EFFECT OF PROBLEM-SOLVING AND GUIDED-DISCOVERY METHODS OF TEACHING ON STUDENTS' PERFORMANCE IN FINANCIAL ACCOUTING IN SECONDARY SCHOOLS, KADUNA STATE, NIGERIA

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A DISSERTATION SUBMITED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER DEGREE IN BUSINESS EDUCATION

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DECEMBER, 2017

DECLARATION

I declare that the work in this dissertation titled effect of problem-solving and guided-discovery methods of teaching on students' performance in financial accounting in secondary schools, Kaduna State, Nigeria has been carried out by me in the department of vocational and technical education. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma in this or any other institution.

_____ _____

Avong Paulinus Date

CERTIFICATION

This Dissertation entitled EFFECT OF PROBLEM-SOLVING AND GUIDED-DISCOVERY METHODS OF TEACHING ON STUDENTS' PERFORMANCE IN FINANCIAL ACCOUTING IN SECONDARY SCHOOLS, KADUNA STATE, NIGERIA by Paulinus AVONG meets the regulations governing the award of master of Business Education of the Ahmadu Bello University, and is approved for its contribution to knowledge and literacy presentation.

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DEDICATION

This work is dedicated to God Almighty and the following people;

Matthew	father
Catherine	mother
Lovelyn	wife
Miriam	daughter
Mitchelle	daughter
Marcel	son
Suzana	sister
Mary Ann	sister
Evelyn	sister
Augustine	brother

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ABSTRACT

The study was set to determine the effect of problem-solving and guided-discovery methods of teaching on students' performance in financial accounting in secondary schools, Kaduna State, Nigeria. Four objectives, four research questions were raised and four null hypotheses were formulated and tested at 0.05 level of significance. Quasi experimental research design adopted was adopted for the study. The sample for the study comprises of 91 students for 2015/2016 academic session. Mean and standard deviation were used to answer the four research questions. Independent t-test was used to test the null hypotheses. The findings revealed, among others that students taught financial accounting using guided-discovery teaching method performed better than those taught using problem-solving and lecture methods and concluded that guided-discovery is an effective method of teaching financial accounting to achieve students' academic performance in secondary schools in Kaduna State. Based on the findings, it was recommended, among others, that teachers should be encouraged in the use of guided-discovery method in teaching financial accounting in secondary schools in Kaduna State to enhance students' academic performance.

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OPERATIONAL DEFINITION OF TERMS

Guided-discovery method: Guided-discovery is one of the teaching methods that employ exploration, manipulation and experimentation to find out new ideas. This is a method where a teacher provides example to the learners and help them to find the rules themselves. The students receives problem to solve, but the teacher provides hints and direction about how to solve the problem to keep the students on tract. In guided-discovery method, the leaner is help along by the teacher toward the correct solution.

Problem-solving method: Problem-solving method is the sum total of actions a student takes to bridge the gap between the anticipated solution and the problem itself. This is a method which the learner arrives at a decision based on prior knowledge and reasoning. It is an approach in which the teacher sees himself as a guide, listener and observer rather than authority and answer giver. In problem-solving method, the learner strives for solution unassisted.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CIMA	Chartered Institute of Management Accountants
ERC	Educational Resource Center
FAAT	Financial Accounting Assessment Test
GBSS	Government Boys Secondary School
GCC	Government Commercial College
GGSS	Government Girls Secondary School
GSS (Snr)	Government Secondary School (Senior)
ICAN	Institute of Chartered Accountants of Nigeria
L x B	Length times Breadth
NECO	National Examination Council
RM	Raw Material
SS	Senior Secondary
TBMC	Tafawa Ballewa Memorial College
UBEB	Universal Basic Education Board
WAEC	West Africa Examination Council

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The secondary school level of education is an important stage in the education pursuit of an individual, because it provides the basis on which the individual can opt for a job and be self-reliant or proceed to a higher institution of learning for further studies. This is in line with the objectives of secondary education which prepares learners for useful living and higher education. To achieve these objectives, secondary education in Nigeria has six (6) years duration given in two stages, three (3) years of junior secondary school followed by three (3) years of senior secondary school. The curriculum designed for senior secondary school is comprehensive broad based and aimed at broadening student's knowledge and outlook. Subjects offered in the senior secondary school are in three groups thus: core subjects, vocation and non-vocational subjects. One of the vocational subjects is financial accounting. Financial accounting is seen by Raymond and Ogunbameru, (2005) as the process of recording, classifying, selecting, measuring, interpreting, summarizing and reporting financial data of an organization to the users for objectives attainment 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 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 a proven and time honored, and its formation is universally understood. Books of accounts prepared by accountants in one part of the world are easily understood by their counterparts in other part of the world because the information system is based on principles that are widely accepted and globally used (Uwaimeiye and Ogunbameru, 2005). According to the National Examination Council (NECO 2004), general objectives of studying financial accounting at secondary schools are to enable secondary school students appreciate the basic rules, functions and principles of financial accounting, to lay proper foundation for further study of accountancy and allied courses at higher level and to enable the students understand basic accounting principles, practice and their applications to modern business activities.

In order to achieve the above stated objectives, financial accounting teachers employ various teaching methods in the classroom. These teaching methods are grouped into two; teacher centered methods namely: teacher demonstration, lecture, discussion, among others and learner centered namely: problem solving, guided-discovery, project, among others. Therefore, it is the responsibility of the teacher to choose appropriate methods that enhance learning based on specified topics to be treated and other factors. There are different views as to different methods of teaching use at the secondary school level. For instance, the problem solving method which is learner-centered according to Kocchar (2007) said that this method, attempts to train the minds of the students by confronting them with real problems and giving them the opportunity and freedom to solve them. The major purpose of the problem, as it is used in school, is to afford training to the students in thinking, in solving the problems mentally. Downs (2010) posits that problem-solving is a process of applying previously acquired knowledge to obtain a satisfactory

solution to new and unfamiliar problems. Student taught with this method are given the opportunity to develop critical thinking skills by trying to solve their problems themselves.

On the other hand, guided-discovery method according to Olorukoba and Lawal (2007) is a method of teaching that affords students the ability to solve problems, become active participants, and encourage realism and divergent thoughts. It involves finding out, requires the learner to formulate problems for investigation and hypotheses to guide the investigation and design experiment to collect data. Furthermore, the approach invites the learner to think and to go beyond the given information. This approach is thus used in this study to develop in the learner creative traits that can be useful for bringing about reform/change in learning among students.

Lecture method being the conventional way of teaching by many teachers, according to Abimbola (2004) is a teaching method in which the teacher makes verbal ideas to the student. Downs (2010) opined that lecture method is use because its involve explanation that even for primary school pupils lecture explanation are essential for their achievement, development and growth. In spite of the various methods available to the financial accounting teachers, the performances of the students over the years have not been encouraging. The West African Examination Council (WAEC) report on 2010 examination revealed a very high rate of failure in financial accounting; a number of authors are of the view that the most contributing factors to these failures are methods of teaching used by the financial accounting teachers.

Ehiametalor (1990) said the effective learning of financial accounting depends on the effective teaching of the subject and available resources. Really it is assumed that the methods of teaching financial accounting largely determine whether students would learn or not. It means

that if, the appropriate teaching methods are not used effectively, learning would not take place and academic performance would be poor. Also, Okon (2002) observed that the teaching methods use by financial accounting teachers in secondary schools have failed to produce students with needed skills for employment and admission into tertiary institutions. It is against this background that this study was conducted to establish empirical evidence on effect of problems-solving and guided-discovery methods of teaching on students' performance in financial accounting in secondary schools, Kaduna state, Nigeria.

1.2 Statement of the Problem

One of the objectives of business education subjects taught in secondary schools is to enable students prepare, choose, enter into and progress in occupations of their choice. Whether paid employment or self-employment, the emphasis is on the exposure and acquisition of relevant knowledge, skills and attitudes adequate for employment in specific business occupation. Therefore, teachers are expected to device ways of making their students develop positive attitudes toward business subjects particularly financial accounting. The relevant knowledge of financial accounting exposes learners to a number of skills that are useful in the world of works and in one's own business.

The rate of failure in financial accounting in secondary schools particularly in Kaduna State has been alarming. This is evident in the Educational Resource Center (ERC, 2008) report on WAEC for the year 2006 and 2007 financial accounting results. The report revealed that 51.8% and 55.1% of students who took financial accounting failed respectively. WAEC (2010) report the percentage performance of candidates in financial accounting for the year 2008, 2009 and 2010 which revealed that 52.48%, 58.21% and 51.21% respectively, failed. Also, NECO

report for the year 2011 and 2012 results of financial accounting which revealed that 87.72% and 87.92% of the candidates failed in financial accounting. This poor performance in financial accounting depicts the inability of candidates to get admission into institution of higher learning. Some researchers are of the view that most of the reasons for the failure can be attributed to the ineffective teaching methods used by financial accounting teachers in secondary schools which failed to produce students with the needed skills and knowledge to comprehend for examinations and admission into tertiary institutions not to talk for preparing them into gainful employment.

The researcher's interaction with some financial accounting teachers in some secondary schools in Kaduna metropolis reveals that there are inadequate facilities and lack of seriousness on the part of the student. Also an interaction with the students has shown that most did not understand the subject very well, possibly because of the teaching methods used by the teachers. These inconsistencies in opinions prompted the researchers' concerned and seeks to establish the causative factors of poor results with reference to the methodology of teaching financial accounting with particular reference to problem-solving and guided-discovery methods of teaching.

1.3 Objectives of the Study

The main objective of this study was to ascertain the effectiveness of problem-solving and guided-discovery methods of teaching on students' performance in financial accounting in secondary schools in Kaduna State, Nigeria.

The specific objectives were to:

i. compare the effect of using problem-solving and lecture methods of teaching on the performance of secondary school students in financial accounting.

ii. determine the effect of using guided-discovery and lecture methods of teaching on the performance of secondary school students in financial accounting.

iii. ascertain the effect of using problem-solving and guided-discovery methods of teaching on the performance of secondary school students in financial accounting.

iv. determine the effect of using problem-solving, guided-discovery and lecture methods of teaching on the performance of secondary school students in financial accounting.

1.4 Research Questions

The study provided answers to the following research questions:

i. what is the effect of using problem-solving and lecture methods of teaching on the performance of secondary school students in financial accounting?

ii. what is the effect of using guided-discovery and lecture methods of teaching on the performance of secondary school students in financial accounting?

iii. what is the effect of using problem-solving and guided-discovery methods of teaching on the performance of secondary school students in financial accounting?

iv. what is the effect of using problem-solving, guided-discovery and lecture methods of teaching on the performance of secondary school students in financial accounting?

1.5 Research Hypotheses

The following null hypotheses were stated to further enable the researcher arrive at meaningful conclusion:

i. there is no significant difference in the performance score of students taught financial accounting using problem-solving and those taught using lecture method of teaching.

ii. there is no significant difference in the performance score of students taught financial accounting using guided-discovery and those taught using lecture method of teaching.

iii. there is no significant difference in the performance score of students taught financial accounting using problem-solving and those taught using guided-discovery method of teaching.

iv. there is no significant difference in the performance score of students taught financial accounting using problem-solving, guided-discovery and lecture methods of teaching.

1.6 Significance of the Study

It is expected that the study findings would be beneficial to the following stakeholders; students, teachers, curriculum planners, policy makers as well as other research.

The students will benefit immensely from this study in that most effective methods of teaching financial accounting had been revealed by this study. Such methods would be used in the classroom to teach the students financial accounting so as to make them skillful and perform better academically in their final examinations. The findings of this study will assist teachers in practicing financial accounting using effective methods of teaching in secondary schools in Kaduna state, thereby, exposing the students to meaningful learning experiences. The study will be significant and beneficial when designing curriculum for financial accounting. This will go along way to recommend textbooks and other materials for financial accounting. The findings will be of help to policy makers in Kaduna state and Nigeria as a whole in the area of vocational and technical education to include appropriate in-service training programme and encouraging financial accounting teachers to attend seminars, workshops and conferences on the use of teaching methods for financial accounting. Finally, the findings of this study will serve as a reference material to other researchers.

1.7 Basic Assumptions

The basic assumptions for this study are that:

i. Failure in financial accounting in public examinations (WAEC and NECO) is as result of the ineffective methods used in teaching the subject.
ii. The student's performance in financial accounting will be enhanced with the use of problem- solving method of teaching.
iii. The student's performance in financial accounting will be enhanced with the use of guided -discovery method of teaching.

1.8 Delimitation of the Study

This study was delimited to the use of two (2) teaching methods: problem-solving and guided-discovery as these were the chosen methods by the researcher. It was also delimited to one (1) public secondary school offering financial accounting in Kaduna State, Nigeria. The study was delimited to both male and female senior secondary two (SSII) students study because they have background knowledge of the subject. The study was delimited to manufacturing account without adjustment. The choice of this topic was in line with the secondary schools' syllabus for SSII that includes manufacturing accounting and the topic encompasses other topics such as trading, profit and loss accounts and balance sheet.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents the review of studies that are relevant to the current research under the following sub-headings:

2.1 Theoretical Framework

2.2 Historical Development of Financial Accounting in Nigeria

2.3 Teaching Methodology and Effective Teaching

2.3.1 Problem-solving Method

2.3.2 Guided-discovery Method

2.4 Academic Performance of Students in Financial Accounting

2.5 Empirical Studies

2.6 Summary of Related Literature Review

2.1 Theoretical Framework

The theoretical framework adopted for this study is based on constructivist theory of teaching propounded by Jerome S. Bruner (1967) who is considered as the father of discovery learning by many authors. For instance, the Encyclopedia of educational technology one can find the following quote from Bruner "emphasis on discovery in learning has precise effect on the learner leading him to be a constructivist, for organizing what he is encountering in a manner not only designed to discover regularity and relatedness, but also to avoid the kind of information drift that fails to keep account of the uses to which information might have to be put" (Bruner,

1967). The theory states that learning is a process in which the learner is able to build on present and previous information through practice and activity. The student should be able to take information, create ideas and make choices by utilizing a thought process. The teacher therefore, should encourage the students to develop skills to find out principles in their own. According to him, constructivist learning theory takes place in problem-solving situations where the learner draws on his or her own past experience and existing knowledge to discover facts and relationships and new truths to be learned.

Students may be more likely to remember what they see and practice on their own. Students therefore interact with the world by exploring and manipulating objects, wrestling with questions and controversies or performing experiments. Proponent of this theory believe that it has many advantages which include encouraging active engagement, promotes motivation, promotes autonomy, responsibility and independence, encourage the use of all the five senses in learning. This theory assist the current research work since it is an activity based which is related to Jerome Bruner's constructivist learning theory.

2.2 Historical Development of Financial Accounting in Nigeria

Financial accounting is one of the business education subjects at all levels of education, therefore, its history cannot be over emphasized. Udoh (2004) summarized the early development of accounting thus: a form of accounting originated when man felt it was necessary to count and maintain records of his personal possession, such as livestock, grains or ship as was the case with the scribes of ancient Egypt who maintained a comprehensive record of wealth accumulated by each Pharaoh (King). Clerks employed by merchants and government tribunal in the Greek and Roman empires recorded the daily financial activities undertaken by their mangers

and organizations. It appears however, that the system of accounting as known today was not developed or communicated until late 15th century.

Some scholars give five (5) pre-requisites for the emergence of modern accounting system as:

a. Written language
b. A common monitory standard
c. Arithmetic
d. Intensive commerce
e. An inventor of synthesizer of the art (Luco-Paciolo).

The first and third requirements were so obviously present during that period that their importance tends to be ignored. It could be recalled that the primary standard of money during the late 15th century was the gold and before some medium of exchange became generally accepted, the then accountant would have had serious difficulty in totaling the assets of a company that consisted, for instance of 40 silver, 1 gold, 3 ships purchased for 900 herds of cattle, and a warehouse filled with 400 sacks of salt.

The scholar priest Luco-Paciolo (1445-1515) is usually credited with synthesizing accounting as was then practiced into the foundation of the modern accounting. Paciolo, an eminent Mathematician and Logician was disturbed by the frantic pace of economic activity and often haphazard manner in which financial records were maintained. He first applied theory of the solution of these practical problems and published the foundation for accounting in his Mathematical treatise- SUMMA DE ARITHMETICAL GEOMETRIA PROFOTTION ET PROPORTION ACITA in 1494.

Accounting evolved from this point into a socially useful discipline whose present purpose is to coherently and systematically organize such a chaotic assortment of financial duty present day accounting system closely resembles the process described in paciolo's treatise. However, the following environmental changes have allowed the scope and complexity of today accounting. They include:

i. The industrial revolution required that accounting extend itself into new and complex area of mass production of goods and that of services.
ii. The accelerated pace of business and technological changes compelled accountants to develop improved techniques of accumulating and analyzing financial information.
iii. The increase role of governments in the taxation of incomes and property and the regulation of competition necessitated that the accounting departments prepare numerous technical and comprehensive financial reports for those government agencies.
iv. The emergence and growth of the corporate form of business, first in England and later in America and of course to other parts of the world required the accounting profession to extend its methodology and procedures to accommodate the more complicated and sophisticated form of business organizations.
v. A wider range of individuals and organizations required financial information; thus, forcing accountants to interpret and communicate the information in a manner that each could understand.

Agboh (2007) put the historical development of accounting in Nigeria as follows; the evolution of accounting practice in Nigeria may be seen as having little or no traces, as there was no Nigeria before the emergence of the Europeans, nor where there any means of recording

events. Nigeria was made up of long natural geographical segments, the North, and South, with the south further divided into East and West. Nigeria as a political entity was conceived delivered in 1914, by British colonial masters, through the amalgamation of the Southern and Northern protectorates. Before the birth of the political entity and state today known as Nigeria, the only known class of record that existed was the use of memory and oral accounting. Later, the use of sticks, pebbles and making a stroke on the wall was used to represent debt owned, payment made and balance thereof. Though, there were noticeable trade in virtually all these district long geographical segments of the north and south. It was only in the north that formal traces of administration were identified. The Fulani Jihad of Othman Danfodio, which made the whole north a colony, established an elaborate administrative practice and procedure. The Emirs took over their territories and have established taxing system. There were such taxes as Zakat, the Muslim charity and education tax; and 'jangali' a form of cattle tax.

In the south, the tax system was not properly defined and was unorganized. It was only seen in the form of tributes and arbitrary levies payable to the rulers and without identified records. The Emirs keep records of their taxes as they through its religious practice (the Islam), practice a class of writing-the-Arabic writing, which were learnt and in somewhat ways used as a means of record keeping. The major development in writing and record keeping in Nigeria aligns with the advent of the Europeans, which presumable dates back to 1891, when, the British first declared its interest in making Nigeria a colony. The processes involved in making their interest felt, the removal of the traces of African opposition, their expansion and consolidation of British had succeeded in entrenching themselves firmly in Nigeria by 1914. The usual known long segments of the North and South alongside the Niger border were amalgamated and known as Niger-area (Nigeria). Lord Lugard introduced, formalized tax practices and efficient recording

system. Another epoch making event in the development of accounting in Nigeria was the introduction of British Bank of West Africa(BBWA) in 1894 (now the First Bank of Nigeria Plc); and the Barclays Bank DCO in 1917 (now Union Bank of Nigeria, Plc). The indoctrination of the formal British administrative practices, religion, trade, banking system, education among others, were adopted at par with the British system of accounts. Today, all Nigerian modern accounting practices, specialized accounting bodies and profession, changing and emerging accounting trend and practices, follow the European established style. The establishment of the Lagos stock-exchange in 1961 by an act of parliament and the subsequent establishment of institute of Chartered Accountants of Nigeria (ICAN), by an act of parliament No.15 of 1965 were all to encourage accounting profession in Nigeria, but serve more a subsidiary to its European counterparts.

On September 9, 1982, the Nigerian Accounting Standard Board (NASB) was established to regulate the standard of accounting practices in Nigeria. This body was instrumental to the establishment of the Association of Nigeria Accountants (ANA), one of the existing professional bodies that possess a charter status. The meaning is that accounting practice in Nigeria today is not in isolation of the international pattern and standard, which places major emphasis with provisions of two basic information, viz:

i. Financial accounting information: The recording of day to day activities of business and producing periodic summaries.
ii. Management cost accounting information: The supply of accounting information to internal management in order that it can attempt to plan and control its further business activities (CIMA, 1990)

2.3 Teaching Methodology and Effective Teaching

Teaching involves the imparting of knowledge which takes place in the classroom. New methods of teaching are always contemplated and developed in order to make teaching more meaningful and realistic. As there were many methods of teaching, it is, however, pertinent to release that any method of teaching is only means to an end and not an end itself. Teaching can be effective only when the individual involved is interest on the subject he/she is to teach. Interest in the subject generated through a motivational pressure which leads to active preparation for the lesson and meaningful teaching of the subject (Aliyu, 2000). No matter how good the stated objectives may appear, it cannot be automatically realized except it goes through the right process, that is the teaching and learning process. Makama (2005) sees teaching method as an orderly procedure in which information is presented to students. It is a process of directing and controlling the experiences of learner, stimulating and guiding them, organizing experience for the learners, helping such individual or group of individuals to discover and develop potentialities for the happiness and social welfare (UBEB, 2008). According to Ajoma (2009) teaching method is the professional technique teachers adopt in their instructional exercise to enable them impart relevant knowledge and skills to their student.
To achieve this, the teacher select the best methods to be used in the classroom, as there is no rule or law that prohibits the use of one or more appropriate method(s) in a lesson period. A skillful teacher is knowledgeable about methods selected according to the needs of the particular class he is teaching. Teaching methods, if used effectively by teachers thereby increase the performance of students while some methods used in teaching a different class of students may not yield same result, but unfortunately, some teachers treat different classes as if they are the same.

Effective Teaching

Teaching involves the imparting of knowledge which takes place in the classroom. Bastick (1995) stressed that effective teaching is a way of maximizing student's academic attainment. This assertion was further supported by Boice (2000) who believes that effective teaching requires being able to decide what to teach and how to teach it and assessing how well your students have learned what you are teaching. According to Aliyu (2000), a teacher's effectiveness in relation to student's performance is largely measured by student's achievement in acquiring a particular knowledge or skill. This could be achieved through effective teaching. Furthermore, a teacher should have good knowledge of many teaching methods because the teaching method that succeeds today may fail tomorrow because of unforeseen circumstances such as the age of the learner, weather, among others. A teacher should always study the situation in the class and if he notices that his method is not giving result as planned, he should change it with another one. A teacher cannot be effective without a good teaching method, but no teaching method is good without a good teacher, and the teacher should be able to select his teaching methods to meet the prevailing circumstances in the classroom (Aliyu, 2000). In their own contribution, siagh and Rana (2004) opined that able teachers always and mean to improve their teaching technique. With the changes in time the teachers are asked to employ new methods of teaching their students more effectively so that they must be able to cope with the demand of the age.

Berk (2005) said measuring teaching effectiveness is important because the evidence produced is used for major decisions about academic. There are two types of decision namely; formative and summative. Formative decision is that which uses the evidence to improve and shape the quality of teaching and summative decision is that which uses the evidence to "sum-

up" overall performance or status to decide about annual merit, pay, promotion and tenure. The formative involve decisions to improve teaching while summative consist of personnel decisions. The author further derived some strategies to measure effective teaching thus;

i. Student's rating
ii. Peer rating
iii. Teaching evaluation
iv. Videos
v. Student interviews
vi. Alumni rating
vii. Employer rating
viii. Administrator rating
ix. Teaching scholarship
x. Teaching awaits
xi. Learning outcome measurement

Mishara (2007) said that even students are concern about effective teaching, even though students are turned off by poor teaching. He also have identified characteristic of good teaching to include:

i. A teacher's enthusiasm and passion for the subject
ii. Rapport between a teacher and a students or group of students during discussion and out of class.
iii. Intellectual challenges from a teacher

iv. Clarity and organization in presenting analytical and conceptual understanding of ideas

In view of the above, the researcher is of the opinion that, it is impossible to be an effective teacher without being competent in both subject matter knowledge and teaching ability. Consequently, subject matter knowledge remains a necessary pre-requisite for effective teaching but not the sole determinant that is, both subject matter knowledge and knowledge of methodology will lead to effective teaching.

2.3.1 Problem-solving Method

Problem-solving is a method that involves students problem comprehension, attempted solution, decision making and the drawing of tentative conclusion in brief, reflective thinking (Aliyu, 2000). Bhardwaj (2000) saw problem-solving as the process of applying a method not known in advance to a problem that is subject to a specific set of conditions and that the problem solver has not seen before in order to obtain a satisfactory solution. Lambros (2002) affirmed that when we examine literature it is seen that research studies focused on the use of problem based learning in elementary, secondary and higher education. Herrid (2003) observed that in the present era, problem based learning is extensively used nearly in all areas. According to Walker and Lofty (2003) each society expects from its educational system that it enable individuals to become an effective problem solver in their real life. Orphan and Ruhan (2006) expressed that problem solving method of teaching is an active learning process where learners learn according to their own needs and pace. Also, Snyder and Snydre (2008) stated that critical thinking skills are important because they enable students to deal effectively with social, scientific and practical problems. Simply put, student who are able to think critically are able to solve problems

effectively. Ajoma (2009) opines that problem solving is an advanced method of teaching and stop learning and since it involves making observations, investigations and data gathering for solving a problem, it appears scientific and it helps both the teachers and learners of financial accounting to learn new concepts and ideas through problem solving leading to discovery, apply previous knowledge to solve problems in financial accounting and identify problem areas of students based on what they have learnt.

Downs (2010) stated that problem-solving method is a process of applying previous acquired knowledge to obtain a satisfactory solution to new and unfamiliar problems. The free Encyclopedia Wikipedia (2010) defined problem solving method as a mental process and is part of the larger problem that includes problem finding and problem shaping. Consider the most complex of all intellectual function. Problem solving has been defined as higher order cognitive process that requires the modulation and control of more routine or fundamental skills. This means that students need to develop critical thinking abilities to be able to solve problems.

The researcher is of the view that problem-solving is a method where the learner arrived at a decision based on prior knowledge and reasoning. It is an approach in which the teacher sees himself as a guide, listener and observer rather than an authority or answer giver. It is the most convenient approach to achieve the aims of teaching learning process. In this regard, it is essential for the students to be prepared for future challenge by facing real life or real life problems in their learning environment and finding appropriate solution of these problems.

Kochhar (2007) outlined the following steps being essential qualities of a problem-solving method:

i. Discovering considering, discussing, selecting and stating the specific problem or question
ii. Collecting organizing, comparing and judging significant information in the light of the defined problem
iii. Exploring the problem and framing some possible solutions
iv. Drawing preliminary conclusions for further exploration and study
v. Evaluating findings and establishing a conclusion
vi. Considering the summarization with the possibility of further study
vii. It should be in line with the needs and interests of a particular group of students.
viii. The problem should be valuable and timely
ix. It should impact functional and rich learning
x. The student should feel that the problem is their own. The teacher can motivate the students in the manner to make the students think out the problem under study themselves
xi. Students should identify the problem and its means of execution to avoid wastage of item
xii. Conclusion and generalizations, once found should be stated very clearly so that these can be further used in the solution of new problems.

According to Gallagher, Stephien, Sher and Workman (1999), problem-solving encourages learning environment where students act as a professionals and are confronted with problem that require clearly defining and well structured problems developing hypothesis assessing, analyzing data from different sources, revising initial hypothesis as the data collected developing and justifying solutions based on evidence reasoning. They further stated that the

practice of problem based learning is richly diverse as educators used problem- solving method as an educational tool to enhance learning as a relevant and practical experience to have student's problem-solving skills and promote students in dependent learning skills. Similarly, Eng (2001) opined that the aim of problem- solving learning is to deliver a total learning environment that is holistic to student centered and student's empowerment, presenting students with problem give them the opportunity to take risk to adopt new understanding to apply knowledge to work in context and to enjoy the benefit of being discoverers.

Tick (2007) stated that in the student centered learning environment like problem-solving method is desirable for problem based learning, where the central figure of teaching learning process is the student. The learning objective is not the reproduction, recall and learning of passively received learning material out the active and creative engagement of studies in group work and in individual studies this transforming the skills and knowledge. Snyder and Snydre (2008) noted that problem solving activities; active participation in the learning process, self direction, identification of own learning needs, team work, creative discussion and learning from peers and the integration and synthesis of variety of knowledge promote critical thinking and problem solving skills.

Steps to follow by the Teacher in Problem solving Method

The steps may be summarized as follows according to Aliyu (2000)

i. Explaining the nature of the problem to be solved. Defining the problem carefully
ii. Explaining the requirements of the solution. Telling the students what must be accomplished
iii. Maturating students by stressing the importance of the problem and its solution

iv. Suggesting possible sources of aid, such as reference to the textbook or to past experience in handing closely related problems.

v. Listening student solutions, examining results and given assistance in evaluating the effort of various students

vi. Helping the students decide on most acceptable solution

vii. Providing additional problems, which will enable the students to make practical applications of the understanding gained by them through problem solving

viii. Model the behavior that the student will adopt

ix. Monitor the progress of each student

x. Monitor attendance

xi. Provide feedback to management/planning group

It is however, necessary to warn teachers that problem solving method requires careful planning and organization of materials.

Steps to be followed by Students in Problem solving Method

The steps may be summarized according to Okoli (2011) as follows

i. Hearing the teacher explain the problem to be solved. Getting the problem clearly in mind

ii. Notes down ideas and concepts even if apparently trivial

iii. Organizes the notes by categorizing concepts

iv. Understanding the requirements of the solution learning what must be accomplished

v. Recalling past experience trying to relate the problem and its probable solution to other similar problems that have already been solved

vi. Attempting to solve the problem

vii. Examining and evaluating the results of his efforts to solve the problem

viii. Presenting his solution, listening to other students present their solutions

ix. Deciding upon the best solution to the problem, receiving directions on using the solution

x. Applying the solution agreed upon to additional problem in order to gain competence in handling them.

Many financial accounting teachers, however, argued that the problem solving method is slow and cumbersome and that too few students rise to the challenge of learning it.

Major Approaches in problem solving

Kochhar (2007) stated four different approaches that may be followed in problem solving thus; inductive, deductive, analytic and synthetic

Inductive Approach

Here the student is enabled to arrive at the general conclusion, establish laws or formulate generalizations through the observation of particular facts and concrete examples. A universal truth is proved by showing that, if it is true for particular case and is further true for a reasonably adequate number of cases, it is true for all such cases. The formula or generalization is thus arrived at through a convincing process of reasoning and solving of problems. After a number of concrete cases are understood, the student can successfully attempt the generalization for instance, the students are conducting a number of experiments to arrive at conclusion that air has

weight. In a geometry lesson, by measuring the angles of a triangle come to the conclusion that their sum is equal to two right angles. Thus, the approach is mainly developmental.

Merits

i. It is easy to understand a grammatical principal established through a number of formula are clarified in the very beginning.
ii. It is a logical method
iii. It gives the opportunity of active participation to the students in the discovery of a formula
iv. It is based on actual observation, thinking and experimentation
v. It reduces dependence on memorization and homework
vi. When a new rule is to be taught, inductive approach is the best
vii. It gives freedom from doubt and helps in understanding

Demerit

i. It is limited in range. It contains process of discovering the formula with the help of a sufficient number of case but what next is not provided in it. The discovery of a formula does not complete the study of the topic. A lot of supplementary work and practice is needed to fix the topic in the mind of the learner
ii. Inductive reasoning is not absolutely conductive. Three or four cases are picked up to generalize an observation. Therefore, the process establishes a certain degree of probability which can of course be increase and made more valid by increasing the number of cases.
iii. It is likely to be laborious and time consuming

iv. At the advanced stage, it is of less importance as useful as some of the unnecessary details and explanations may become dull and boring

Deductive Approach

It is opposite of the inductive approach. Here the learner proceeds from general to particular, abstract to concrete and formula to example. The reconstructed formula or definition is explained to the students and they are asked to solve the problem with the help of that formula. The formula or definition is accepted to the learner as a well establish truth. The teacher announces relevant formula or definition. Students are told air has weight, thus they are asked to verify it by means of experiments. They are told that area of a rectangle = L X B. Then a few sums are solved before the students. The students apply these formulas to solve the problem and they memorize it for future use, thus as the students accept the general statement or the roles and the formula without challenging, regardless of whether they are correct or incorrect or in harmony with outer reality, the approach is authoritative and not developmental.

Merits

i. The method is short and time saving. The books and teachers, thus, have some preference for it
ii. It glorifies memory as the students have to memorize a considerable number of formula and definitions
iii. During practice and revision stage, deductive method is adequate and advantageous
iv. It compiles with the inductive method to remove the incompleteness and inadequacy of the latter.
v. It enhances speed and sufficiency in solving problems.

Demerits

i. It is very difficult for a beginner to understand an abstract formula if it is not preceded by a number of concrete instances.
ii. Pure deductive work requires a formula for every type of problem and extensive use of this method will demand the blind memorization of a large number of formulas. It will thus cause unnecessary and heavy burden on the brain
iii. Here memory is more important than understanding and intelligence
iv. If the student forgets the memorized formula which is very likely in cramming. He cannot recollect and reconstruct the formula easily
v. The students cannot become active learners
vi. It is not suitable for the development of thinking reasoning and discovery

Analytic Approach.

Analysis means breaking up of the problem in hand so that it ultimately gets connected with something obvious or already know to us. It is the process of unfolding of the problem or conducting its operation to know its hidden aspects. We start with what we have to find out. Then we think of further steps and possibilities which may connect the unknown with known and lead us to find out the desired result.

Merits

i. It is logical method, leaves no doubts and convinces the learner
ii. The steps in its procedure are developed in a general manner. Each step has its reason and justification

iii. The students are throughout faced with questions and this increases his power at every step.

Demerits

i. It is a lengthy method

ii. It is difficult to acquires efficiency and speed with this method

It may be applicable to all topic equally well.

Synthetic Approach

It is an opposite of analytic. Here, we proceed from known to unknown. Synthesis is to place together things that are apart. It begins from something already known and connects it with unknown part of the statement. It begins with the data available or known and connects them with unknown. It is the process of putting together known bits of information to reach the point where unknown information becomes obvious and true.

2.3.2 Guided-discovery Method

Many perspectives were given to guided-discovery method of teaching by authors. Here are some definitions according to different points of view. Mabrook (1990) defines guided-discovery as a process that the researcher uses to introduce new materials to explore centers or areas of the classroom and prepare learners for various aspects of the curriculum. This process gives students and opportunity to creatively and appropriate choices with regard to the focus of the discovery. Goodyear, Njoo, Hijne and Van Berkun (1991) presented guided-discovery in the term of constructs and summarized that guided-discovery is a constructivist instructional design

model that combine principles from discovery learning and with principles from cognitive instructional domain. They also added that students discover knowledge with the teachers' guidance developing their own understanding. The role of instruction is merely to provide a suitable environment for them; "Constructivism" means that students built their own knowledge relying on their prior knowledge and gradually more from the low level of thinking to higher one. Nierenberg (1998) reported that guided-discovery learning conceives didactic instruction with more students centered and task based approaches. It can be characterized by giving frame work for students learning, students responsibility for exploring content needed for understanding, provision of study guides and application of experimental problems, for him, "Didactic means that the task is kept under the control of the teaching techniques represented by encouraging student to become more active in learning through answering a chain of questions or solving problems designed in order to reach the general concept (Mayer, 2003).

In view of the above definitions, the researcher defines guided-discovery operationally as an instructional approach based on leading questions and problem framing that guide students to obtain knowledge and discover relations and concepts by getting involved in the classroom interaction where the teacher helps them to be more active and more responsible for their learning.

Features of good Guided-discovery Method

Learning how to learn through the process of discovery and the exploration of knowledge coupled with the responsibility of the learner are the main features of a guided-discovery. This helps the learner to master the content needed for understanding. According to spencer and Jordan (1999), the key features of a good guided-discovery are;

i. A context for students learning is chosen to suit the learning outcomes.

ii. Students have the responsibility for exploration of content necessary for understanding through self directed learning

iii. Study guides are used to facilitate and guide students during their learning

iv. Understanding is reinforced through application in problem oriented task based and work related experiences.

v. Guided-discovery can be enhanced with various tools. One of these tools is simulation happens when the teacher provides students with examples and hints to help them understand certain and continue following the instructions and reaching discovery.

Benefit of Guided-discovery Method

Linton (1998) said that in guided-discovery, learning and development depend on students experiences as they are cognitively (the level of thinking) active in their attempts to make sense of those experiences. Social interaction is used to analyses the data and that help to guide students towards more nature understanding. He also suggested that following benefits gained through learning by guided-discovery method,

i. Students are encouraged to explore the content through the use of concrete experiences

ii. Students are allowed to use their own skills to generate content information

iii. The teacher is released from the role of authority and giver of knowledge to become a facilitator and fellow investigator

iv. The notion that the teacher must know all the answers is replaced

Akerson, Hanson and Cullen (2007) reported other benefits of guided-discovery method as:

i. Students are actively involved in the process of learning and the topics are usually intrinsically motivating
ii. The activities used in discovery contexts are often more meaningful than the typical classroom exercises and textbook study
iii. Students acquire investigative and reflective skills that can be generalized and applied in other contexts
iv. New skills and strategies are learned in dealing with contexts
v. The approach builds on students prior knowledge and experience
vi. Independence in learning is encouraged
vii. Students are more likely to remember concepts and information if they discover them on their own

According to the researcher, the benefits of guided-discovery method of teaching are obvious either for the teacher or for the student because they are the human being in the classroom who interacts in doing the task

The Role of the Teacher in a Guided-discovery Method

The teacher plays a great role in the process of interaction either between the teacher and the students or between students-students or the students and the classroom environment. Hardly, Jonen, Mole and Stern (2006) argued that students will often have misconceptions about something and do not know they have them. It becomes the teacher's job to draw out of such misconceptions and make them visible to the students. Without guidance, students will be unable

to relate their discovery activity to their misconception. Knuth and Cunningham (1993) opined that the role of the teacher is to provide opportunities for students to reflect upon their own thinking. One of those opportunities arises when it is time for the students to evaluate their own discovery against ideas. Without teacher's guidance this would not happen. The teacher must intervene at the end of each activity and provide the students with appropriate source material or at least guide them to seeking said material so that the students can compare their own result with others. Then there are those students who are completely lost and have no prior knowledge let alone misconceptions about a particular idea that they must discover. To him, financial accounting students sometime do not integrate new situations comfortably into existing knowledge because of not remembering the principle. The students need a lot of support and help and discovery activities easily lend themselves to this with teacher's guidance. Often, it is necessary for teachers to intervene during discovery learning when students need a bit of background knowledge for topics that may be completely new to them. Teachers should anticipate possible difficulties to discovery learning ahead of time and prepare well constructed questions that can help students connect the activity to prior knowledge or lead them to a path towards the solution.

Knuth and Cunningham (1993) claimed that to hold students' interest, the teacher can allow the students to take part in choosing the purpose of a discovery activity can yield wonderful results. The key is to provide a context that students can operate with and give them a goal or purpose for their activity. As long as the purpose holds the student's interest, they will be driven enough to continue with the discovery process.

In the light of these, the researcher summarized the role of the teacher in three points:

i. Clarifying the wrong concepts for the students
ii. Framing well activities and questions which lead students to discovery
iii. Given necessary support and help

Stages of a Guided-discovery in Financial Accounting Lesson

The teacher in a guided-discovery lesson pays great attention to the appropriate order of the components of his/her lesson. In this regards, Blackburn, James, Milne, Baler, Standart, Garland and Reichelt (2001) summarized six stages in which teachers engage students in a guided-discovery lesson as follows:

i. Introduction: the students and teacher work to generate excitement about the material or area to motivate a productive session of exploration
ii. Generate Ideas: the students list various uses for the item or area. Some may be traditional uses and some may be less obvious and more creative. The teachers demonstrate appropriate uses as they are suggested
iii. Learner Explore: the students experiment with the material or area under the guidance of the teacher, this allowing them to be active participants in the learning and affording the opportunity to formulate any questions
iv. Sharing: the students have an opportunity to share the fruits of their exploration and point out aspects that feel would be of interest to the group
v. Clean-up and care: the students suggest ways that the material or area should be handled and maintained. This provides a framework for future classroom expectations

vi. Extensions: the students work alone in pairs, or in groups to further explore the material or area and begin to put its use into practice

In spite of the stages in guided-discovery, it is not easy to adopt this method unless the teachers and the students are aware of their role in the teaching and learning process. In Addition, the school administration has an essential role in facilitating the mission of the teachers as well as that of the students. Gagne, Wager, Golas and Keller (1999) stated the following problems with guided-discovery;

i. Students, especially group learners are not good investigators nor do they automatically know how to work appropriately, especially in small groups.
ii. Collaborative and investigation skills need to be taught in order for guided discovery to be fully effective
iii. Because students work independently, time is a problem. Some students finish early, others take too long.
iv. Because students are developing their own exploration activities, different and incorrect answers frequently result. Because the final outcome of guided discovery is the teaching of content, such differences and deviations may caused confusion. Some students develop guided discovery activities that are not relevant to the problem at hand and may lead to confusion or at least not to the content that the students are intended to learn
v. The method is time consuming. Investigation, activity development and drawing conclusion all take time

Mayer (2004) on the other hand mentioned that though the guided-discovery represents some common challenges as outline above, it is more particularly important because it enhances students learning due to the fact that:

i. Guided-discovery method often requires a resource rich learning environment
ii. Young children often have difficulty in forming opinions, making predictions or drawing conclusion from evidence. They have major problems with inductive reasoning
iii. Teachers are not necessarily good at creating and managing discovery learning environment resulting sometimes in poor outcomes.

To this end, guided-discovery is a method where a teacher provides example to the learners and help them to find the rules themselves. The students receives problem to solve, but the teacher provides the hints and direction about how the to solve the problem to keep the students on tract. Also, class management of students' activities is very necessary in guided-discovery lesson. In addition, the materials must be carefully planned in advance and monitor to prevent chaos as students begin to investigate the intended knowledge. The students must be led towards the discovery at every stage of the lesson.

2.4 Academic Performance of Students in Financial Accounting

Students' academic performance is the process whereby students' educational activities are measured by examination within the context of a curriculum. Any expression used to

represent students scholastic standing is usually referred to as academic performance (Ugwuogo, 2000). The author further enumerated some factors that affects students' academic performance in financial accounting as intelligence, entry qualification, personality trait, socio economic background, school environment, teachers teaching methods, study habit and students attitude toward financial accounting as a subject. That these factors are not mutually exclusive or independent but combine to explain the patterns of human existence, which result in differential academic performance of students.

Another factor influencing students' academic performance is the teacher's teaching method. There is a popular saying to this effect that no nation can rise above the quality of its teachers and that no teacher can teach more than what he knows. Several qualities are expected of a good teacher of financial accounting. A good financial accounting teacher should be qualified and have experience in the subject being taught, mentally alert friendly, reliable, enthusiastic, fair and firm, adaptable and not difficult in delivering his less on (Gana, 2012). Gana (2012) held the view that the use of poor teaching method is one of the factors that account for high rate of failure in financial accounting. It is, therefore, essential that from time to time, financial accounting teachers should find ways and means of examining their teaching methods through research so as to discover areas of improvement in order to have high student academic performance in financial accounting. That test or examination anxiety in financial accounting is attributable to insufficient practice by students due to lack of time, unfriendly atmosphere created while teaching, poor teaching methods, a record of consistent poor performance, student inability to develop speed and familiar with financial accounting principles.

2.5 Empirical Studies

A number of researches have been conducted related to the current research. Some of the previous researches are hereby presented

Udoh (2003) conducted a research on the topic; business education teachers perceptive assessment of secondary school students academic performance in financial accounting. The study involved thirty seven (37) secondary schools with eighty five (85) financial accounting teachers drawn from three (3) Local Government Areas namely; Sabo Gari, Soba and Zaria Sixty (60) Accounting teachers were randomly selected from the population as sample size using survey research design. A structured questionnaire with twelve (12) items drawn and validated by experts with 0.78 internal consistently was finally used to elicit responses from the sample population. The administration of the questionnaire was carried by the researcher and 100% returns were recorded. From the analysis three major findings worth mentioning from the study that contributed more to poor performance of students in accounting were: Poor motivation and learner's interest, limited knowledge of accounting concepts/principles and inadequate teaching period.

The previous research did not have a wider coverage having only three local governments areas covered as against the twenty three local governments the current research covered.

Anukan (2004) conducted a research on the comparison of the achievement of students taught accounting by experimental method and that of those taught by traditional approach. The purpose of the study was to determine the level of awareness of secondary school students on double entry principle of accounting, the effects of teaching double entry principle of accounting by experimental instruction approach and traditional approach on students' retention ability. It was also to compare male and female achievement in double entry principle of accounting based

on experimental instruction instructional approach. The population for the study was 100 accounting students in 4 public secondary schools and the same number of students was taken as sample size, made of the same socio-economic background, admission and promotion policy and the same public secondary school. The researcher formulated 3 research questions and null hypotheses for the study. After 4 weeks of treatment using 160 minutes per week, a test was conducted and the results analyzed at the alpha level of 0.05 using statistical method.

The study revealed that the experimental approach in the group displayed aptitude concerning retention of double entry concept than the traditional approach. The result also showed that the knowledge of double entry accounting method was low and very much inadequate among many students tested in the study. The researcher observed certain uncontrollable variables which were not clearly stated in the study, which might have contributed to the said result. Among these were the classroom environment, teacher qualification and the student academic ability. The use of one post-test is equally not good enough for such generalization of result. The current study was related to the previous because of the satisfaction measured in terms of effectiveness of the methods in the study but different because the previous research was gender biased.

Raymond and Ogurbameru (2005) conducted a research on comparative analysis of two methods of teaching financial accounting at senior secondary schools in Okitipupa Local Government Area in Ondo State. The population of the study comprised all twenty two (22) senior secondary two (SS II) financial accounting students with the population of eight hundred and twenty (820) students. Purposive sampling technique was used to select schools for the study. The research design adopted was the quasi experimental pre-test, Post-test control group design; a test-retest method was used to estimate the reliability of the instrument which gave the

ability coefficient of 0.63. The relevant null hypothesis was tested using inferential statistic of such as test at 0.05 level of significance. The findings revealed that 5 5.7% failure in control group post-test mean score which were a replicate of the failure trend in financial accounting student's performance in public examinations.

The current study was related to the previous study in that both studies discussed related variables in students' academic performance in secondary schools. A research of this magnitude did not state the exact number for the sample size which made it difficult to generalize the findings. However, the study served as a guide to the current study in the selection of purposive sampling technique being appropriate sampling technique for the study.

Olowodun (2009) conducted research on strategies for effective teaching of Accounting in senior secondary schools in Kaduna State, a descriptive survey design was used for the study. The study involved a population of one hundred and five (105) accounting teachers; seventy (70) senior secondary schools student in five(5) education inspectorate division in Kaduna State. . The research question that guided the study was; how planning strategies for effective teaching of financial accounting in senior secondary schools are utilized in Kaduna state? The null hypothesis which was tested at 0.05 level of significance was: there was no significant difference in the mean responses of urban and rural teachers regarding planning strategies for effective teaching of accounting utilized in senior secondary schools in Kaduna state. The researcher used structured questionnaire with fourteen (14) items to elicit information from accounting teachers in the urban and rural areas in Kaduna State. The questionnaire was scored using the four-point likert rating scales. The statistical tool for testing the null hypothesis was t-test. Based on the data collected and analyzed, the findings of the study revealed that; learning activities were well planned to achieve objectives, learning experience were planned at the level of maturity and

ability to the learners, adequate preparation ensures effective teaching, well planned activities contained materials and teaching aids need to carry out planning and that teachers structured instructions to meet the student individual needs.

The pervious research used descriptive survey design that could not give a great amount of accuracy of the findings. Again, the sample of the study was not well stated to see whether there was proper representation of the population. However, the findings will be a guide to the current research in terms of presenting the findings.

Umar and Aliyu (2010) in a research conducted on comparative analysis of exposition and inquiring methods of teaching financial accounting in senior secondary schools in Kaduna State, indicated the population for the study to comprised of one hundred and eighty seven (187) senior secondary two (SSII) financial accounting students in eight (8) private secondary schools in Zaria metropolis. The researchers used an experimental design with a random sampling technique in selecting the two schools that were used for the study. The results for the two picked provided the schools to be used to be experimental and control group through a sample lottery in form of folded two pieces of paper with a word "experimental" or control which was given two students. The selected experimental and control groups school is comprise of twenty (20 and twenty three (23) students respectively. The instruments for the study were two namely Financial Accounting Achievement Test One (FAA-1) which is the pretest and Financial Accounting Evaluation Test-2 (FAET-2) which is the post-test. The FAAT-1 was mainly objectives and its scores served as a basis for comparing student performance in financial accounting test before and after treatment.FAAT-1 consist of twenty (20) multiple choice questions with four (4) option. FAET-2 consisted of twenty (20) objective items and one essay (theory) question divided into sections A and B which was administered after the treatment. The instrument was

developed from standardized examination of previous years question papers conducted by WAEC and NECO between 1998 and 2007.

The two hypotheses stated were tested using t-test at 0.05 level of significance. Findings revealed that financial accounting student's performance in post-test is better than in pre-test. Students taught with both inquiring and exposition teaching methods performed better as a result of the treatment to be concluded from this finding that students of financial accounting taught with any of these methods perform better. The study also revealed that the use of inquiry and exposition teaching methods does not make significance difference in the achievement performance or financial accounting students.

The current study is related to the previous study because it measured the effectiveness of methodology on performance of students. However, it is significantly different in scope and type of methods. In addition, the current study was conducted in public schools rather than private schools and not gender biased.

Omdara (2012) conducted research on the topic; Comparative analysis of the effectiveness of some teaching methods in skill acquisition by agricultural science students in colleges of education in Kaduna state. The researcher specifically studied demonstration, experimental and project teaching methods. Four (4) null hypotheses were formulated and carried out the study in college of education Gidan Waya and federal college of education Zaria. The population for the study was 439 students from both colleges. The researcher developed a pre-test and post-test instrument for data collection and used two weeks for the collection of data and the result generated were tested using t-test and one way analysis of variance (ANOVA) statistics to test the mean difference at 0.05% level of significance. The findings revealed that the

three methods studied were effective in teaching students skill acquisition in agricultural education but on the whole, demonstration teaching method was most effective followed by project method and experimental method been the least effective.

The similarities of the two studies are that, both are investigating effectiveness of teaching methods. The methodology adopted are the same because both used pre-test and post-test for data collection. However, the two are significantly different in terms of level of students, while the previous research was at colleges of education the current research was at secondary school level. Again, the previous research was on agricultural science education while the current research was on financial accounting as a subject.

2.6 Summary of Related Literature Reviewed

The chapter reviewed literature related to the study and the review highlighted among others the historical development of financial accounting. In the theoretical framework the constructivist theory of learning propounded by Jerome S. Bruner will be used. A number of teaching methods available to the financial accounting teachers were identified in the review namely: demonstration, assignments/discussion, lecture, cooperative/group learning, questioning and field trip. The teaching methods are basically grouped into two (2) categories; teacher-centered and learner centered. Effective teaching has to do with the teacher and method of teaching this will be also discussed. If there was effective teaching in the classroom, then the litmus test is the student academic performance. Academic performance in the chapter was also perused. The chapter discussed problem-solving method of teaching which allows learners to use previous knowledge to handle new problems and guided-discovery where learners under the guide of the teacher who discover concepts, principles for themselves. Finally, of the six (6)

empirical studies related to the current study reviewed, none has stressed on the effectiveness of problem-solving and guided-discovery methods of teaching financial accounting in secondary schools in Kaduna State, Nigeria which is the gap this study had sought to fill.

CHAPTER THREE

RESEARCH METHODOLOGY

The purpose of this chapter is to present the procedure that was used in conducting this research; this was done under the following sub-headings;

3.1 Research Design

3.2 Population for the Study

3.3 Sample Size and Sampling Procedure

3.4 Instrument for Data Collection

3.4.1 Validation of the Instrument

3.4.2 Pilot Test

3.4.3 Reliability of the Instrument

3.5 Procedure for Data Collection

3.6 procedures for Data Analysis

3.1 Research Design

This research study adopted quasi experimental pretest, posttest control group design. The design according to Okoli (2011) provides some degree of control for possible extraneous or confounding variables such as teachers' students' and school principals' factor and that might affect the internal or external validity or both. Sambo (2005) opined that the design has a great amount of accuracy of result on teaching. The design was used because of the number of students in the classes were manageable. Again, to avoid disruption in the normal school set up.

3.2 Population for the Study

The population for this study comprised of two thousand three hundred and thirty four (2,334) students from forty (40) public secondary schools offering financial accounting in Kaduna state for 2015/2016 academic session. Table 1 shows the summary of the population of the study. (See Appendix VI for details)

Table 1 population of the study

Senatorial Zones	No. of schools	Male students	Female students	Total
1	3	131	90	221
2	25	593	880	1,473
3	12	391	249	640
Total	**40**	**1,115**	**1,219**	**2,334**

Source: Kaduna State Ministry of Education, Science and Technology (2015)

3.3 Sample Size and Sampling Procedure

Purposive sampling technique was used in selecting Tafawa Balewa Memorial College (T. B. M. C) Samaru-Kataf for the treatment. The school is among the oldest in the state; again, the school has at least two (2) graduates' financial accounting teachers with relevant professional teaching qualifications taking SSII class. From the school, the three (3) arm of SS11 Commerce classes, a total of ninety one (91) students comprising of fifty four (54) boys and thirty seven (37) girls were used. Out of the three (3) intact classes for the treatment, experimental (i and ii) and control groups has thirty three (33), thirty (30) and twenty eight (28) students respectively in line with Roscoe in Okoli (2011) who suggested a small sample size from a target population in an experimental design. Table 2 presents the summary of the sample size for the study.

Table 2 sample size for the study

Name of School	Male Students	Female Students	Total	Remark
T B M C S/Kataf	21	12	33	**Group I**
T B M C S/Kataf	14	16	30	**Group II**
T B M C S/Kataf	19	09	28	**Control**
	54	**37**	**91**	

3.4 Instrument for Data Collection

The instrument that was used to generate data was Financial Accounting Achievement Test (FAAT), which was in two (2) parts. The first part (pre-test) was made up of two (2) sections. Section "A" which was the bio data of the respondents and section "B" consisted of twenty five (25) objective questions on manufacturing, trading, profit and loss account (see Appendix II). The second part of the FAAT was an essay question (post-test) on manufacturing, trading, profit and loss account (see Appendix IV). The instrument was adopted from the past question of WAEC and NECO Examinations from 2000-2013.

3.4.1 Validation of the Instrument

The instrument was validated by the researchers' supervisors lecturers in the field of business education. Also, experts in the Department of Educational Foundation and Curriculum in Faculty of Education, Ahmadu Bello University, Zaria vetted the instrument. Based on their corrections and suggestions, the final copy was produced and used for the pilot test.

3.4.2 Pilot Test

A pilot test was conducted at Government secondary school (GSS) Nassarawa in Chikun Local Government area of Kaduna state. A total of twenty (20) students made up of equal number of male and female of senior secondary two (SSII) offering financial accounting were used. This was done because the sample had similar characteristics and background with the target sample for the study. The data collected were statistically analyzed using coefficient of correlation.

3.4.3 Reliability of the Instrument

Data from the pilot test were collected and the researcher used test and retest method to determine the reliability of the instrument. The data were subjected to statistical analysis using the Spearman-Brown reliability coefficient. The reliability coefficient was 0.79 which is positive and high, hence the instrument was reliable, this is in line with Korb (2012) who said that reliability coefficient of 0.5 and above is adequate.

3.5 Procedure for Data Collection

The researcher collected an introduction letter (see Appendix I) from the Department of Vocational and Technical Education which was given to the authority of TBMC S/ Kataf. The researcher organized a one (1) day seminar for the financial accounting teachers of the affected school the date for the seminar was chosen by consensus. This is to control possible effects of some extraneous variables such as teachers' factor, students' factor, among others. The treatment lasted for five (5) weeks; both groups were pre-tested using FAAT in the first week before the treatment proper. The pre-test scores served as a basis for comparing students' performance in financial accounting. The experimental group i was taught using problem-solving, experimental group ii was taught using guided-discovery and the control group was taught using lecture

method by the researcher. The timetable provides one hundred and twenty (120) minutes per week divided into single and double lesson of forty (40) minutes per lesson. The single lesson was for the researchers' explanation and interaction while the double lesson was for students to solve problems and discovering learning for themselves. The treatment commenced proper in the second week where the researcher used the lesson plan (see Appendix VI) as a guide. At the end of the fifth week, both groups were evaluated using FAAT, the scripts were collected, marked using the marking scheme (see Appendix V) and recorded then used for data analysis.

3.6 Procedure for Data Analysis

The bio data of the students were analyzed using frequency tables and percentages. Mean and standard deviation were used to answer the research questions. Independent t-test was used to test the null hypotheses one, two and three because the t-test is one of the most effective method of comparing two groups' mean (Nworgu, 1991) while Analysis of Variance (ANOVA) and Post Hoc multiple comparison were used to test the null hypothesis four because it contain three groups mean. All the null hypotheses were tested at 0.05 level of significance. The decision rule was that, a mean score of 50% and above was regarded as pass and a mean score below 50% was termed as fail. If the calculated t-value is equal or greater than the critical value the null hypothesis will be rejected, but if the calculated t-value is less than the critical value the null hypothesis will be accepted or retained.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

The data derived from the field study were collected, analyzed and discusses. These are presented below under the following sub-headings:

4.1 Analysis of Demographic Data.

4.2 Answers to Research Questions.

4.3 Test of Null Hypotheses

4.4 Summary of Major Findings

4.5 Discussion of Findings.

The demographic variables of the students considered in the study were the gender of the students and their ages. These are shown in Tables 3 and 4

4.1 Analysis of Demographic Data

The data in table 4.1 were used for the percentage analysis of respondents by gender.

Table 3 percentage distribution of respondents by gender

Gender	**Frequency**	**Percentage**
Male	54	59.34
Female	37	40.66
Total	**91**	**100**

Sources: field survey, March 2016

The data in Table 3 showed that 59.34% of the students were males and 40.66% were females. This indicated that there are more number of male to female students.

The data in Table 4 was used for the percentage analysis of respondents by age.

Table 4 percentage distribution of respondents by age

Age Range in years	Frequency	Percentage
13-15	21	23.08
16-18	61	67.03
19-21	09	09.89
Total	**91**	**100**

Source: field survey, March 2016

The age range in years indicated in Table 4 showed that 67.03% of the students were between 16-18 years old, 23.08% were between 13-15 years, while 09.89% were between 19-21 years old. This implies that those students between the ages of 13-15 started school at normal time those students between the ages of 13-15 evidently started school early, those between the ages of 16-18 most likely started school at normal time while those students between the ages of 19-21 started school late.

4.2 Answers to the Research Questions

Analyses of post-test student's performance in Financial Accounting Achievement Test were used in answering the four research questions. Appendix X shows the details performance of students. The analyses were presented in Tables 5 to 8.

Research Question One: What is the effect of using problem-solving and lecture methods of teaching on the performance of secondary school students in financial accounting?

Analysis in Table 5 was used to answer research question one.

Table 5 Mean performance distribution of secondary school students taught financial accounting using problem-solving and lecture methods

Students' Group	N	$\overline{X}$	S.D	Mean Difference
Problem-solving method students' Scores	33	55.24	15.03	07.85
Lecture method Students' scores	28	47.39	08.74	
Total	**61**			

Source: Field survey, March 2016

Based on the result presented in Table 5, there were thirty three (33) students for the group taught using problem-solving method and twenty eight (28) for the group taught using lecture method. The group taught using problem-solving method had mean performance of 55.24, standard deviation (SD) of 15.03. On the other hand, those taught using lecture method had mean performance of 47.39, standard deviation of 08.74. Thus, with the mean score of 55.24 for problem-solving method as against the mean score of 47.39 for lecture method and the mean difference of 07.85 in favor of problem-solving method, it showed that students taught using problem-solving method had higher academic performance in financial accounting than their counterparts under the lecture method.

Research Question Two: What is the effect of using guided-discovery and lecture methods of teaching on the performance of secondary school students in financial accounting?

Analysis in Table 6 was used in answering the research question two.

Table 6 Mean performance distribution of secondary school students taught financial accounting using guided-discovery and lecture methods

Students' Group	N	$\overline{X}$	S.D	Mean Difference
Guided-discovery method students' scores	30	59.13	14.61	
				11.74
Lecture method Student's scores	28	47.39	08.74	
Total	**58**			

Source: Field survey march 2016

The result in Table 6 revealed that there were thirty (30) students for the group taught financial accounting using guided-discovery method and twenty eight (28) students for the group taught using lecture method. The group taught using guided-discovery had a mean performance of 59.13, standard deviation of 14.61. On the other hand, students taught using lecture method had a mean performance of 47.39, standard deviation of 08.74. Therefore, with the mean score of 59.13 for guided-discovery as against 47.39 for lecture method and a mean difference of 11.74 in favor of guided-discovery method, it clearly showed that students taught using guided-discovery method had higher academic performance in financial accounting than those taught using lecture method.

Research Question Three: What is the effect of using problem-solving and guided-discovery methods of teaching on performance of secondary school students in financial accounting?

The analysis in Table 7 was used in answering the research question three.

Table 7 Mean performance distribution of secondary school students taught financial accounting using problem-solving and guided-discovery methods

Students' Group	**N**	**$\overline{X}$**	**S.D**	**Mean Difference**
Problem-solving method Students' scores	33	55.24	15.03	
				03.89
Guided-discovery method Students' scores	30	59.13	14.61	
Total	**63**			

Sources: Field survey, March 2016

The outcome of Table 7 revealed that the thirty three (33) students taught using problem-solving method had mean performance of 55.24, standard deviation of 15.03. On the other hand, those taught using guided-discovery method had a mean performance of 59.13, standard deviation of 14.61. Thus, with the mean performance of 55.24 for problem solving method as against 59.13 for guided-discovery method and a mean difference of 03.89 in favor of guided-discovery method, it showed that students taught using guided-discovery method performed relatively better than those taught using problem-solving method in financial accounting.

Research Question Four: What is the effect of using problem-solving, guided-discovery and lecture methods of teaching on performance of secondary school students in financial accounting?

In order to ascertain the effectiveness of using the three teaching methods in teaching financial accounting in secondary school, data in Table 8 were used.

Table 8 Mean performance distribution of secondary school students taught financial accounting using problem-solving, guided-discovery and lecture methods

Students' Group	**N**	**$\overline{X}$**	**S.D**
Problem-solving method			
Students' scores	33	55.24	15.03
Guided-discovery method			
Students' scores	30	59.13	14.61
Lecture method			
Students' scores	28	47.39	08.74
Total	**91**		

Sources: Field survey, March 2016

The result in Table 8 revealed that three (3) groups of students of thirty three (33), thirty (30) and twenty eight (28) each were taught using three methods of teaching namely problem-solving, guided-discovery and lecture method. Students taught using problem-solving method had mean performance of 55.24, standard deviation of 15.03. Those taught using guided-discovery method had a mean performance of 59.13, standard deviation of 14.61 while those taught using lecture method had a mean performance of 47.39, standard deviation of 08.74. Thus, with the mean performances of 55.24, 59.13 and 47.39 for problem-solving, guided-discovery and lecture methods respectively, it showed that among the three (3) groups, students taught financial accounting using guided-discovery method had higher mean performance. Their

performance was followed by those taught using problem-solving method and lecture method respectively.

4.3 Test of the Null Hypotheses

The post-test scores of the Financial Accounting Achievement Test of students were statistically analyzed at the 0.05 level of significance and the results interpreted. For the null hypotheses one, two and three independent t-test was used, while Analysis of Variance (ANOVA) Statistics and LSD Post-Hoc Multiple Comparison test were used to test null hypothesis four. In testing the null hypotheses, if the calculated value is less than the critical value at 0.05 level of significance the null hypothesis will be accepted. This implies no significant difference between the variables. On the other hand, if the calculated value is greater than or equal to the critical value, the null hypothesis will be rejected, signifying that significant difference exists, between the variables.

The details performances of the students are seen in appendix ix, the summary results from Tables 9 to 12 were used for testing the four null hypotheses.

Null Hypothesis One: There is no significant difference in the performance score of students taught financial accounting using problem-solving and lecture methods of teaching

Data from Table 9 were used for testing the null hypothesis one.

Table 9 t-test analysis showing difference in the performance score of students taught financial accounting using problem-solving and lecture methods

Group	N	$\overline{X}$	SD	SE	t-cal	t-crit	DF	P-Value
Students taught using problem-solving method	33	55.24	15.03	02.62				
					2.54	1.96	59	0.000
Students taught using lecture method	28	47.39	08.74	01.65				

Sources: Field survey, March 2016

Table 9 showed the result of independent t-test analysis used for testing difference between the performances of students taught financial accounting using problem-solving method and lecture method. The data revealed that the group taught using problem-solving method had mean performance of 55.24 and standard deviation of 15.03, standard error of 02.62 while, those taught using lecture method had mean performance of 47.39, standard deviation of 08.74 and standard error of 01.65, t-calculated was 2.54 while, the t-critical was 1.96. Since the t-calculated is greater than the t-critical, it implies that significance effect exist between the performance of students taught using problem-solving method and those taught using lecture method. Therefore, the null hypothesis which stated that there is no significant effect between problem-solving and lecture methods of teaching on performance of secondary school students in financial accounting is hereby rejected.

Null hypothesis Two: There is no significant difference in the performance score of students taught financial accounting using guided-discovery and

lecture methods of teaching

Table 10 was used to test the null hypothesis two.

Table 10 t-test analysis showing difference in the performance score of students taught financial accounting using guided-discovery and lecture methods

Group	N	$\overline{X}$	SD	SE	t-cal	t-crit	DF	P-Value
Students taught using guided-discovery method	30	59.13	14.61	02.67				
					3.74	1.96	56	0.000
Students taught using lecture method	28	47.39	08.74	01.65				

Sources: Field survey, March 2016

The data from Table 10 showed that the group taught using guided-discovery method had mean performance of 59.13, standard deviation of 14.61 and standard error of 02.67. On the other hand, those taught using lecture method had mean performance of 47.39, standard deviation of 08.74 and standard error of 01.65. The t-calculated was 3.74 while, the t-critical was 1.96. The analyzed data presented on table 4.8 showed that the t-calculated 3.74 was greater than the t-critical 1.96, which revealed that, there was significant difference between the performances of secondary school students taught financial accounting using guided-discovery and lecture methods. Therefore, the null hypothesis which stated that there is no significant effect between guided-discovery and lecture methods of teaching on performance of secondary school students in financial accounting is hereby rejected.

Null Hypothesis Three: There is no significant difference in the performance score of students taught financial accounting using problem-solving and guided-discovery methods of teaching

The data from Table 11 were used to test the null hypothesis three.

Table 11 t-test analysis showing difference in the performance score of students taught financial accounting using problem-solving and guided-discovery methods

Group	N	$\overline{X}$	SD	SE	t-cal	t-crit	DF	P-Value
Students taught using problem-solving method	33	55.24	15.03	02.62				
					1.04	1.96	61	0.000
Students taught using guided-discovery method	30	59.13	14.61	02.67				

Sources: Field survey, March 2016.

The data from Table 11 revealed that the mean performance, standard deviation and standard error for problem-solving and guided-discovery methods were 55.24 and 59.13 (mean performance) 15.03 and 14.61 (standard deviation) and 02.62 and 02.67 (standard error) respectively. The analyzed data using the independent t-test statistics presented in table 4.9 revealed that the t-calculated 1.04 is less than the t-critical 1.96. This showed that there is no significant effect between the performance of secondary school students taught financial accounting using problem-solving and those taught using guided-discovery methods. Consequently, the null hypothesis which stated that there is no significant effect between problem-solving and guided-discovery methods of teaching on performance of secondary school students in financial accounting is therefore accepted and retained.

Null Hypothesis Four: There is no significant difference in the performance score of students taught financial accounting using problem-solving,

guided-discovery and lecture methods of teaching

The data from Tables 12(a) and 12(b) were used to test the null hypothesis four.

Table 12(a): Analysis of Variance (ANOVA) statistics showing significant difference in the performance of students taught financial accounting using problem-solving, guided-discovery and lecture methods

Source of variation	Sum of squares	df	mean square	f-cal	f-crit
Between groups	2062.5849	2	1031.2925	5.67	3.11
Within groups	15994.9474	88	181.7608		
Total	**18057.5323**	**100**			

Source: Field survey, March 2016

The table from Table 12(a) revealed that the sum of squares between groups was 2062.5849, the degree of freedom (df) as 2 and the mean square was 1031.2925. On the other hand, the sum of squares within the groups was 15994.9474, the degree of freedom (df) as 88 and the mean square was 181.7608. The f-calculated was 5.67 at 0.000 level of significance. This showed that there is significant effect between the performances of students taught using problem-solving, guided-discovery and lecture teaching methods. A further test of comparison among the three methods was calculated using post-Hoc multiple comparison test as revealed in Table 12(b)

Table 12(b); LSD Post-Hoc multiple comparison test between the problem-solving,

guided-discovery and lecture methods

I Group	J Group	Mean diff(I-J)	Standard Error	Sig
Problem-solving	Guided-discovery	03.89	2.31	.08
	Lecture	07.85*	2.31	.00
Guided-discovery	Problem-solving	03.89	2.31	.08
	Lecture	11.74*	2.31	.00
Lecture method	Problem-solving	07.85*	2.31	.00
	Guided-discovery	11.74*	2.31	.00

*The mean difference is significant at 0.05

Sources: Field survey, March 2016

From Table 12(b), the LSD Post-Hoc multiple comparison test between the performances of students in problem-solving, guided-discovery and lecture methods, the result revealed significant effects between the performances of students taught using problem-solving and lecture methods, as well as guided-discovery and lecture methods. Therefore, the null hypothesis that stated that there is no significant effect between problem-solving, guided-discovery and lecture methods of teaching on performance of secondary school students in financial accounting is hereby rejected.

4.4 Summary of Major Findings

The study established that;

(a) Students taught financial accounting using problem-solving performed better than those taught using lecture method.

(b) Students taught financial accounting using guided-discovery method performance better than those taught using lecture method.

(c) Students taught financial accounting using guided-discovery method performed better than those taught using problem-solving method when comparing their performance.

(d) There were effects in the performances of students taught financial accounting using problem-solving, guided-discovery and lecture methods. Thought, the students taught using guided-discovery performed better.

4.5 Discussion of Major Findings

In research question one, there were mean performances of 55.24 and 47.39 between the group taught with problem-solving method and those taught using lecture method, which showed that the group taught financial accounting using problem-solving method had a higher mean performance. A further test of the item using null hypothesis one revealed that significant effect exists between the two groups. This is in line with the findings of Raymond and Ogunbameru (2005) who compared inquiry and lecture methods that revealed a 55.7% failure in control group's post-test scores which were a replica of the failure trend in financial accounting students' performance in public examination. The finding also confirms the NECO (2004) statement on financial accounting students' performances trend in public examination which stated that predominant usage of lecture method of instruction in financial accounting teaching was a contributory cause of students' failure in the subject. That was why Siagh and Rana (2004) reported that questioning is an important part of the teaching process without which no teaching can be effective. They went further to state that it keeps the students alert and therefore, keep their intention intact. Questioning breaks the passivity and monotony that often pervade in a class as most teachers use lecture method. This is supported by Aliyu (2000) which stated that the questions asked by the teacher help the students to think reason and organize their thoughts to be able to give answers.

In research question two, the mean performances for the two groups compared were 59.13 and 47.39 which showed that students taught financial accounting using guided-discovery method had a higher mean performance than those taught using lecture method. A further test of the item using null hypothesis two revealed that there was a significant effect between the performances of students taught financial accounting using the two methods. This finding agrees with Olorunkooba and Lawal (2007) who stated that guided-discovery method involves finding out, it requires its learner to formulate problems for investigation and hypotheses to guide the investigation and design experiment to collect data so as to develop in the learner creative trails that can be useful for bringing about reform/change in performance among students. This implies that guided-discovery method of teaching is preferable to lecture method because the students are revived from their passivity of merely listening to a lecture and instead become attentive and engaged.

In research question three, the mean performances between the two groups compared stood at 55.24 and 59.13. This slightly performance of the group taught using guided-discovery was not due to chance factor but was as a result of the treatment given, which is an indication of effectiveness of guided-discovery method over problem-solving method of teaching. Based on the view of Mishra (2007) guided-discovery method of teaching sharpens the critical and quantitative thinking and creative skills thereby forces students to be creative. In this respect, guided-discovery method of teaching can said to be a better method of teaching financial accounting and enhancing students understanding, interpretation and application of financial accounting roles, concepts and principles to modern day business activities. Though, the results of the tested null hypothesis three on effect between the performances of secondary school students taught financial accounting using problem-solving and guided-discovery methods

showed no significant effect between the two groups of students. This implies that problem-solving method can equally be used in teaching financial accounting in secondary schools in Kaduna state in order to bring about improved performances of students.

On the effectiveness of problem-solving, guided-discovery and lecture methods of teaching financial accounting in secondary schools, the result showed that the mean performance of students were 55.24, 59.13 and 47.39 for students taught using problem-solving, guided-discovery lecture method respectively. From this result, it is obvious that guided-discovery was more effective, followed by problem-solving method and the least effective was the lecture method. A further test of the item using null hypothesis four revealed that there are significant effects in using the three teaching methods and that the effect between the performance of students taught financial accounting using problem-solving and lecture method as well as those students taught using guided-discovery and lecture method were significant. Therefore, one of the most effective methods is the guided-discovery method.

These findings corroborate with Toby (1997) who said that individual/group mean achievement score should serve as a basis for making judgement whether a group/individual has achieved a pre-determined, stated objective or not. The author further stated that mean achievement score should be regarded as a reliable performance indicator of treatment (instructional method). Alberecht and Sack (2001) observed that lecture method will demoralized student's ability to learn real world skills, but the combination of lecture teaching method and student-centered learning approach will develop leadership skills and team building. This implies that actually the failure rate in financial accounting is as a result of the ineffective methods used in teaching financial accounting as a subject in secondary schools in Kaduna state.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

The chapter summarized the findings of the study. Based on the findings, conclusions and recommendations were made. The chapter is presented under the following sub-headings:

5.1 Summary

5.2 Contribution to Knowledge

5.3 Conclusion

5.4 Recommendation

5.5 Suggestion for Further Studies

5.1 Summary

The study is titled "effect of problem-solving and guided-discovery methods of teaching on students' performance in financial accounting in secondary schools, Kaduna State, Nigeria". The major objective of the study was to determine the effect of problem-solving and guided-discovery methods of teaching on students' performance in financial accounting in secondary schools in Kaduna sate. The study aimed at achieving four (4) specific objectives from which four (4) research questions and four (4) null hypotheses were postulated. The research questions and null hypotheses were formulated so as to provide statistical validity to various solutions proffered for the objectives of the study.

The research design for the study was quasi experiment design. Population for the study comprised of 2,334 SSII Students both male and female offering financial accounting in public secondary school in Kaduna state as at the time of this study. One (1) school was selected from the forty (40) secondary schools offering financial accounting the state using purposive sampling technique. From the schools, a total number of ninety one (91) students were used as sample

size. The instrument used for collection of data for the study was Financial Accounting Achievement Test (FAAT). Data collection period lasted for five (5) weeks, pre-test and post-test scores were recorded and the post-test scores were statistically analyzed. The four (4) null hypotheses were tested at 0.05 level of significance. Null hypotheses one, two and three were tested using independent t-test, while null hypotheses four was tested using Analysis of Variance (ANOVA) and LSD Post-Hoc multiple comparison test. From the analysis, null hypothesis three (3) was accepted and retained null hypotheses one, two and four were rejected.

The findings established that:

a. students taught financial accounting using problem-solving method performed better than those taught using lecture method
b. students taught financial accounting using guided-discovery method performed better than those taught using lecture method
c. students taught financial accounting using guided-discovery method performed better than those taught using problem-solving method when comparing their performance
d. there were differences between the performance of students taught financial accounting using problem-solving, guided-discovery and lecture methods. Though, those taught using guided-discovery performed better.

5.2 Contribution to Knowledge

a. Problem-solving and guided-discovery methods were effective methods in teaching financial accounting in secondary schools.

b. Guided-discovery method was the most effective teaching method when compared with problem-solving method in teaching financial accounting in secondary schools.

5.3 Conclusion

Following the analyses of the data collected as well as the findings of the study, the researcher concluded that problem-solving and guided-discovery methods has improved students' performance in financial accounting in Kaduna state. This improvement in performance will cope the menace of failure in WAEC and NECO thereby provide the secondary school graduates the opportunity to gain admission into higher institution of learning in the event where the graduates are not prepared to start their own business to be self reliant. At the same time, the secondary school graduates become useful to themselves, their parent and the society at large.

5.4 Recommendations

Based on the findings, the following recommendations are put forward thus:

a. Teachers should intensify efforts in the use of guided-discovery method in teaching financial accounting in secondary schools so as to bring about better performance of students in Kaduna state.
b. Students should be adequately involved in the teaching and learning process of financial accounting, hence the need for the use of problem-solving method.
c. Kaduna state ministry of education, science and technology should recruit and post only competent teachers to teach financial accounting in public schools.
d. Financial accounting teachers in Kaduna state should be encouraged to obtain additional qualifications through in-service training, seminars and workshops so as to conform with the societal dynamic process of teaching and learning.

5.5 Suggestion for further Studies

The researcher wishes to suggest that further studies be carried out on the topics;

a. comparative study on the effect of guided-discovery method of teaching on students' performance in financial accounting in public and private secondary schools in Kaduna State, Nigeria.
b. effect of teachers' training and retraining on teaching and learning of financial accounting in public secondary schools in Kaduna State, Nigeria.

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APPENDIX 1

DEPARTMENT OF VOCATIONAL & TECHNICAL EDUCATION

AHMADU BELLO UNIVERSITY, ZARIA NIGERIA

FACULTY OF EDUCATION

Telephone: 069-51755, 50692
Vice Chancellor: Professor. Abdullahi Mustapha B.Sc. (Hons) Pharm(ABU), Ph.D (London) FPSN
Head of Department : Professor A.A Udoh B.Ed. (Hons) Nsukka M.Ed. & Ph.D Bus Edu. (ABU)

Your Ref: _____ Date: 24th June, 2014

Our Ref: M.ED/EDUC/20380/2012-2013

Letter of Introduction

AVONG PAULINUS – M.ED/EDUC/20380/2012-2013

This is to certify that the above mentioned name is a Postgraduate student (M.Ed Business Education) in the Department of Vocational and Technical Education, Ahmadu Bello University, Zaria, carrying out a research topic: **Effects of Problem-Solving and Guided-Discovery Methods of Teaching on Students' Performance in financial Accounting in Secondary Schools, in Kaduna State.**

Please, kindly give him every assistance he may require

Professor A.A. Udoh
HEAD OF DEPARTMENT

APPENDIX II

PRE-TEST QUESTIONS

Answer all Questions in Section 'A' and 'B'

Section A (Bio Data)

Tick appropriately

1. Gender;
   Male - [ ]
   Female [ ]
2. Age (in years)
   13-17 [ ]
   18-22 [ ]
   23-27 [ ]

Section B (Objective Questions)

1. Administration, selling and distribution expenses in a manufacturing firm are recorded in (A) Trading Account (B) Market value of goods produced (C) Profit and loss Account (D) Balance Sheet.
2. Carriage outwards is an accounting term for amount spent on (A) goods for production (B) goods for sold (C) goods returned (D) excess stock
3. The addition of prime cost and factory overheads is
   (A) Total factory overheads (B) Market value of goods produced (C) Cost of goods produced (D) Work-in-progress
4. Which of the following is an example of factory overheads?
   (A) Salary of Marketing officer (B) Salary of production officer (C) Salary of accounting officer (D) Wages of machine operator
5. Prime cost is derived by adding (i) cost of raw materials consumed (ii) indirect expense (ii) direct labour (iv) factory expense (v) work in progress (vi) direct expenses. (A) I, II and IV (B) I, III and VI (C) IV,V and VI only (D) II, III and V only.

Use the following information to answer questions 6 to 8

	₦
Opening stock	4,000
Purchases	12,000
Damage inwards	300
Return outwards	322
Sales	20,000
Closing shock	6,000

6. The cost of goods is (A) ₦ 16,300 (B) ₦ 15,978 (C) ₦ 10,022 (D) ₦ 9,978
7. The cost of goods available for sales is (A) ₦16,300 (B) ₦15,978 (C) ₦10,022 (D) ₦ 9,978.
8. The gross profit is (A) ₦ 12,300 (B) ₦ 11,978 (C) ₦ 10,022 (D) ₦ 9,978.
9. Discount allowed is charge to

   (A) Balance sheet (B) trading account (C) current account (D) profit and loss account
10. Which of the following is not part of cost of production?

    (A) Factory salaries (B) Factory lighting and heating (C) Depreciation of plant and machinery (D) Depreciation of fixture and fitting.
11 In the balance sheet, a bank overdraft is a/an

   (A) Current liability (B) current asset (C) fixed asset (D) long term liability
12 Which of the following is not part of cost production?

   (A) Wages of operators (B) Factory power (C) Advertising (D) Cost of raw materials.
13 The difference between factory cost of goods produced and market value is (A) Interest (B) Premium (C) Manufacturing profit (D) Manufacturing overhead.
14 In the preparation of manufacturing accounts, prime cost plus factory overheads equal to cost of (A) material available (B) Production (C) Sales (D) Material used.
15 Which of the following is correct about cost of sales?

   (A) Opening stock + purchases – return inwards (B) opening stock + purchases – closing stock (C) opening stock – purchases – closing stock (D) opening stock + sales – closing stock
16 The manufacturing account is prepared to determine the cost of

(A) Trading (B) Production (C) Factory (D) Raw materials used.

17 Factory cost excluding prime cost is

(A) Overhead (B) Material cost (C) fixed cost (D) Administration

Use the following information to answer questions 18-20

	₦
Purchase of raw materials	236,500
Returns of raw materials	4,750
Carriage on raw materials	34,000
Stock of raw materials at close	39,500
Factory fuel	150,000
Direct wages	205,000
Indirect wages	31,250
Factory power	105,000
Work-in-progress at start	32,000

18 What is the value of raw material used?

(A) ₦ 270.500 (B) ₦ 286.250 (C) ₦ 255.000 (D) ₦ 226.250

19 What is the prime cost

(A) ₦ 717.500 (B) ₦ 432.250 (C) ₦ 286.250 (D) ₦ 270.500

20 The total factory overhead is

(A) ₦ 318.750 (B) ₦ 286.250 (C) ₦ 255.000 (D) ₦ 236.250

21 Which of the following is not classified as an overhead?

(A) Factory rates (B) Factory power (C) Factory building extension (D) Factory depreciation

22 A trial balance is

(A) Balance sheet balances (B) list of all balances extracted from the ledger (C) credit balances of the account (D) an attempt to balance off the account

23 Direct materials plus direct expense is

(A) Overhead (B) prime cost (C) Total cost (D) Conversion cost

24 Which of the following is an example of direct expenses?

(A) Royalties (B) Carriage inwards (C) Carriage outwards (D) Manufacturing wages.

25 A statement showing a trader financial position as at a particular date is a/an (A) Trading account (B) Profit and loss account (C) Balance sheet (D) Appropriation account.

APPENDIX III

PRE-TEST MARKING SCHEME

Each question carries four marks

(4 X 25 = 100 mrks)

1. (C) Profit and loss Account
2. (B) Goods sold
3. (C) Cost of goods produced
4. (D) Wages of machine operator
5. (B) I, III and VI only
6. (D) ₦ 9,978
7. (B) ₦ 15,978
8. (C) ₦ 10,022
9. (D) Profit and Loss account
10. (D) Depreciation of fixture and fittings
11. (A) Current liability
12. (C) Advertising
13. (C) Manufacturing profit
14. (B) Production
15. (B) Opening stock + purchases – closing stock
16. (B) Production
17. (A) Overhead
18. (D) ₦ 226,250
19. (B) ₦ 431.250
20. (B) ₦ 286,250
21. (C) Factory building extension
22. (B) List of balances extracted from the ledger
23. (B) Prime cost
24. (D) Manufacturing wages
25. (D) Balance sheet

APPENDIX IV

POST-TEST QUESTION

Grape Enterprises makes fruits juice. The following information relates to the year ended 31st December, 2009.

	₦
Stock-1st January, 2009	
Raw materials	336,500
Work-in-progress	60,000
Finished goods	350,000
Purchases of raw material	950,000
Sales	6.000,000
Office salaries	315,000
Carriage inwards	78,500
Royalties	450,000
Direct factory wages	925,000
Discount allowed	20,000
Indirect wages	225,000
Insurance of factory	250,000
General expenses	300,000
Depreciation of plant	310,000
Delivery van expenses	62,000
Office expenses	3000,000
Advertisement	65,000
Stock – 31st December, 2009	
Raw materials	245,000
Work-in-progress	47,500
Finished goods	285,000

Additional information

I .Half of general expenses relate to the factory.

II. One third of the office expenses should be treated as factory cost.

You are required to prepare the:

a. Manufacturing account.

b. Trading and profit and loss account for the year ended 31st December, 2009

APPENDIX V

POST-TEST MARKING SCHEME

Each correct entry carries two marks

(2 X 50 = 100 mrks)

(a) Grape Enterprises

Manufacturing Account for the year ended 31/12/2009

		₦		₦
Opening stock of r/mat.		336,500	cost of pro transferred	3,542,500
Add: purchase of r/mat.	950,000			
Carriage on r/mat.	78,500	1,028,500		
R/ m avail. for use		1.365,000		
Less c/stock of r/m		245,000		
Cost of r/ m used		1,120,000		
Direct cost				
Direct factory wages	925,000			
Royalties	450,000	1,375,000		
Prime cost		2,495,000		
Indirect cost				
Depreciation of plant	310,000			
Wages	225,000			
Insurance of factory	250,000			
Gen exp (1/2 x 300,000)	150,000			
Fac exp (1/3 x 300,000)	100,000	1,035,000		
		3,530,000		
Add: opening stock of WIP		60,000		
		3,590,000		
Less: closing stock of WIP		47,500		

Cost of production	3,542,500		3,542,500

(b) Grape Enterprises

Trading profit and loss Account for the year ended 31/12/2009

Opening stock of fin. goods		350,000	sales		6,000,000
Add: cost of prod trans.		3,542,500			
Goods available for sale		3,892,500			
Less closing stock of f/g		285,000			
Cost of goods sold		3,607,500			
Gross profit c/d		2,392,500			
		6,000,000			6,000,000
Admin exp.			Gross profit b/d		2,392,500
Office salaries	315,000				
General exp.	150.000				
Office exp.	200,000	665,000			
Sell. & dis. exp.					
Discount all.	20,000				
Delivery Van exp.	62,000				
Advertising	65,000	147,000			
		812,000			
Net profit c/d		1,580,000			
		2,392,500			2,392,500

APPENDIX VI

ALLOCATION OF MARKS FOR POST-TEST

Two marks for each entry

(a)

Account Name: Grape Enterprises

Account Type: Manufacturing Account for the year ended 31|12|2009

	₦
Opening stock of raw materials	336,500
Purchases of raw materials	950,000
Carriage on raw materials	78,500
Summation of purchases and carriage	1,028,500
Raw materials available for use	1,365,000
Closing stock of raw materials	245,000
Cost of raw materials used	1,120,000
Direct cost	
Direct factory wages	925,000
Royalties	450,000
Total direct cost	1,375,000
Prime cost	2,495,000
Indirect cost	
Depreciation of plant	310,000
Wage	225,000
Insurance of factory	250,000
General expenses	150,000
Factory expenses	100,000

Total indirect cost	1,035,000
Summation of prime and indirect cost	3,530,000
Add opening stock of WIP	60,000
Total	3,590,000
Less closing stock of WIP	47,500
Cost of production (DR)	3,542,500
Cost of production (CR)	3,542,500
Cost of production transferred to trading account	3,542,500

Total scores 2 x 26 = 52 mrks

(b)

Account Name: Grape Enterprises

Account Type: Trading, profit and loss account for the year ended 31|12|2009

Debit side	₦
Opening stock of finished goods	350,000
Cost of production transferred from manufacturing account	3,542,500
Goods available for sale	3,892,500
Closing stock of finished goods	285,000
Cost of goods sold	3,607,500
Gross profit c/d	2,393,000
Total	6,000,000
Admin expenses	
Office salaries	315,000
General expenses	150,000
Office expenses	200,000
Total	665,000
Selling and distribution expenses	
Discount allowed	20,000
Delivery van expenses	62,000

Advertising	65,000
Total	147,000
Summation of admin and selling expenses	812,000
Net profit	1,580,000
Total	2,392,500
Credit side	
Sales	6,000,000
Total	6,000,000
Gross profit b/d	2,392,500
Total	2,392,500

Total scores 2 x 24=48 mrks

52 + 48 =100 mrks

APPENDIX VII

POPULATION FOR THE STUDY

S/No	Name of School	School type	Male	Female	Total
1	G.C.C. Makarfi	Mixed	60	38	98
2	Alhuda Huda College Zaria	Mixed	8	6	14
3	Commercial College Zaria	Mixed	63	46	109
4	Government College Kaduna	Mixed	33	20	53
5	Rimi College Kaduna	Mixed	41	35	76
6	G.G.S.S.Kabala Costain Kaduna	Female	-	61	61
7	G.G.S.S. Independence Way Kaduna	Female	-	83	83
8	G.G.S.S.Doka Kaduna	Female	-	72	72
9	G.G.S.S. Kawo Kaduna	Female	-	74	74
10	G.S.S. Ung/Sarki Kaduna	Mixed	36	12	48
11	G.G.S.S. Maimuna Gwarzo Kaduna	Female	-	112	112
12	G.G.S.S. U/Sarki Kaduna	Female	-	51	51
13	G.S.S. Rigasa Kaduna	Mixed	46	20	66
14	Kaduna Capital School	Mixed	51	18	69
15	G.S.S. Kargi Tudu Wada Kaduna	Mixed	11	5	16
16	G.S.S. Kudenda Kaduna	Mixed	39	9	48
17	G.S.S. Gonin Gora Kaduna	Mixed	43	8	51
18	G.S.S.Television	Mixed	32	24	56
19	G.S.S Kujama	Mixed	40	11	51

20	Queen Amina College Kaduna	Female	-	106	106
21	G.S.S Maraba Rido	Mixed	28	10	38
22	G.S.S Nassarawa	Mixed	44	29	73
23	G.B.S.S Barnawa	Male	24	-	24
24	G.S.S (snr) Kakuri	Mixed	36	13	49
25	G.S.S Bagado	Mixed	13	4	17
26	G.S.S Gwa-Gwada	Mixed	20	8	28
27	G.S.S Sabo-Tasha	Mixed	56	32	88
28	G.G.S.S. (snr) Barnawa	Female	-	63	63
29	G.S.S. Koron Tsohuwa	Mixed	10	3	13
30	G.S.S. Dulla-Tafa	Mixed	34	12	46
31	G.S.S. Gidan Waya	Mixed	35	11	46
32	G.S.S.(snr) Godo Godo	Mixed	50	29	79
33	G.S.S. Wasa Station	Mixed	29	12	41
34	G.G.S.S. Zonkwa	Female	-	82	82
35	G.S.S. Awon	Mixed	18	9	27
36	G.S.S.(snr) Gumel	Mixed	34	13	47
37	G.S.S.(snr) Kachia	Mixed	51	16	67
38	G.S.S (snr) Kubacha	Mixed	36	22	58
39	G.S.S. Kagoro	Mixed	43	31	74
40	T.B M.C. Samaru-Kataf	Mixed	54	37	91
Total			**1,115**	**1,219**	**2,334**

Source: Kaduna State Ministry of Education, Science and Technology (2015).

Key

S/No		**Senatorial Zone**
1-3	-	1
4-28	-	2
29-40	-	3

APPENDIX VIII

LESSON PLAN ON PROBLEM-SOLVING METHOD

School –T. B. M. C S/Kataf

Class – SSII Commerce

Age – 15 years and above

No. in Class – 30

Subject – Financial Accounting

Main-Topic – The final account of a manufacturer

Sub-Topic – Terms and Format of manufacturing account

Time – 11:00am-11:40am

Duration – 40 minutes

Previous knowledge: Students were taught trading, profit and loss a/c with balance sheet

Specific objectives: At the end of the lesson, students should be able to:

i. Explain the reasons for preparing Manufacturing Account
ii. State and explain the entries recorded in Manufacturing Acc.
iii. Prepare a Manufacturing Acc. From a given sample question

Instructional materials: Chalk board, recommended text books and lesson note to guide the teacher

Step	Content	Teacher's Activity	Student's Activity
I	Introduction to manufacturing a/c	The teacher introduces the lesson by telling the students	The students listen and asks questions where

		the purpose for preparing manufacturing a/c is to ascertain the cost of manufacturing finished goods, as well as to determine whether is more beneficial to produce or to buy already produced. Again, to ascertain the profit as may be realized from disposing its manufactured products.	necessary
II	Discussing the reasons for preparing manufacturing a/c	Teacher refers students to page 253 of Fundamentals Approach to Financial Accounting where some of the reasons for preparing manufacturing a/c could be found. The teacher groups the students into six (6) groups of five (5) students each.	Each student in each group take note of the reasons for preparing manufacturing a/c and discuss in the group while each group leader will in turn discuss all their discoveries in the class under the supervision of the teacher
III	Format of manufacturing a/c	Teacher refers students to page 253 of Fundamentals Approach of Financial Accounting and page 82 of Principles of Accounts for West Africa to study and write out the format of manufacturing a/c	Students compare notes from the two text books and write out the format of manufacturing a/c on the Chalkboard leaded by any group leader under the supervision of the teacher
IV	Discussing cost	Teacher refers students to	Students compare notes

	elements and their components in manufacturing a/c	same page of Fundamentals Approach to Financial Accounting and page 82 of Principles of Accounts for West Africa to study cost elements and their components	from the two books to bring out acceptable explanation and how each cost element could be computed
V	Evaluation	The teacher asks the students the following questions: i. states the reasons for preparing manufacturing a/c? ii. explain the following cost elements a. cost of raw materials consumed b. prime cost c. cost of production	The students provides answers to the questions
VI	Summary	The teacher summarizes the lesson by laying emphasis on the reasons for preparing manufa. a/c, explaining the cost elements thus; cost of raw materials consumed, prime cost, and cost of production	
VII	Assignment	Assignment is given to the students to solve and compare notes in their group **Question** Duwai is a manufacturer of Double Kings tyres and	Students solve the question and compare notes

		present the following list of balances requesting that his manufacturing a/c for the period ended 31/12/2014 be prepared Stock as at 1/1/2014 Rm 16,700 WIP 8,450 Stock as at 31/12/2014 Rm 10,200 WIP 5,540 Purchases of Rm 67,250 Fac lightening 2,000 Direct wages 19,900 C.in on Rm 3,700 Other fac.exp 10,000	

APPENDIX IX

LESSON PLAN ON GUIDED-DISCOVERY METHOD

School – T B M C Samaru Kataf

Class – SSII Commerce

Age – 15 years and above

No. in Class – 30

Subject – Financial Accounting

Main-Topic – The final account of a manufacturer

Sub-Topic – Terms and Format of manufacturing account

Time – 11:00am-11:40am

Duration – 40 minutes

Previous knowledge: Students were taught trading, profit and loss a/c with balance sheet.

Specific objectives: At the end of the lesson, students should be able to:

i Explain the reasons for preparing Manufacturing Account

ii State and explain the entries recorded in Manufacturing Acc.

iii Prepare a Manufacturing Acc. From a given sample question

Instructional materials: Chalk board, recommended text books and lesson note to guide the teacher.

Step	**Content**	**Teacher's Activity**	**Student's Activity**
I	Introduction to manufacturing a/c	The teacher introduces the lesson by telling the students the purpose for preparing manufacturing a/c is to ascertain the cost of manufacturing finished goods, as well as to determine whether is more beneficial to produce or to buy already produced. Again, to ascertain the profit as may be realized from disposing its manufactured products.	The students listen and asks questions where necessary
II	Discussing the reasons for preparing manufacturing a/c with students in groups	Teacher further explains the reasons for preparing manufacturing a/c and then group the students so that they can discuss the reasons for preparing manufacturing a/c themselves	The students discuss the reasons for preparing manufacturing a/c among them. The reason for group discussion is for the students to discover more things when they are allowed to do things themselves with little guidance from the teacher

III	Format of manufacturing a/c	Teacher draw the format of manufacturing a/c on the chalkboard thus; Man.a/c format Op.st rm a — Co of pr x +purr m b Rm ava a+b -cl st rm c Rm used d +D.wa e +D.exp f Prime g +fac exp h +wip st. i ∑ ghi -wip end j Co of pr x — X	Students carefully observes and study the manufacturing a/c format and ask questions where necessary
IV	Discussing cost elements and their components in manufacturing a/c	Teacher cost elements: i. Cost of raw mat. used. The components of raw materials used are; a.stock of rm at start plus b.cost of rm purchased less c.stock of rm at end ii.prime cost The components of prime cost are; d.cost of rm used plus e.direct wages plu f.all direct exp iii.cost of production. The components of cost of	Students ask questions as the teacher helps to elaborate more. Students still maintain their groups and voluntarily explain to others the cost elements and their components.

		production are; g.prime cost plus h.indirect exp plus i.wip at start less j.wip at end	
V	Evaluation	The teacher asks the students the following questions: i. states the reasons for preparing manufacturing a/c? ii. explain the following cost elements a. cost of raw materials consumed b. prime cost c. cost of production	The students provides answers to the questions
VI	Summary	The teacher summarizes the lesson by lay emphasis on the reasons for preparing manufacturing a/c, explaining the cost elements thus; cost of raw materials consumed, prime cost, and cost of production	Students listen attentively and note down the points

VII	Assignment	Assignment is given to the students to solve and compare notes in their group **Question** Duwai is a manufacturer of Double Kings tyres and present the following list of balances requesting that his manufacturing a/c for the period ended 31/12/2014 be prepared Stock as at 1/1/2014 Rm 16,700 WIP 8,450 Stock as at 31/12/2014 Rm 10,200 WIP 5,540 Purchases of Rm 67,250 Fac lightening 2,000 Direct wages 19,900 C.in on Rm 3,700 Other fac.exp 10,000	Students solve the question in groups.

APPENDIX X

LESSON PLAN ON LECTURE METHOD

School – T B M C Samaru Kataf

Class – SSII Commerce

Age – 15 years and above

No. in Class – 28

Subject – Financial Accounting

Main-Topic – The final account of a manufacturer

Sub-Topic – Terms and Format of manufacturing account

Time – 11:00am-11:40am

Duration – 40 minutes

Previous knowledge: Students were taught trading, profit and loss a/c with balance sheet.

Specific objectives: At the end of the lesson, students should be able to:

i Explain the reasons for preparing Manufacturing Account

ii State and explain the entries recorded in Manufacturing Acc.

iii Prepare a Manufacturing Acc. From a given sample question

Instructional materials: Chalk board, recommended text books and lesson note to guide the teacher.

Step	**Content**	**Teacher's Activity**	**Student's Activity**
I	Introduction to manufacturing a/c	The teacher introduces the lesson by telling the students the purpose for preparing manufacturing a/c is to ascertain the cost of manufacturing finished goods, as well as to determine whether is more beneficial to produce or to buy already produced. Again, to ascertain the profit as may be realized from disposing its manufactured products.	The students listens
II	Discussing the reasons for preparing	Teacher further explains the reasons for preparing	The students listens to the teacher.

<table>
<tr><td></td><td>manufacturing a/c with students in groups</td><td>manufacturing a/c to the students.</td><td></td></tr>
<tr><td>III</td><td>Format of manufacturing a/c</td><td>Teacher draw the format of manufacturing a/c on the chalkboard thus;
Man.a/c format
<table><tr><td>Op.st rm a
+purr m b
Rm ava a+b
-cl st rm c</td><td>Co of pr x</td></tr><tr><td>Rm used d
+D.wa e
+D.exp f
Prime g
+fac exp h
+wip st. i
∑ ghi
-wip end j</td><td></td></tr><tr><td>Co of pr x</td><td>X</td></tr></table></td><td>Students carefully observe and study the manufacturing a/c format.</td></tr>
<tr><td>IV</td><td>Discussing cost elements and their components in manufacturing a/c</td><td>Teacher cost elements:
i. Cost of raw mat. used.
The components of raw materials used are;
a.stock of rm at start plus
b.cost of rm purchased less
c.stock of rm at end
ii.prime cost
The components of prime cost are;
d.cost of rm used plus
e.direct wages plu
f.all direct exp</td><td>Students listens to the teacher.</td></tr>
</table>

		iii.cost of production. The components of cost of production are; g.prime cost plus h.indirect exp plus i.wip at start less j.wip at end	
V	Evaluation	The teacher asks the students the following questions: i. states the reasons for preparing manufacturing a/c? ii. explain the following cost elements a. cost of raw materials consumed b. prime cost c. cost of production	The students provides answers to the questions
VI	Summary	The teacher summarizes the lesson by lay emphasis on the reasons for preparing manufacturing a/c, explaining the cost elements thus; cost of raw materials consumed, prime cost, and cost of production	Students listen attentively and note down the points

VII	Assignment	Assignment is given to the students to solve and compare notes in their group **Question** Duwai is a manufacturer of Double Kings tyres and present the following list of balances requesting that his manufacturing a/c for the period ended 31/12/2014 be prepared Stock as at 1/1/2014 Rm 16,700 WIP 8,450 Stock as at 31/12/2014 Rm 10,200 WIP 5,540 Purchases of Rm 67,250 Fac lightening 2,000 Direct wages 19,900 C.in on Rm 3,700 Other fac.exp 10,000	Students solve the question individually.

APPENDIX XI

STUDENTS' PRE-TEST AND POST-TEST SCORES

T B M C S/Kataf Experimental Group I Problem-solving Method			T B M C S/Kataf Experimental Group II Guided-discovery Method		T B M C S/Kataf Control Group Lecture Method	
S/N	**Pre-test**	**Post-test**	**Pre-test**	**Post-test**	**Pre-test**	**Post-test**
1	56	76	52	85	52	68
2	56	85	52	75	52	56
3	52	80	48	60	52	54
4	52	72	48	78	52	55
5	52	75	48	75	52	50
6	48	72	48	80	48	52
7	48	62	48	80	48	55
8	48	65	48	72	48	60
9	48	75	48	50	48	52
10	44	80	44	70	48	50
11	44	70	40	55	44	55
12	44	50	40	68	44	40
13	44	62	40	55	44	60
14	40	50	40	62	36	40

15	40	55	36	80	36	42
16	40	59	36	50	36	40
17	36	45	36	70	36	45
18	32	58	36	45	36	52
19	32	40	32	60	36	44
20	28	52	32	40	32	50
21	28	48	32	54	32	40
22	28	45	32	40	32	42
23	24	56	32	55	32	35
24	24	35	32	60	28	45
25	20	40	28	40	28	40
26	16	30	28	50	28	30
27	16	34	24	30	28	35
28	08	30	24	45	24	40
29	08	56	20	45	-	-
30	08	42	16	45	-	-
31	08	40	-	-	-	-
32	04	50	-	-	-	-
33	00	34	-	-	-	-
Total	**1,076**	**1,823**	**1,080**	**1,774**	**1,112**	**1,327**