban, one rural offering Financial accounting). The sample size used for the study was sixty (60) Senior Secondary Accounting Students. The instruments for data collection were the Accounting Achievement Test 1 (AAT1) as pretest and Accounting Achievement Test 11 (AAT11) as posttest which was administered to the students by the researcher after the treatment. The data collected were used to answer the five research questions using the mean and standard deviation. Similarly, the five null hypotheses were statistically tested at a significant level of 0.05, using the two tailed t-test.

This study established that:

1. There is no significant difference in the academic performance of students taught accounting using cooperative and demonstration (control) method. (p=.055)
2. Guided discovery method affected students' academic performance in accounting more than the demonstration (control) method. (p=.011)
3. Guided discovery method significantly affected students' performance in accounting more than cooperative method. (p=.000)
4. There is no significant difference in the academic performance of male and female students taught accounting using cooperative method. (p=.098)
5. The academic performances of both male and female students in accounting do not significantly differ when exposed to guided discovery method. (p=.088)

5.2 Conclusion

Drawing from the findings of this study, it can be concluded that for students to do well it can be based on the use of the guided discovery method in teaching financial accounting which will motivate and promote the interest of the students in terms of achieving good results and it will encourage parents, and teachers would be proud of using the method as an effective means of teaching financial accounting.

5.3 Recommendations

In line with the findings of this study, the researcher recommended the following:

1. Since this study revealed that guided discovery method significantly affected students' academic performance than any of the methods used in this study, it is therefore recommended that accounting teachers should be trained in the use of effective instructional methods in the classroom, especially in the use of guided discovery method in accounting instruction so as to improve the academic performance of government secondary school students in plateau state.
2. Curriculum planners should consider the guided discovery method as an effective method for teaching accounting when designing a curriculum for accounting and also advise text book authors to put into consideration the method revealed by this study when writing accounting text books.
3. Plateau state policy makers in the area of vocational and technical education, should make it compulsory for school authorities/management to adopt guided discovery method in teaching accounting so that accounting teachers can employ the method in the classroom since the study revealed that the academic performances of both male and female students in accounting do not significantly

differ when exposed to guided discovery method, which means that both methods are not gender sensitive.

5.4 Limitation of the Study

This research study, like any other experimental study had its limitations. Some of these limitations included the student's readiness especially in the area of punctuality to the classes because the students were aware that this exercise has nothing to do with their promotion to the next class. The researcher had to call the students to order by enlightening the students on the importance of coming to school early and also the importance of this study to all secondary school accounting students in Plateau State. This problem affected their general performance in the achievement test thereby affecting the quality of comparison. There was also the problem of unavailability of teaching and learning materials which the researcher had to provide and also improvise some teaching materials. Lastly, there was not even one private secondary school that was involved in the study, so it could also limit the generalizability of the findings of this research.

5.5 Suggestion for Further Studies

Based on the findings of this research study, the researcher made the following suggestions for further studies:

1. Commercial colleges for male students only and those for female students only should be sampled in the population so as to compare their mean and standard deviation using the guided discovery method.
2. Boarding schools for female only and day schools for male only should be sampled in the population so as to compare their mean and standard deviation in subsequent studies.

3. Private schools should be sampled in the population so as to compare their mean and standard deviation using the guided discovery method.
4. Studies of this kind should be carried out in other disciplines in commercial schools with the aim of identifying the most effective methods(s) of teaching such disciplines.

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APPENDIX II

LESSON PLAN ON DEMONSTRATION METHOD

DATE:

CLASS: SS II

SUBJECT: Financial Accounting

TOPIC: Final Account

DURATION: 1hr20mins

INSTRUCTIONAL MATERIALS: Chalk, Chalk Board, Essential Financial Accounting Textbook (O.A Longe and R.A Kazeem)

INSTRUCTIONAL METHOD: Demonstration Method

GENERAL OBJECTIVE: At the end of the lesson the students should be able to prepare the final account of a sole trader,

SPECIFIC OBJECTIVES: At the end of the lesson, the students should be able to:

- i. Define some terminologies and describe the final account of a sole trader.
- ii. Explain the relationship between a trading account, profit and loss account and balance sheet.
- iii. Draw a “T” account and post items to the final account.
- iv. Prepare trading account to show the gross profit or gross loss.
- v. Prepare profit and loss account to show the net profit or net loss.
- vi. Prepare balance sheet and make adjustment.
- vii. Balance the final account.

PREVIOUS KNOWLEDGE: the students have been taught Trial balance and they have an idea of what a “T” table looks like

INTRODUCTION: Teacher arouses students’ interest by asking the following questions:

- i. Who is a sole trader?
- ii. Explain purchases, sales and opening stock.
- iii. What is prepayment and depreciation?

PRESENTATION OF THE LESSON

STEP 1: Teacher defines some terminologies and explains the meaning and importance of trading, profit and loss account and balance sheet.

STEP II. Teacher shows students how to draw a “T” table and prepare a trading account to ascertain the gross profit or loss

STEP III: Teacher shows students how to prepare the profit and loss account to ascertain the net profit or net loss.

STEP IV: The teacher shows the students how to prepare and post items to the balance sheet and how to make adjustments on the accounts.

STEP V: Finally, teacher shows students how to balance the final account of a sole trader.

EVALUATION: Teacher evaluates students by asking the following questions:

1. Who is a sole trader?
2. What is trading account?
3. State reasons for preparing a final account.

SUMMARY: The teacher goes over the lesson and highlights the main points worth remembering. The students participated through their contributions to the summary of the lesson and ask questions where necessary.

ASSIGNMENT: Teacher asks students to enumerate the signals of overtrading.

SOLUTION TO ASSIGNMENT: The signals of overtrading include:

1. Increasing amount of creditors

2. More capital locked up in the stock
3. Excessive use of Bank overdraft
4. Constant use of trade discounts to customers to stimulate sales
5. Cash discounts to debtors to encourage prompt payment
6. Mortgaging the firms properties in order to obtain loan capital
7. High ratio of debtor to equity capital and to sales

APPENDIX III

LESSON PLAN ON COOPERATIVE METHOD

DATE:

CLASS: SS II

SUBJECT: Financial Accounting

TOPIC: Final Account

DURATION: 1hr20mins

INSTRUCTIONAL MATERIALS: Chalk, Chalk Board, Essential Financial Accounting Textbook (O.A Longe and R.A Kazeem)

INSTRUCTIONAL METHOD: Cooperative Method

GENERAL OBJECTIVE: At the end of the lesson the students should be able to prepare the final account of a sole trader,

SPECIFIC OBJECTIVES: At the end of the lesson, the students should be able to:

- i. Define some terminologies and describe the final account of a sole trader.
- ii. Explain the relationship between a trading account, profit and loss account and balance sheet.
- iii. Draw a “T” account and post items to the final account.
- iv. Prepare trading account to show the gross profit or gross loss.
- v. Prepare profit and loss account to show the net profit or net loss.
- vi. Prepare balance sheet and make adjustment.
- vii. Balance the final account.

PREVIOUS KNOWLEDGE: the students have been taught Trial balance and they have an idea of what a “T” table looks like

INTRODUCTION: Teacher arouses students’ interest by asking the following questions:

- i. Who is a sole trader?
- ii. Explain purchases, sales and opening stock.
- iii. What is prepayment and depreciation?

PRESENTATION OF THE LESSON

STEP I: Teacher defines some terminologies and explains the meaning and importance of trading, profit and loss account and balance sheet.

STEP II. Teacher shows students how to draw a “T” table and prepare a trading account to ascertain the gross profit or loss

STEP III: Teacher shows the students in the groups how to prepare the profit and loss account to ascertain the net profit or net loss.

STEP IV: The teacher shows the students in the groups how to prepare and post items to the balance sheet and how to make adjustments on the accounts.

STEP V: Finally, teacher shows the students in the groups how to balance the final account of a sole trader.

EVALUATION: Teacher evaluates students by asking the following questions:

1. Who is a sole trader?
2. What is trading account?
3. State reasons for preparing a final account

SUMMARY: The teacher goes over the lesson and highlights the main points worth remembering. The students participated through their contributions to the summary of the lesson and ask questions where necessary

ASSIGNMENT: Teacher ask the students in the various groups to enumerate the signals

SOLUTION TO ASSIGNMENT: The signals of overtrading include:

1. Increasing amount of creditors
2. More capital locked up in the stock
3. Excessive use of Bank overdraft

4. Constant use of trade discounts to customers to stimulate sales
5. Cash discounts to debtors to encourage prompt payment
6. Mortgaging the firms properties in order to obtain loan capital
7. High ratio of debtor to equity capital and to sales

APPENDIX IV

LESSON PLAN ON GUIDED DISCOVERY METHOD

DATE:

CLASS: SS II

SUBJECT: Financial Accounting

TOPIC: Final Account

DURATION: 1hr20mins

INSTRUCTIONAL MATERIALS: Chalk, Chalk Board, Essential Financial Accounting Textbook (O.A Longe and R.A Kazeem)

INSTRUCTIONAL METHOD: Guided discovery Method

GENERAL OBJECTIVE: At the end of the lesson the students should be able to prepare the final account of a sole trader,

SPECIFIC OBJECTIVES: At the end of the lesson, the students should be able to:

- i. Define some terminologies and describe the final account of a sole trader.
- ii. Explain the relationship between a trading account, profit and loss account and balance sheet.
- iii. Draw a “T” account and post items to the final account.
- iv. Prepare trading account to show the gross profit or gross loss.
- v. Prepare profit and loss account to show the net profit or net loss.
- vi. Prepare balance sheet and make adjustment.
- vii. Balance the final account.

PREVIOUS KNOWLEDGE: the students have been taught Trial balance and they have an idea of what a “T” table looks like

INTRODUCTION: Teacher arouses students’ interest by asking the following questions:

- i. Who is a sole trader?
- ii. Explain purchases, sales and opening stock.
- iii. What is prepayment and depreciation?

PRESENTATION OF THE LESSON

STEP 1: Teacher defines some terminologies and explains the meaning and importance of trading, profit and loss account and balance sheet.

STEP II. Teacher shows students how to draw a “T” table and prepare a trading account to ascertain the gross profit or loss

STEP III: Teacher guides students on how to prepare the profit and loss account to ascertain the net profit or net loss.

STEP IV: The teacher guides the students on how to prepare and post items to the balance sheet and how to make adjustments on the accounts.

STEP V: Finally, teacher guides students on how to balance the final account of a sole trader.

EVALUATION: Teacher evaluates students by asking the following questions:

1. Who is a sole trader?
2. What is trading account?
3. State reasons for preparing a final account

SUMMARY: The teacher goes over the lesson and highlights the main points worth remembering. The students participated through their contributions to the summary of the lesson and ask questions where necessary

ASSIGNMENT: Teacher asks students to find out the signals of overtrading.

SOLUTION TO ASSIGNMENT: The signals of overtrading include:

1. Increasing amount of creditors
2. More capital locked up in the stock
- 3 Excessive use of Bank overdraft
- 4 Constant use of trade discounts to customers to stimulate sales
- 5 Cash discounts to debtors to encourage prompt payment

- 6 Mortgaging the firms properties in order to obtain loan capital
- 7 High ratio of debtor to equity capital and to sales

APPENDIX V

ACCOUNTING ACHIEVMENT TEST I

Name of school.....

Gender..... Male Female Time...40 minutes

INSTRUCTION: You are required to only circle the correct answer from the four options given at the end of each question.

1. Which of the following is charged to trading account?

A. Discount allowed

B. Carriage outward

C. Carriage inward

D. Salaries

2. Discount allowed is a charge to

A. Trading account

B. Profit and loss account

C. Profit and loss appropriation account

D. Current account

Use the following information to answer question 12 to 14

Purchases N15000

Sales N120000

Stock 1st Dec N20000

Stock 31st Dec N12000

Selling expenses N10000

3. Calculate the cost of goods sold

A. N47,000

B. N23,000

C. N17,000

D. N26,000

4. Calculate the gross profit

A. N97,000

B. N87,000

C. N107,000

D. N122,000

5. Calculate the net profit

A. N107,000

B. N75,000

C. N97,000

D. N87,000

6. The excess of the sales (less returns) over the cost of goods sold is referred to as the _____

A. Net profit

B. Gross loss

C. Net loss

D Gross profit

7. The trading account as a revenue account follows the principle of _____

A. Single entry

B. Going concern

C. Double entry

D Accruals

8. _____ is a statement that shows the presentation of the summary of asset and liabilities in a well arranged form

A. Adjustment account

B. Statement of affair

C. Trading account

D. Balance sheet

9. The profit and loss account balance being the net profit must be added to the _____

A. Expenses account

B. Debtors account

C. Capital account

D. Creditors account

10. The effective amount of money (cash) that is been used to run a business is called _____

A. Working capital

B. Capital register

C. Capital issued

D. Capital employed

11. Expenses prepaid are expenses paid during the period but are for _____

A. Previous period

B. Initial period

C. Current period

D. Subsequent period

12. Owner's equity is also referred to as _____

A. Interest

B. Capital

C. Asset

D. Expenses

13. ____ and _____ method are used in presenting the trading account

A. T and horizontal

B. T and parallel

C. T and vertical

D T and perpendicular

14. Working capital is the excess of the _____ over the current liabilities

A. Total asset

B. current asset

C. Fixed asset

D. Total cost

15. _____ is the stock of goods available at the end of trading period

A. Closing stock

B. Operating stock

C. Opening stock

D. Work in progress

16. The trading account is prepared to show the _____ or _____ for the period.

A. Net profit, net loss

B. Gross gain, gross loss

C. Gross profit, gross loss

D. Net surplus, net deficit

17. The final account is usually headed _____

A. Trading account for the period x x x x

B. Trading profit and loss account for the year ended x x x x

C. Profit and appropriation account as at x x x x

D. Trading profit and loss account as at x x x x

18. The trading account looks at the difference between the _____ and the cost of goods sold

A. Purchases

B. Expenses

C. Sales

D. Interest

19. The goods withdrawn by the owner of the business is deducted from the _____ in the trading account and must be added to _____

A. Sales, drawings

B. Capital, drawings

C. Purchases, drawings

D. Drawings, expenses

20. _____ are asset that cannot be seen and touched, although they have value

A. Liquid asset

B. Intangible asset

C. Current asset

D. Tangible asset

APPENDIX VI

ACCOUNTING ACHIEVMENT TEST II

Name of school.....

Gender..... Male Female Time...40 minutes

INSTRUCTION: You are required to only circle the correct answer from the four options given at the end of each question.

1. The trading account is prepared to show the _____ or _____ for the period.

A. Net profit, net loss

B. Gross gain, gross loss

C. Gross profit, gross loss

D. Net surplus, net deficit

2. The final account is usually headed _____

A. Trading account for the period x x x x

B. Trading profit and loss account for the year ended x x x x

C. Profit and appropriation account as at x x x x

D. Trading profit and loss account as at x x x x

3. The trading account looks at the difference between the _____ and the cost of goods sold

A. Purchased

B. Expenses

C. Sales

D. Interest

4. _____ is the stock of goods available for sale at the beginning of the year.

A. Opening stock

B. Closing stock

C. Operating stock

D. Beginning stock

5. In the profit and loss account, the total expenses is recorded on the _____

A. Credit side

B. Opposite side

C. Sales side

D. debit side

6. The net loss as a profit and loss balance must be deducted from the _____

A. Expenses account

B. Capital account

C. Appropriation account

D. Depreciation account

7. _____ occurs when a firm is engage in buying too much and selling too little.

A. Trading

B. Over trading

C. Overdraft

D. Under trading

8. The following are components of trading except

A. Interest charge

B. Purchases returns

C. Cost of sales

D. Carriage inwards

9. In the trading profit and loss account, the operating expenses are _____ to determined the net income

A. Added to the gross profit

B. subtracted from the net profit

C. Deducted from the sales account

D. Subtracted from the gross profit

10. Carriage outward is charged to the _____

- A. Debit side of profit and loss account
- B. Credit side of profit and loss account
- C. Credit side of trading account
- D. Debit side of profit and loss appropriation account

11. When provision is made for doubtful debt, the accounting entries are debit _____

- A. Profit and loss account, credit debtor account
- B. Debtor account, credit trading account
- C. Profit and loss account, credit sales account
- D. Profit and loss account, credit provision for doubtful debt account

Use the following information to answer question 12 to 14

Purchases	N15000
Sales	N120000
Stock 1 st Dec	N20000
Stock 31 st Dec	N12000
Selling expenses	N10000

12. Calculate the cost of goods sold

- A. N47,000

B. N23,000

C. N17,000

D. N26,000

13. Calculate the gross profit

A. N97,000

B. N87,000

C. N107,000

D. N122,000

14. Calculate the net profit

A. N107,000

B. N75,000

C. N97,000

D. N87,000

15. Which of the following serves the same purpose as a balance sheet?

A. Statement of profit and loss account

B. Statement of balance sheet

C. Statement of affairs

D. Statement of liabilities

16. The final account is headed trading, profit and loss account for the year ended because_____

A. It contains the result of operation of a business over a period

B. It contains the expenses of a business concern

C. It include capital expenditure for a period of time

D. It include the purchases and sales of a business

17. Carriage inward is _____ in the trading account

A. Added to the opening stock

B. Subtracted from purchases

C. Subtracted from the closing stock

D. Added to the purchases

18. The cost of goods is deducted from sales to get _____ or gross profit

A. Immediate

B. Intermediate

C. Operational

D. Interim

19. The revenue earned is the first item that will be recorded as sales on the _____

A. Debit side less return outwards

B. Credit side less carriage inwards

C. Credit side less return inward

D. Debit side less return inward

20. _____ and _____ method are used in presenting the trading account

A. T and horizontal

B. T and parallel

C. T and vertical

D. T and perpendicular

21. The total expenses is recorded on the debit side of the _____

A. Trading account

B. Profit and loss account

C. Appropriation account

D. statement of affairs

22. The difference between the credit and the debit side of the profit and loss account is the _____

A. Net profit or net loss

B. Gross profit or gross loss

C. Net gain or net loss

D. Gross loss or gross gain

23. The disadvantages of over trading include the following except

A. Shortage of cash for future operation

B. Too many creditors to be settled

C. excessive use of customer facilities

D. Reduced assets as some them are fully mortgage

Use the following information extracted from the book of Wacobia Enterprises to answer question 24 -28.

Fixtures	N1,000
Stock 31 st Dec.	N8,000
Debtors	N5,000
Creditors	N3,000
Cash at hand	N7,000
Bank draft	N1,200
Typewriter	N4,500
Capital	N18,000
Furniture	N2,500
One year cooperative loan	N4,100
Profit for the year	N1,700

24. What is the capital owned?

A. N20,100

B. N19,700

C. N18,400

D. N21,000

25. What is the working capital?

A. N11, 700

B. N19,200

C. N9,000

D. N11,900

26. What is the current liability?

A. N8,300

B. N8,100

C. N12,300

D. N9,150

27. Calculate the fixed capital

A. N9,200

B. N8,200

C. N8,000

D. N7,400

28. Compute the capital employed

A. N18, 000

B. N19,700

C. N22,100

D. N20,000

29. The statement of the trading profit and loss account contains a cost of goods sold section that shows the total cost of _____ that was sold during the period

A. Expenses

B. Assets

C. Inventory

D. liabilities

30. _____ is a statement that show the presentation of the summary of assets and liabilities in a well arranged form

A. Adjustment account

B. Statement of affair

C. Trading account

D. Balance sheet

31. Deferral or prepayments are categories into two namely: prepaid expenses and _____

A. Prepaid expenditure

B. Prepaid income

C. Prepaid interest

D. Prepaid capital

32. _____ is the revenue that has been earned but for which cash has not yet been received.

A. Accrued income

B. Prepaid expenses

C. Accrued expenses

D. Prepaid capital

33. Standing timber, minerals deposit and oil that are physically consumed are example of_____

- A. Wasting asset
- B. Liquid asset
- C. fictitious asset
- D. Intangible asset

34. Excessive use of bank overdraft is a _____ of over trading

- A. Indicator
- B. Pointer
- C. Signal
- D. Withdrawal

35. _____ are goods returned to the suppliers which must be deducted from the purchases for the period

- A. Returns inwards
- B. Returns outwards
- C. Carriage inwards
- D. Carriage outwards

36. Goods stolen or destroyed is been deducted from the _____ and posted to the expenses side of the profit and loss.

- A. Sales
- B. Capital
- C. Expenses
- D. Purchases

37. In the profit and loss account, income or gains are _____, while expenses are _____

- A. Credited, debited
- B. Suspended, expended
- C. Debited, credited
- D. None of the above

38. Carriage outward which is also called carriage on sales must be treated as _____ in the profit and loss account

- A. Interest charge
- B. Expenses
- C. Income
- D. Liabilities

39. To calculate the capital employed of a business, you less current liabilities from the _____

- A. Current asset
- B. Total asset
- C. Total liabilities
- D. Capital account

40. Current liabilities are _____ which are payable within a short period of time

- A. Asset
- B. Expenses
- C. Liabilities
- D. Capital

APPENDIXVII

MODEL ANSWERS FOR AAT I

Accounting Achievement Test 1

- | | |
|------|-------|
| 1. C | 16.C |
| 2. B | 17. B |
| 3. B | 18. C |
| 4. A | 19. C |

5. D 20. B
6. D
7. C
8. D
9. C
10. A
11. D
12. B
13. C
14. A
15. A

APPENDIX VIII

MODEL ANSWERS FOR AAT II

Accounting Achievement Test II

- | | | |
|------|--------|-------|
| 1. C | 16. A. | 31. B |
| 2. B | 17. D | 32. A |
| 3. C | 18. B | 33. A |
| 4. A | 19. C | 34. C |

5. D	20. C	35. C
6. B	21. C	36. D
7. B	22.A	37. A
8. A	23. C	38. B
9. D	24. B	39. B
10. A	25. A	40. C
11. D	26. A	
12. B	27. C	
13. A	28. B	
14. D	29. C	
15. C	30. D	

APPENDIX IX

MARKING SCHEME

Accounting Achievement Test I

This includes twenty (20) multiple choice questions. The students are expected to choose the correct answers from the options listed under each question. Five (5) marks will be allotted to each correct answer, which make up a total of one hundred (100) marks.

Accounting Achievement Test II

This includes forty (40) multiple choice questions. The students are expected to choose the correct answers from the options listed under each question. Two and a half (2.5) marks will be allotted to each correct answer, which make up a total of eighty (100) marks.