

**EFFECTS OF COOPERATIVE, PROJECT-BASED AND INQUIRY-BASED  
TEACHING METHODS ON BUSINESS EDUCATION STUDENTS' ACADEMIC  
PERFORMANCE IN PRINCIPLES OF ACCOUNTING**

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PHILOSOPHY (PhD) DEGREE IN BUSINESS EDUCATION**

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## DECLARATION

I hereby declare that this thesis entitle “Effects of Cooperative, Project-based and Inquiry-based Teaching Methods on Business Education Students’ Academic Performance in Principles of Accounting” was written by me. I also affirm that neither part nor the whole work has been or is to be submitted for consideration for the award of another degree of this university or any other university.

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### CERTIFICATION

This is to certify that this work was carried out by EEBO Timothy Olusegun (14/27/PBE 004) and has been read and approved as meeting part of the requirements of the Department of Business and Entrepreneurship Education, Faculty of Education, Kwara State University Malete, Kwara State Nigeria for the award of Doctor of Philosophy (Ph.D.) Degree in Business Education.

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**DEDICATION**

Dedicated to my beloved wife Mrs. Alice Adetola Eebo, and children; Philip, Philemon and Phoebe Eebo.

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## Abstract

*The study investigated the effects of cooperative, project-based and inquiry-based teaching methods on business education students' academic performance in principles of accounting. In order to accomplish this, five specific objectives with five research questions were answered while five null hypotheses were tested at 0.05 level of significance. Quasi-experimental research of pre-test post-test control group and 4 x 2 factorial designs were adopted for the study. The population of the study comprised 836 students out of which 716 were sampled purposively. Three instructional packages for experimental groups and one instructional package for the control group with Principles of Accounting Performance Test (PAPT) were used as the instrument for data collection. PAPT was made up of twenty objective test questions and two essay questions. The data collection process lasted for five weeks. The demographic variables of the respondents were analyzed using percentages. The research questions were answered using mean and standard deviation. The null hypotheses were tested using Analysis of CoVariance. All the hypotheses were tested at significance level of 0.05. Null hypotheses one, two, and three were rejected, while hypotheses four and five were not rejected. The study found that cooperative, project-based and inquiry-based teaching methods had effect on academic performance of business education students in Principles of Accounting. However, there was no significant difference between the academic performance of male and female students taught principles of accounting using cooperative, project-based and inquiry-based teaching methods. There was significant difference in the academic performance of business education students in principles of accounting using cooperative, project-based, inquiry-based and lecture teaching methods. Based on the findings, it was concluded that cooperative, project-based and inquiry-based methods has effect on the academic performance of students in principles of accounting. Thus, five recommendations were made among which include that lecture method should be minimized, while lecturers should prepare adequate leading questions / cases / scenario that can motivate inquiry-based teaching in learning principles of accounting. More so, papers, journals and book publications should be made available on effective usage of inquiry-based, cooperative and project-based teaching methods for academic improvement, mutual cooperation among students and students' involvement in the learning process.*

## **CHAPTER ONE**

### **INTRODUCTION**

#### **Background to the Study**

Educational processes are often programmed to shape schoolchild's academic performance with required skills, knowledge, attitudes and ability to be responsible in life and society. The only way this can be made possible is to share intellectual understanding, expert skills and the right attitudes that are relevant to societal needs with the help of teaching methods that make schoolchildren to be active learners. Teaching methods are strategies and practicality needed for instructions. Since the inception of business education into Nigerian universities, it is noted by Bode (2016) that lecture and discussion teaching methods are principally used by facilitators. Today, due to expansion in knowledge, intricacy in the teaching/learning owing to the increased use of technology, these teaching methods need to be examined again in tune with present teaching methods. The actual demand of students in this 21<sup>st</sup> century, need to understand the basic concepts at deeper level and be able to think critically so as to solve problems. Inquiry-based, project-based, problem-based, demonstration, case study and cooperative teaching methods propel undergraduates into active learners and critical thinking procedure (Amos, 2017).

The term cooperation means working together or doing something together to accomplish common goals (Hornby, 2015). Cooperative teaching method is a step by step teaching method that stimulate in a small working harmonious groups to achieve common goals (Hake, 2018). It is a teaching strategy that enclosed broader range of group conversation such as initiating learning communities and arouse undergraduates or staff support discussions (Bruffee, 2018). The method stresses the significance of faculty and schoolchildren's participation in the teaching / learning process. It is a pedagogical

strategy in which students in a small group work hand in hand to achieve shared goals. Cooperative learning, combined with lecture, has been revealed to assist undergraduates become more positive and active in their learning (Nihalani, Wilson, Thomas & Robinson, 2010). Sequence to undergraduates serviceable learning through cooperative learning groups, lecturers need to lose grip on the notion that undergraduates are in competition with each other; contrary, they depends on each other to achieve success. With cooperative learning groups, each member needs to have important role to play in the group, individuals need to be in-charge for their own learning, and both students and teachers need to watch the group behaviour. To have a practicable cooperative learning group requires a relatively small group size, choosing different people into groups to meet together for a long period of time so as to fuse together and develop good teamwork skills (Millis, 2012).

Project-based teaching method has gained wider acceptance in the classroom as philosophers recorded what they have acquired in teaching and learning. Students become more involved in teaching/learning when they have opportunity to search into complex, challenging, and sometimes even chaotic problems that look like real life (Wiggins, & McTighe, 2010). It is a planned piece of work that is designed to find information about something, to produce novelty or improve on performance. It involves careful examination of a subject done by school or college students in a specified of time. Project-based teaching method improves undergraduates academic performance in understanding teaching contents and can be effective in developing a deeper cognitive skills to produce something new and improve already existing one (Oladunjoye, 2015). Emioye (2014) asserted student-centered teaching / learning that involves systematic classroom strategies which is believed that undergraduate acquires adequate mastery of the contents by participation in the exact challenges and problems solving technique. According to

Edutopia (2016), undergraduates can understand a concept of study by being involved for a long period of time to research and responds to exact challenges or problems which are a way of active learning. Project based teaching contradict lecture method, paper-based, memorization or teacher-centered learning that simply presents verified facts or portrays easy access to facts that are pointer to answers.

Inquiry-based teaching has been closely connected such teaching methods as problem-solving, laboratory instruction, project-based learning, cooperative learning and discovery teaching method (Slavin, 2016). According to Turkmen (2011), inquiry teaching is the predetermine ways of diagnosing problems, questioning ideas, and differentiating alternatives, planning investigations, researching conjectures and forming coherent arguments. It is a teaching strategy that commences by presenting questions, problems or case studies instead of simply presents verified facts. Undergraduates arrive at the understanding the nitty-gritty of the concepts by themselves. This strategy stimulates undergraduates to develop research skills useful in their academic pursuit in life.

Meanwhile, lecture teaching method being the oldest method of teaching that informed descendants of their ancestors experience by words and signs only, passed from age to age without proper documentation in form of rote study. According to Ojetunde (2012), lecture method is a strategy whereby the teacher pours down all the facts and figures prepared for the lesson without welcoming schoolchildren's contributions except perhaps at the end of the lecture when students are allowed to ask questions. Kilani (2010) defined lecture method as the oldest, easiest, cheapest and most familiar, least effective method in many respects and circumstances. The method is identified by the active teacher who does all the talking throughout the lesson while the passive pupils or students merely listen or take down notes of the important points in the lecture. There is more loads on students as lectures focus on subject contents rather than making learning environments

more interactive. All the above teaching methods affect academic performance of undergraduates in either way.

The root word of business is from “bus-y-ness” which means the act of being occupied in a particular activity and is a subject of study; an educational course or academic specialization thought about or planned in advance, not just being spontaneous (Encarta Dictionary 2009). Business education is the foundation upon which students build an awareness of business and an understanding of business concepts. Business is the process by which individuals, organizations, and societies interact to improve their economic wellbeing through the exchange of products, services, and ideas.

Quite notable that repeated constant academic failure by larger percentage undergraduates is basically connected to the usage of ineffective teaching strategies by lecturers in the classroom teaching. (Adunola, 2011). Quality finding on the dynamic teaching strategies shows that impact of teaching is often reflected by the performance of learners. According to Ayeni (2011), teaching is a system that encompassing bringing about desirable changes in learners so as to achieve specific outcomes. In order for the method used for teaching to be effective, Adunola (2011) asserted that lecturers need to be familiar with many teaching methods that take cognizance of complexity of the contents to be covered. Aka (2015) defined academic performance as an indication of general mental abilities which are responses to tests of different kinds. Walker and Lofty (2017) in support of Aka (2015) explained that academic performance is the general school disciplines as exhibited by intellectual functioning. Students can be above average, average or less than average in cognitive class functioning.

On relented efforts have been made by lecturers and other educational tutors to inculcate or teach the nitty-gritty and the practicability of principles of accounting using various strategies of teaching to ensure deeper comprehension of concepts and involve in



sustainable thinking that can result in self-reliance. As a result of this, this study found out the effects of cooperative, project-based and inquiry-based learning methods on business education scholars' academic performance in principles of accounting in universities in South-Western Nigeria. The implication of this is that principles of accounting lecturers must be in constant search of teaching methods that could improve their practice encourage learners to participate actively in learning process improving learning outcomes and meeting the societal needs. The challenge of preparing students for better academic achievement has therefore necessitated a shift from lecture method only on the behavioural learning theories emphasized by conventional teaching method to those dowering in cognitive psychological theories (Oluwaniran, 2014). In the zone, South-Western Nigeria comprises Ekiti, Lagos, Ogun, Ondo, Osun and Oyo States; there are eight federal universities, seven state universities and thirteen private universities. Among these universities; Ekiti State University, Lagos State University, Olabisi Onabanjo University, Tai-solarin University of Education and University of Lagos put forth business education in different faculties and departments.

Several variables surfaced in any study on academic performance of this nature more importantly in principles of accounting class that are likely to have resultant effect on the performance of undergraduates such as; school type (federal, state or private). Lecturer's qualities, experience and qualifications, time of administration of treatments to the respondents (is it an awkward time or not?). Gender plays an important role in academic performance of undergraduates. Matthew (2012), Afon and Bamiwo (2015), Thompson (2016) identified gender as an important presumption variable in teaching / learning of business education subjects. Allen (2016) holds the view that high female reluctance to actively participate in schoolchildren's centered learning relationship from male students and vice versa. Mafo and Tunwagun (2010) found no relationship in gender

and academic achievement of micro economics students. But Foyeje (2017) found men to be more innovative, creative and proactive. Philip (2015) asserted that no significant difference interaction effect between methods of teaching and business educations scholars' academic performance based on gender in universities. Further stated, that both gender benefit almost equally from any methods of teaching used by tutors which implied that the impact of both genders measurement was not significant.

### **Statement of the Problem**

Performance of students in universities has been identified as a critical element of scholars' survival. However, academic performance of students in recent years, particularly in principles of accounting has posed a serious challenge which demands immediate solution. The performance of students in principles of accounting has not been motivating as many students often fail this course in universities. This poor performance is clearly seen in the analysis of 2014/2015, 2015/2016 and 2016/2017 academic sessions' results in four universities (Ekiti State University, Lagos State University, Olabisi Onabanjo University, Tai-solarin University of Education) offering business education in South-West, Nigeria. The results indicate that; For 2014/2015 academic session, out of 711 students, 275 (38.7%) passed while 436 (61.3%) failed. For 2015/2016 academic session, out of 602 students, 268 (44.5%) passed while 334 (55.5%) failed and for 2016/2017 academic session, out of 740 business education students offering principles of accounting in the four universities, 276 students representing 33.2% passed while 464 (66.8%) failed. The detail is as given in Appendix B pg 101.

Though the situation presented above calls for concern, the factors responsible for this poor performance are not clearly understood. The researcher's interaction with students and lecturers revealed that students complained that the accounting class is always a one man's affair. They also complained that the method of teaching makes the

subject to be exceptionally difficult. Lecturers on their part are of the mind that students do not exhibit willingness and liveliness in principles of accounting class. In the light of this, accounting lecturers need to seek suitable ways of tackling the current massive failure in principles of accounting if they are to halt the drifts of business education students to other educational courses. Owing to these reasons that this study was conducted to know the effects of cooperative, project-based and inquiry-based teaching methods on business education scholars' academic performance in principles of accounting in universities in South-Western Nigerian.

### **Purpose of the Study**

The main purpose of the work was to examine the effects of cooperative, project-based and inquiry-based teaching methods on business education scholars' academic performance in principle of accounting in universities in South-Western Nigerian. Specifically, the study determined:

- 1 the effect of cooperative teaching method on business education scholars' academic performance in principles of accounting in universities in South-Western Nigerian.
- 2 the effect of project-based teaching method on business education scholars' academic performance in principles of accounting in universities in South-Western Nigerian.
- 3 the effect of inquiry-based teaching method on business education scholars' academic performance in principles of accounting in universities in South-Western Nigerian.
- 4 the effect of lecture teaching method on business education scholars' academic performance in principles of accounting in universities in South-Western Nigeria.

- 5 the effect of gender (male and female) on academic performance of business education scholars taught principles of accounting using cooperative, project-based, inquiry-based and lecture methods in South-Western Nigerian universities.

### **Research Questions**

The following research questions guided the study:

- 1 What is the effect of cooperative teaching method on business education scholars' academic performance in principles of accounting in universities in South-Western Nigerian?
- 2 What is the effect of project-based teaching method on business education scholars' academic performance in principles of accounting in universities in South-Western Nigerian?
- 3 What is the effect of inquiry-based teaching method on business education scholars' academic performance in principles of accounting in universities in South-Western Nigerian?
- 4 What is the difference in the academic performance of scholars taught principles of accounting with cooperative, project-based, inquiry-based and lecture methods in universities in South-Western Nigerian?
- 5 What is the effect of gender on the academic performance of business education scholars taught principles of accounting using cooperative, project-based, inquiry-based and lecture methods in universities in South-Western Nigerian?

### **Research Hypotheses**

The following null hypotheses were tested at significance of 0.05 level:

- H<sub>01</sub>: There is no significant effect of treatment of cooperative teaching method on the academic performance of business education students in principles of accounting in universities in South-Western Nigerian.

- Ho2: There is no significant effect of treatment of project-based teaching method on the academic performance of business education students in principles of accounting in universities in South-Western Nigerian.
- Ho3: There is no significant effect of treatment of inquiry-based teaching method on the academic performance of business education students in principles of accounting in universities in South-Western Nigerian.
- Ho4: There is no significant gender effect on the academic performance of business education students taught principles of accounting with cooperative, project-based, inquiry-based and lecture methods in universities in South-Western Nigerian.
- Ho5: There is no significant interaction effect of treatment and gender in relation to business education scholars' academic performance in principles of accounting in universities in South-Western Nigerian.

### **Significance of the Study**

The results of this study are expected to be of benefit to professionals in the field of teaching, curriculum planners, business education undergraduates, university management and future researchers. The outcome of this work would provide guidance to professional teachers handling accounting education in implementing cooperative teaching, project-based teaching and inquiry-based teaching methods as well as help to enrich existing teaching skills. It would also be useful to business education lecturers while they are planning the process of teaching-learning as this would bring variation to methods and techniques used in the process of teaching-learning.

The findings of the study would be of benefit to curriculum planners because the results would provide useful suggestions for the improvement of the curriculum on principles of accounting at the university level. This study is specifically aimed at curriculum development, which requires research input to develop an effective curriculum,

based on student-centered learning approach to enhance schoolchildren's academic performance.

The findings of this study would be useful to business education university students, as the findings would bring out the potentials of cooperative teaching, project-based teaching and inquiry-based teaching methods in contributing to scholars' better understanding and increased motivation. The findings of the study would encourage new discussions and researches concerning the methods and techniques used in teaching accounting in universities. The outcome of this study could also influence future professionals' development, through the promotion of training that encourages the use of multiple instructional methods

Higher institutions' managements would find the findings of this study useful in identifying the necessity for full scale cooperative teaching, project-based teaching and inquiry-based teaching methods for implementation. The findings of study would also provide information on whether cooperative teaching, project-based teaching and inquiry-based teaching methods are suitable, feasible and workable with respect to university's context and population.

Finally, the findings on cooperative, project-based and inquiry-based teaching methods in business education scholars' academic performance in principles of accounting would be of benefit to future researchers as it would serve as a reference point and base for improving the knowledge of the researchers and also make further contribution to the world of knowledge as a whole.

### **Delimitations of the study**

This study was delimited to the effects of cooperative, project-based and inquiry-based teaching methods on business education scholars' academic performance in principles of accounting in universities in South-West, Nigeria. Only 200 level business

education students (both male and female) constituted the target population because they had acquired certain levels of experience in the learning of accounting concepts in the first year and would not be too busy like 300 and 400 levels who were preparing for teaching practice and project respectively.

The study also determined the main effect and interaction effect of teaching methods and the moderating variables on academia's performance in principles of accounting in universities in South-West, Nigeria and intervening variables were adequately prevented. The study also made use of five instruments namely: four instructional packages on cooperative, project-based, inquiry-based and lecture teaching methods with a principle of accounting performance test (PAPT).

### **Operational Definition of Terms**

In this study, the following terms were operationally defined:

- i. **Academic performance:** The extent to which 200 level Business education students succeed in reaching the stated objectives in the selected topics taught in principle of accounting, which also reflect in the scores or grades obtained in the principle of accounting performance test.
- ii. **Business Education:** Educational programme that is a sub-set of vocational education that equips an individual student with functional and suitable skills for meaningful living.
- iii. **Cooperative Teaching Method:** Teaching method in which small, heterogeneous groups students work together to solve problem, complete project, or to achieve any other instructional goal, while teachers serve as guides or facilitators.
- iv. **Gender:** All business education students male and female who participated in the experimental and control groups of the study.
- v. **Inquiry-Based Teaching Method:** Teaching strategy in which the learners find answers to questions, problem or riddles by themselves. In order to come up with this, the learner is led by skillful thought provoking questions by the teacher to discover facts for themselves.
- vi. **Method:** ways and strategies management used for classroom instruction

- vii. **Performance:** This is the outcome grading of business education students after treatment and responds to principle of accounting performance test.
- viii. **Principles of Accounting:** Branch of accounting and the basic foundation for wholesome Business Education courses to develop and acquire the competency of systematic recording, analyzing the financial transactions and financial status of a business or other organization
- ix. **Project-Based Teaching Method:** Instructional method built upon learning activities and real tasks that have brought challenges for students to solve, integrating knowing and doing.



## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

This chapter reviews literature related to the study in relevant book publications, textbooks, magazines and papers presented. For the purpose of this study, literature was reviewed under the following sub-headings.

#### **Theoretical Framework**

Cognitive developmental theory

Constructivism Learning Theory

#### **Conceptual Framework**

Concept of Schoolchildren's academic Performance

Business Education

Principles of Accounting

Teaching Methods

#### **Empirical Studies**

Effect of cooperative teaching method on scholars' academic performance

Effect of project-based teaching method on scholars' academic performance

Effect of inquiry-based teaching method on scholars' academic performance

Effect of lecture teaching method on scholars' academic performance

Effect of gender (male and female) on academic performance

#### **Review of Related Empirical Literature**

#### **Appraisal of Reviewed Literature**

#### **Theoretical Framework**

A numbers of theories were used in providing theoretical framework for this study. The theories are as follows in order of discussion: Cognitive developmental theory Piaget; Constructivism learning theory; Cognitive developmental theory is chosen for this study because it is one of the constructivist theories which state that students learn by discovery.

Constructivist learning theory is chosen to provide understanding for project-based teaching method as well as inquiry-based teaching method. This is because it is a theory learning in which learning is connected to clear purpose. It also provides an environment where learners are in-charge of the problem and the process with the available resources around.

### **Jean Piaget's Cognitive Developmental Theory**

Piaget's theory of cognitive development is a comprehensive theory about the nature, nurture and development of human intelligence. The theory is a progressive rearrangement of mental processes as a product of biological maturation and environmental experience. Piaget opined that children develop an understanding of the world around them, experience discrepancies between what they already know and what they discover in their environment, and then adjust their ideas accordingly. The theory is sub-divided into four stages through which intelligence develops until maturity. This includes the sensor motor, preoperational, concrete operational and formal operational period.

#### **Sensor motor Stage**

The sensor motor stage is the first of the four stages in cognitive development which extends from birth to the acquisition of language. In this stage, infants progressively construct knowledge and understanding of the world by coordinating experiences (such as vision and hearing) with physical interactions with objects (such as grasping, sucking, and stepping). Infants gain knowledge of the world from the physical actions they perform within it. They progress from reflexive, instinctual action at birth to the beginning of symbolic thought toward the end of the stage. Children learn that they are separate from the environment. By the end of the sensor motor period, children develop a permanent sense of self and object.

## **Pre-operational Stage**

The pre-operational stage starts when the child begins to learn to speak at age two and lasts up until the age of seven. During the pre-operational Stage of cognitive development, noted that children do not yet understand concrete logic and cannot mentally manipulate information. Children's increase in playing and pretence takes place in this stage. However, the child still has trouble seeing things from different points of view. The children's play is mainly categorized by symbolic play and manipulating symbols. Such play is demonstrated by the idea of checkers being snacks, pieces of paper being plates, and a box being a table. Their observation of symbols exemplifies the idea of play with the absence of the actual objects involved. By observing sequences of play towards the end of the second year, a qualitatively new kind of psychological functioning occurs, known as the pre-operational stage.

The pre-operational stage is sparse and logically inadequate in regard to mental operations. The child is able to form stable concepts as well as magical beliefs. The child, however, is still not able to perform operations, which are tasks that the child can do mentally, rather than physically. Thinking in this stage is still egocentric, meaning the child has difficulty seeing the viewpoint of others. The pre-operational stage is split into two sub-stages: the symbolic function sub-stage, and the intuitive thought sub-stage. The symbolic function sub-stage is when children are able to understand, represent, remember, and picture objects in their mind without having the object in front of them. The intuitive thought sub-stage is when children tend to propose the questions of "why?" and "how come?" This stage is when children want to understand everything.

## **Concrete Operational Stage**

This stage, which follows the preoperational stage, occurs between the ages of seven and eleven (pre-adolescence) years, and is characterized by the appropriate use of

logic. During this stage, a child's thought processes become more mature and "adult like". They start solving problems in a more logical fashion. Abstract or hypothetical thinking is not yet developed in the child, and children can only solve problems that apply to concrete events or objects. At this stage, the children undergo a transition where the child learns rules such as conservation. Piaget held that children are able to incorporate inductive reasoning. Inductive reasoning involves drawing inferences from observations in order to make a generalization. In contrast, children struggle with deductive reasoning, which involves using a generalized principle in order to try to predict the outcome of an event. Children in this stage commonly experience difficulties with figuring out logic in their heads. For example, a child will understand that "A is more than B" and "B is more than C". However, when asked "is A more than C?" the child might not be able to logically figure the question out in his or her head. Two other important processes in the concrete operational stage are logic and the elimination of egocentrism.

Egocentrism is the inability to consider or understand a perspective other than one's own. It is the phase where the thought and morality of the child is completely self-focused. During this stage, the child acquires the ability to view things from another individual's perspective, even if they think that perspective is incorrect. For instance, show a child a comic in whom Jane puts a doll under a box leaves the room, and then Melissa moves the doll to a drawer, and Jane comes back. A child in the concrete operations stage will say that Jane will still think it is under the box even though the child knows it is in the drawer. Children in this stage can, however, only solve problems that apply to actual (concrete) objects or events, and not abstract concepts or hypothetical tasks. Understanding and knowing how to use full common sense has not yet been completely adapted.

Piaget held that children in the concrete operational stage are able to incorporate inductive logic. On the other hand, children at this age have difficulty using deductive logic, which involves using a general principle to predict the outcome of a specific event. This includes mental reversibility. An example of this is being able to reverse the order of relationships between mental categories. For example, a child might be able to recognize that his or her dog is a Labrador, that Labrador is a dog, and that dog is an animal, and draw conclusions from the information available, as well as apply all these processes to hypothetical situations.

### **Formal Operational Stage**

The final stage is known as the formal operational stage (adolescence and into adulthood, roughly ages eleven to approximately 15–20): Intelligence is demonstrated through the logical use of symbols related to abstract concepts. This form of thought includes "assumptions that have no necessary relation to reality. At this point, the person is capable of hypothetical and deductive reasoning. During this time, people develop the ability to think about abstract concepts. Piaget stated that hypothetic-deductive reasoning" becomes important during the formal operational stage. This type of thinking involves hypothetical "what-if" situations that are not always rooted in reality, that is, counterfactual thinking. It is often required in Science and Mathematics.

1. Abstract thought emerges during the formal operational stage. Children tend to think very concretely and specifically in earlier stages, and begin to consider possible outcomes and consequences of actions.
2. Meta-cognition, the capacity for "thinking about thinking" that allows adolescents and adults to reason about their thought processes and monitor them.

3. Problem-solving is demonstrated when children use trial-and-error to solve problems. The ability to systematically solve a problem in a logical and methodical way emerges.

According to Piaget, cognitive learning is a progressive reformation of mental processes as a result of biological maturation and environmental experience. He further emphasized that children naturally construct an understanding of the world around them when they experience interruption between what they already know and what they discover in their environment.

The fundamental assumption of the developmental perspective on cooperative learning is that interaction among children around appropriate tasks increases their mastery of critical concepts. Vygotsky defines the zone of proximal development as the distance between the actual developmental level and the level of potential development, in terms of problem solving. In the actual level, the person can only resolve the problem with a more capable peer's guidance and collaboration. By doing this (with the other's person guidance), the person will eventually acquire the skills to solve the problem without help, and will no longer require peer assistance. For example, Matthew is in a group with Kareem, Ganiyu and Thomas. Their task is to complete a list of account exercises together, that contain adjustment in additional information. Matthew has not learned how to adjustment yet, but Kareem knows how to do it. However, Kareem does not know how to interpret the questions, whereas Matthew knows how to. Thomas has not learned adjustment. In the process of cooperation, they all learn new accounting procedures through the guidance of more capable peers. From the developmental perspective, the effects of cooperative learning on student performance would be largely or entirely due to the use of cooperative tasks. In this view, opportunities for students to discuss, to argue,

and to present and hear one another's viewpoints are the critical elements of cooperative learning with respect to student achievement.

Despite difference support from theoretical and laboratory findings, there is little evidence, from classroom experiments, that "pure" cooperative methods, which depend solely on interaction, produce higher performance. However, the cognitive processes described by developmental theorists are important mediating variables which can help explain the positive outcomes of effective cooperative learning methods

Cooperative and project-based learning share many similarities and only a few differences. They are typically done in small, heterogeneous group settings. Each member of the group will have an individual task that he/she need to accomplish. Group members work collaboratively and depend on each other to solve real world problems. In the end they will either 'sink or swim' as a group. While the main difference between these two teaching methods is that project-based learning always ends with a final product. In addition, students in project-based activities occasionally have the option to work alone when they want to study a problem other groups are not interested in. Despite their differences, both teaching methods are highly spoken of in the educational community and are commonly referred to as best teaching methods.

Since cooperative and project-based learning lessons are closely related, they can easily be intertwined into one activity. This interdisciplinary, student-centered activity takes place at a city park and pond. Students will use digital cameras to take pictures of problems they see as they walk around and inspect the site. Each group member is assigned a role such as note taker, camera operator, task manager, and direction reader. One child, the task manager, will receive a checklist that will help guide students through the activity. After students visit the site and take pictures of potential problems, they will research the solutions and turn their work into a visual presentation. Each group will be

responsible for sharing their final product regarding their environmental concerns with the local mayor and city council members.

The evidence is overwhelming that students learn best when they are trained to work together collaboratively and when adequate scaffolding is provided. Cooperative and project-based learning are clearly linked to academic performance, critical thinking, and the development of social skills which is the reason why it should be incorporated into instructional design. Through cooperative and project-based learning activities students learn to work collaboratively and, in turn, maximize each other's learning. Teachers should include these teaching methods into their classrooms to prepare students for the future.

## **Constructivism Learning Theory**

### **John Dewey's Perspective on Constructivism**

John Dewey (October 20, 1859 – June 1, 1952) was an American philosopher and educator who defined inquiry as the controlled and directed transformation of an unpredicted situation into one that is focused in its constituent distinctions and relations as to the elements of original situation into a unified whole. He promoted the idea of 'learning by doing' that influenced contemporary constructivism. John Dewey perceived that going to an education institution is not the same as getting an education. Learning does not necessarily happen only in schools and colleges. According to him, a person who is self motivated, diligent and keen observer working in a factory is also acquiring education albeit without getting a degree. For learning to take place, the person must be involved in a circuit of disequilibrium and restoration - a concept further focused by Jean Piaget. Therefore, learners' active involvement to construct knowledge piece by piece into a comprehensive product of phenomenon is the essence of inquiry based learning. The



theorist advanced the following pattern of inquiry that form the basis for the steps in inquiry based learning in our classrooms.

**Antecedents Conditions of Inquiry:** Per Dewey, the pre-requisites to inquiry are ability to question – only then there is a motivation to seek for answers or inquiry. He mentions that inquiry stems from unique uncertainty and disturbance of situation, otherwise in case of non-specific doubtfulness about situation, it would result in ‘complete panic’ and blind responses. In other words, students are encouraged to engage in self regulated process of questioning to describe a unique problem that arouse a focused response necessary for transition to the next steps of inquiry.

**Defining a Problem:** This is a partial transformation of discomfort state to a more controlled situation about the problem. However, an important note that Dewey makes is that defining the problem does engage a student in applying inquiry to the situation but it does not involve deeper explorations of inquiry.

**Determination of a Problem Solution:** Dewey explains this stage of determining a problem solution as the first predictor of the possible explanation of the problem. The process requires learners to make various suggestions towards determining the solutions of the problem that will produce ideas for the hypothesis generation.

**Reasoning:** This stage refers to constructing propositions or hypothesis, a general guiding set of reasoning that controls the direction of study. The ideas formulated in the previous stage of a creating some probable solutions must be further refined so that, per Dewey, they become more relevant or focused to the problem than original set of broad ideas. Additionally, the hypothesis thus formulated should be

then open to be tested in its applicability to be either rejected or accepted as plausible solutions to the problem.

**The Operational Character of Fact Meaning:** The next stage in inquiry is based on the interaction between facts and its meaning and test if they meet an end (based on the proposed hypothesis). Dewey states that the nature of the facts is operational i.e. based on their relevance to the problem and its hypothesis; facts are either accepted for further research or dropped. Therefore, they possess a character of being acted upon (tested) to reach an end and are not a final product.

**Common Sense and Scientific Inquiry:** John Dewey refers to the final stage as a true nature of scientific inquiry. It stems from undertaking a scientific research to establish relationships between factors to understand a phenomenon. The scientific character of a phenomenon is its absolute nature – ‘it means that it is free from restriction to conditions which present themselves’ at any given time.

**Application of Pattern of Inquiry in Classrooms:** The pattern of inquiry applied in inquiry based learning classrooms is to direct learners towards generating scientific solutions to a problem situation: (a) arousing emotional response, (b) translating intellectual response, (c) formulation of hypothesis, (d) testing/ experimenting, (e) evaluating the result. Dewey rejected the curriculum driven method of schooling delivered in an instructional method and promoted the intertwining of the content to be taught with the interests, prior knowledge of the learners in a constructive manner. The role of the learner in education is being an active participant in the learning rather than being passive recipients of information and experience.

Applying the general skills of inquiry-based learning requires the formation of a community, in which students must be encouraged to develop meaningful questions. In

this context, the school is considered a larger inquiry community in which individual classes exist and each class is its own inquiry community. In order for IBL to be used effectively, the teacher must take the time to create a respectful environment for students to openly share their ideas. In addition, the environment must provide the resources, knowledge and skills required by learners to be able to ask questions and take responsibility for their learning. This environment is meant to encourage students to think critically and creatively by applying logic, reasoning, argumentation and judgment, in order to develop higher order thinking skills. By enabling students to engage in more holistic investigations of questions that are meaningful to them, inquiry-based learning communities allow students to consider others perspectives, and make meaning out of complex life situations. Inquiry-based learning communities must understand the interdependence of tools and must embrace the idea that inquiry is relevant to learning in life, that learning happens in a social context, and that collaboration enables an individual's capacity to learn.

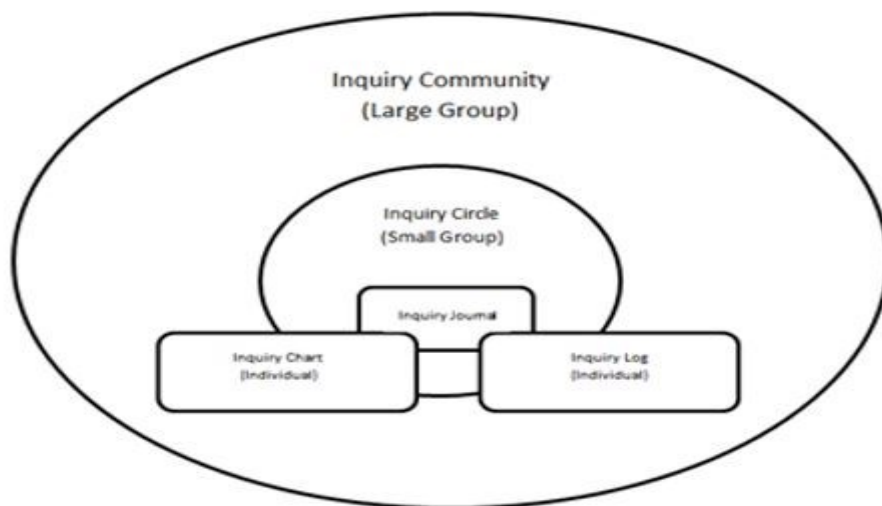


Figure 1: Interdependence of inquiry tools

This figure, taken from Kuhlthau, Maniotes, and Caspari framework for inquiry model, conveys how the different aspects of inquiry-based learning are interconnected. Students rely on each other to collaborate, record, log, organize, synthesize and develop

their inquiry tools to construct personal understandings from a variety of information sources. The largest circle within which all the other ideas are located is the inquiry community, which is a collaborative environment where students learn with each other, raise questions, hear others perspectives, try out ideas and share their own views. It provides way for individuals to compose and reflect throughout their inquiry process and is the center of learning because it is student-created and embedded within inquiry-based learning to help students think and reflect. Inquiry logs provide ways to keep track of quality sources that are chosen as important for addressing inquiry questions and inquiry charts provide a way to visualize, organize and synthesize ideas in the inquiry process.

**Table 1: Overview of Learning Theories**

<b>View</b>	<b>Behaviorism</b>	<b>Cognitive Constructivism</b>	<b>Social Constructivism</b>
<b>Knowledge</b>	Knowledge discovered from behavioral responses to environmental stimuli.	Knowledge systems of cognitive structures are actively developed by learners based on previous cognitive structures.	Knowledge is developed within social contexts through relationship with a knowledge community.
<b>Learning</b>	Passive absorption of a predefined body of knowledge by the learner. Promoted by repetition and positive reinforcement.	Active understanding and accommodation of new idea to existing cognitive structures. Discovery by learners.	Integration of students into a knowledge community. Collaborative understanding and accommodation of new idea.
<b>Motivation</b>	Extrinsic, involving positive and negative motivation.	Intrinsic; learners set their own goals and motivate themselves to learn.	Intrinsic and extrinsic. Learning goals and motives are determined both by learners and extrinsic rewards provided by the knowledge community.
<b>Implications for Teaching</b>	Correct behavioral responses are transmitted by the lecturers and acquired by the students.	The teacher facilitates learning by providing an environment that conducive for discovery and assimilation /accommodation of learning.	Collaborative learning is enhanced and guided by the teacher in group work.

**Source:** GSI Teaching & Resource Center, Graduate Division UC Berkeley, Regents of the University of California (2016)

## **Conceptual Framework**

The following concepts were discussed in the study: students' academic performance, business education, principles of accounting, teaching methods.

### **Students' academic Performance**

The concept of students' academic or cognitive performance is perhaps one of the terms and constructs that are widely used in educational research, test, measurement and evaluation. It is often synonymously and interchangeably used as academic success, academic achievement or grade point average. In fact, Jones (2012) argued that an interrelationship exist among the concepts academic performance, academic achievement and learning outcome. Whatever the argument or difference in its nomenclature may be, schools at whatever level of measurement tend to emphasize high test and examination scores leading to adequate term or yearly progress reports on students. Armstrong (2016) argued that academic performance from all intents and purposes mean more than a means to support, encourage and examine. However, Armstrong pointed that academic performance also entails academic content and skills, grade and standardized testing and an academic curriculum that is rigorous, uniform and compulsory for all learners as a prerequisite for promotion and placement.

Similarly, Bacon-Lashawn (2014) saw academic performance in terms scores and grades received in a standardized test reflecting the ability level and achievement outcomes of learners. Some other scholars conceptualize the concept of academic performance in terms of acquisition of skills and in meeting the stated objectives. Thus, academic performance of students then becomes an enabler for a school to maintain or lose its reputation and standard. It also serves as one of the yardsticks to establish whether or not the standard of education is falling or rising. In addition, grouping students into low, middle or high ability learners is a function of academic performance while it is common

to see teachers referring to those with high grades in school subjects as high achievers, while those with lower grades or scores in the test and examination are labeled low or under achievers.

Therefore, Educational administrators and managers strive to meet the expectations or benchmarks set by the political leadership and subjects' associations. In a bid to meet up with the demands of the educational administrators and managers, teachers on their part devise various testing mechanisms and teaching methods to up students learning outcome. Parent and students on their own part sometimes respond in different forms such as, cheating or indulging in examination malpractices all in a bid to meet set standard, targets, benchmarks and adequate yearly progress. Academic performance in this work is seen as the total or composite grade or scores that students in the treatment and control groups receive in principles of accounting performance test (PAPT conducted). It is a reflection of the cognitive gain a student records in terms of his knowledge, comprehension and applicative abilities in principles of accounting test items.

### **Business Education**

Ademiluyi (2011), asserted that business education is generally believed that it is as old as mankind and it is traced to the universal apprenticeship system. This kind of apprenticeship system often runs in families like the blacksmith, farmers, among others. Later it got to a time when it became formalized due to the need for record keeping, account keeping and writing of letters to communicate generally. The meaning of business education has evolved over time. This is evident in different definitions offered by various authors and researchers in trying to make clear the meaning of business education.

According to Agwumezie (2010), business education courses prepare students for entry in and advancement in jobs within business and prepare them to handle their own business affairs to function intelligently as consumers and citizens in a business economy.

Similarly, Amaewhule (2010) opined that business education involved knowledge, attitudes, and skills needed by all citizens in order to properly manage their personal businesses and economic process. Atakpa (2011) asserted that business education is a group of vocational attitude and skills needed for employment and progress in a broader range of business careers. Oyedele and Oladeji (2016) stated that business education is a step by step and organized programme of instruction directed at changing business knowledge, skills, ideas, aptitude and technical know-how to students which is required for usage in business offices and for teaching. In other words, business education means education for business or training skills which is required in business offices, clerical occupation and business policy analysis.

Umoru and Oluwalola (2016) opined that business education is an instructional course that equips an individual with functional and suitable skills for meaningful living. Igboke (2010) held that it is a field of study geared towards preparing youths and adults for and about business. It is a preparation for careers in business when instruction is designed to prepare youths and adults for actual practice in the world of business. In another words, education about business includes preparation of youths and adults for intelligent and effective utilization of economic goods and services offered to society in a free enterprise economy.

Business education is a sub-set of vocational education which plays a major role in the total development of a country. Vocational education is the training of person for specific occupation. Okwuanaso and Agbamu (2010) emphasized that the skills acquired in any area of business education would promote teaching and learning as well as make graduates establish small businesses. A thorough examination of the definitions of business education and vocational education provides that the meanings of the concepts are in line with two of Nigerian educational aims and objectives is contained in the Federal

Government of Nigeria (2014) as follows: (1) inculcation of the right types of value and attitudes for the survival of the everyone and the Nigerian society as a whole. (2) acquisition of appropriate skills, abilities and competencies, both mental and physical, as equipment for individual to live in and contribute to the development of society.

It is worthy of note that one of the scopes of vocational and technical (business education inclusive) according to Federal Government of Nigeria (2014) is to give training and inculcate necessary skills leading to the production of craftsmen, technicians and skilled personnel who will be enterprising and self-reliant.

The general aim and scopes of business education curriculum as stated by Osuala (2014) are; (1) to make available to all students opportunities to explore and learn the world of business and the possible interest and potential careers it has to offer. (2) to develop in all students the ability to choose discriminately and use wisely the goods and services that business is to offer. (3) to assist in developing on the part of the students interest in the various occupations to be found in the circle of business. (4) to develop in all students the practical way of understanding and appreciating the actual functioning of our economic system. (5) to help students in acquire basic skills in business occupations as beginners who expect to follow business as a career. (6) to prepare students to enter and succeed in business occupations as beginners who expect to follow business as a career. (7) to prepare students to perform business activities common to many professional, industrial, agricultural service and home-making careers. (8) to prepare students for more effective study in the fields of business and education beyond the secondary school education level.

### **Principles of Accounting**

Principles of accounting is part of the preliminary courses in accounting course which cuts across all levels in business education department. According to Kehinde and



Salami (2015), Principles of accounting is the process of recording, classifying, selecting, measuring, interpreting, summarizing, and reporting financial data of an organization to the users for effective assessment and decision making. Its results are processed into accounting information through the use of accounting principles and conventions. The accounting principles are generally accepted accounting guides and standards in recording, appreciating and assessing accounting information as well as the preparation and interpretation of financial statement. The accounting information system and format is universally understood in every part of the world. The teaching of accounting provides a foundation for higher studies in accountancy and also serves as a vocational value to business education students in their career choice. The business education programmes exposes undergraduates to principles, concepts and ethics that apply to accounting practices.

Adedoya (2014) saw principles of accounting course as a course that emphasizes the effective aspects of honesty, accuracy, neatness and hard work which are the bases of accounting profession. Adedoya emphasized on seven basic concepts of accounting which are:

- a. **The business entity:** This concept explains that every account kept in respect of any organization is prepared on the premises that the business is an artificial person quite different from the owner who provided the capital.
- b. **Money as a common denominator:** To have accurate facts about a particular business, money is used to explain this fact. For instance, landed property of a business can be converted to money by costing it.
- c. **The going concern:** This concept explains that the business will continue to trade month after months, year after years, or the business is believed to have endless life span.

- d. **The dual concept or aspect:** This is the concept that is at the middle of modern financial accounting. With this concept, all business events or transactions are regarded as having a dual aspect. That is, for every debit entry, there must be a corresponding credit entry and vice-versa in monetary terms.
- e. **Accrual concept:** This concept tries to show that in financial accounting, the income accruing to the owner of a business is not actually the total cash that is able to come into the business within any accounting period. This then explains why outstanding income and or expenses are often considered in preparing the financial account of the business.
- f. **Realization:** This concept explains that revenue of any business is considered earned on the day it is realized and that is when goods are transferred to the customer in exchange for a valuable.
- g. **Cost Concept:** This concept explains that at any point in time, the values of business items such as assets recorded in the books do not necessarily reflect the current value of that particular asset. For instance equipment bought at the cost of N15, 000 after two or more years ago will not be recorded more than value when preparing account for the year. Rather, it will be recorded as a reduced value when considering the annual depreciation for it.

For any learner of accounting, the foregoing concepts of accounting must first have roots in the long-term memory of such a student, but where such fundamental concepts are not well nurtured and watered by the lecturers, there is bound to be a serious challenge on the learners.

### **Factors Affecting the Teaching of Accounting**

A number of factors are considered as challenges to the teaching of accounting courses. The challenges, according to Okon and Kochlar (2014) are:

**1. Poor application of teaching methods:** Many teachers especially the non-professional ones are not conversant with the proper methods of teaching and hence adopt the lecture method mainly at the expense of the learners or the students. Some do not make use of the opportunity they have in the classroom to present a demonstrative method when it is most needed. The authors emphasizes that teaching should starts from the simple to the complex. The teacher should motivate the students in the lesson by presenting lesson material from known to unknown. Whatever material is taught to the learners should graduate from one level to the other. The teacher most important duty is that of establishing attainable goals and objectives which will arouse the learners' interest to participate fully without reservation.

**2. Lack of Funding:** One other factor considered to be affecting the teaching and learning of accounting course is inadequate funding. Accounting as a course honestly requires constant and enough funding so as to: buy facilities and equipment, maintain the existing ones, buy stationeries, provide incentive to the teachers, buy text-book and provide comfortable libraries.

Mkpa (2005) stated that insufficient funding is one of the major problems in schools in this country, Nigeria. There is a simple saying that "no money no friend". If teachers are not motivated through proper incentives, there could be no good delivery, which invariably would affect the students negatively. Bankole (2012) stated that in order to achieve the objectives desired policy of 6-3-3-4 system of education, enough funding is required to be provided which would encourage and support people that will implement the programme.

## **Teaching Method**

The term teaching method is the general principles, pedagogy and management strategies used for classroom teaching (Hornby, 2015). Choice of these strategies depends on what fits in to educational philosophy, classroom population, subject matter(s) and school mission statement. Teaching theories primarily fall into two groups or approaches; teacher-centered and student-centered (Teachnology, 2017) A teaching method comprises the principles and methods used for instruction by teachers to achieve the desired learning objective(s) in students to bring about relative permanent change in their behaviour. These methods are determined partly by the subject matter to be taught and partly by the nature of the learner. Teaching method that stands its value must be appropriate and efficient it has to be in relation with the characteristics of the learner and the type of learning expected. There are suggestions that arrangement and selection of teaching methods must take to mind not only the nature of the subject matter but also how students learn (Westwood, 2011).

In today's schools, the process is that teaching method encourages a lot of creativity from both teachers and students. It is a known fact that human advancement comes through reasoning. This reasoning and original thought enhances creativity. Teaching method is a strategy used in teaching to help activate students' curiosity about a class topic; to engage students in learning, to probe critical thinking skills; to keep student on desk, to engender sustained and useful classroom interaction; and in general, to enable and enhance the learning of course content (University of Regina, 2016). According to Nwachukwu (2011), teaching methods are decision about organizing students, materials, and ideas to provide learning. Therefore, methods of teaching are the steps employed by the teacher to initiate and sustain learning outcome toward the achievement of the stated objectives of business education. Resent teaching methods may incorporate social media,

multimedia, and other modern devices. Educators believe that the use of technology, while facilitating learning to some degree is not a replacement for educational methods that encourage critical thinking and a desire to learn (IUB, 2011).

### **Characteristics of a Good Teaching Method**

Good teaching method should provide a group of related experiences and activities, arranged to meet an individual needs as well as group basis. It should gives scope for the creative expression of the student's individuality. It should arouse a large range of interest in the minds of the student. It should stimulate the desire for further study and explorations. It should awaken an interest in the materials and techniques used by social scientists (University of Regina, 2016)

Teaching method comprises of principles and methods used for instruction to be implemented by teachers to achieve the desired learning by students. These methods are determined partly by subject matter(s) to be taught and partly on the nature of the learner. Teaching method must be appropriate and efficient in relation with the characteristic of the learner and the type of learning it is supposed to bring about. Suggestions to designing and utilization of a teaching method must take to mind not only the nature of the subject matter but the levels of students' learn (Westwood, 2011).

Nwachukwu (2011), views students as "empty vessels" whose primary role is to passively receive information with an end goal of testing and assessment. It is the primary duty of teachers to transfer knowledge and information to their students. The teacher's duty is to coach and facilitate student learning and overall comprehension of material. Student learning is determined through formal and informal forms of test and assessment which including group projects, student portfolios, and class participation. There are different methods of teaching applied to social science such as lecture method, problem solving, project method, source method, supervised study method, dramatization method,

debate, role play, co-operative learning, collaborative learning, inquiry-based method, multi media approach (Donche,2013). There are some factors which determine the selection of a teaching method among which are; the nature of the child, the objectives of instruction, the nature of the subject matter, class room environment, expertise of the teacher who adopts a method etc. (celt.iastate.edu/teaching, 2017).

### **Impact of Teaching Method on Effective Learning**

According to Coleman (2014), minimal role is played by the schools as far as the students' achievement is concerned because it is independent of their background as well as societal factors. In another way, a few researchers suggest that factors like class size and space the teachers' qualification the school's size and space and a few more variables play vital role in what the students learn in accounting class like quality teaching student-centered classrooms, which aims to benefit all students learning(Glass, 2011, Ferguson, 2014 and Haller, 2011). Students must also become both geographically and socially diversified to meet global demand and change. Demands and needs change time to time so the teachers should also undergo professional and personal development to benefit both, the students and themselves as well, both are the learners. Deppeler (2010) opines that teachers would be able to change their teaching practices when they reflect upon teaching methods and engage themselves in examining their own theories of teaching practices that is reflective inquiry. Most teachers lose focus on their teaching methods and they assume that learners face difficulties because the content is complicated or not of their interest, instead of realizing the fact that the teaching methods should be more effective and as per their requirement and needs in order to generate their interest and better learning opportunity for the students. More so, students learn in different ways as per their capabilities. Some learn by seeing, hearing, reflecting, modeling, reasoning, and drawing etcetera (Felder, 2010). Similarly there are different teaching styles as well depending on

teaching experience which includes; lectures, discussing the topic, students working in groups, use of technology, use of textbooks and many more that is uniqueness of individual with unique learning style. Teaching methods must go with age groups that will have impact on experiences. All these and many more have one effect or the other in learning process.

### **Empirical Studies**

Discussed below are empirical studies related to the current study

#### **Effect of Cooperative Teaching Method on Students' academic Performance**

Consumer Guides (2017) defined Cooperative teaching method as a fruitful teaching technique in which teams of small students, each with different levels of ability, uses different learning activities to improve their understanding of a subject. Cooperative teaching method is the instructional method that makes use of a small group so that students work together to maximize their learning abilities and each others' learning capabilities (Johnson, Johnson and Smith, 2014).

Cooperative method is a group based approach but uses a clearly stated set of rules and structures, specific group goals, and the final work of the group is assessed (Hmelo-Silver, 2013). Akinyele, Oloowokere and Akinlabi (2015) citing Morgan observed cooperative learning as an approach to arrange classroom activities into academic and social learning experiences requiring that students must work in group to complete the sets of tasks collectively by the end of which the group and individuals in each group succeed in learning the expected skills and knowledge. Cooperative learning covers a wide range of group-based learning approaches including; reciprocal peer-tutoring, scripted cooperation, peer- mentoring, group testing, guided peer collaboration and problem-based learning. Obi and Oliver (2011) and Mkpa (2015) states that cooperative learning is an active and humanistic approach to learning which concentrates plans for a wide variety of teaching and learning activities on the child through the collaboration of teachers.

Alade (2013) defines cooperative learning as a teaching method where the learners cooperate with one another to perform or complete a particular task. In cooperative learning, there is a need to create circumstances for learners to interact with one another. They should be free to express their opinion. Cooperative teaching is a form of active learning where students work together to perform specific tasks in a small group (Lewis, 2016).

### **Basic and Essential Elements to Cooperative Learning**

Brown and Ciuffetelli (2012) discuss five founder mental and essential elements to cooperative learning; Positive interdependence: Students must fully participate and put forth effort within their group and each group member has a task/role/responsibility therefore must believe that they are responsible for their learning and that of their group. Face-to-face enhance interaction: Members motivate one another achievement and students educate one another on what they have or are learning and assist one another with understanding and completion of assignments. Individual and group accountability: Each student must demonstrate mastery of the content being studied and each student is accountable for their learning and work, therefore eliminating "social loafing". Social skills that must be taught in order for successful cooperative learning to occur include; leadership, decision-making, trust-building, friendship- development, communication and conflict-management skills. Group processing: This occurs when group members reflect on which member actions are helpful and make decision about which actions to continue or change. The purpose of group processing is to clarify and improve the effectiveness with which members carry out the processes necessary to achieve the group's goals.

For students' academic performance to improve greatly, two characteristics must be present as stated by Siltala, (2010): (a) when designing cooperative learning tasks and reward structures, individual responsibility and accountability must be identified.



Individuals must know exactly what their responsibilities are and that they are accountable to the group in order to reach their goal. (b) All group members must be involved in order for the group to complete the task. In order for this to occur each member must have a task that they are responsible for which cannot be completed by any other group member. There are many cooperative teaching methods available. Some of which are student pairing, small groups of four or five students. Hundreds of techniques have been created into structures to be used in any content area. Among the easy to implement structures are think-pair-share, think-pair-write, variations of Round Robin, and the reciprocal teaching technique. A well known cooperative teaching technique is the Jigsaw, Jigsaw II and Reverse Jigsaw.

Think-pair-share allows for students to contemplate a posed question or problem silently. The students may write down thoughts or simply just brainstorm in his or her head. When prompted, the students pair up with a peer and discusses his or her idea(s) and then listens to the ideas of his or her partner (Frank 2015). Following pair dialogue, the teacher solicits responses from the whole group. When teachers use this technique, they do not have to worry about students not volunteering because each student would have already an idea in their heads, therefore, the teacher can call on anyone and increase discussion productivity. Jigsaw: Students are members of two groups: home group and expert group. In the heterogeneous home group, students are assigned a different topic each. Once a topic has been identified, students leave the home group and group with the other students with their assigned topic. In the new group, students learn the material together before returning to their home group. Once back in their home group, each student is accountable for teaching his or her assigned topic.

According to Robert (2017), Jigsaw II is a variation of Jigsaw I in which members of the home group are assigned the same material, but focus on separate portions of the

material. Each member must become an "expert" on his or her assigned portion and teach the other members of the home group. It differs from the original Jigsaw during the teaching portion of the activity. In the Reverse Jigsaw technique, students in the expert groups teach the whole class rather than return to their home groups to teach the content. Inside-outside circle is a cooperative learning strategy in which students from two concentric circles and take turns on rotation to face new partners to answer or discuss the teacher's questions. This method can be used to gather variety of information, generate new ideas and solve problems (Timothy, 2013).

Brown and Paliscar (2014) describe reciprocal teaching as a cooperative technique that allows for student pairs to participate in a dialogue about text. Partners take turns reading and asking questions from one another, receiving immediate feedback. Such a model allows for students to use important metacognitive techniques such as clarifying, questioning, predicting, and summarizing. It embraces the idea that students can effectively learn from one another. Students collaborate to answer a question that is the learning objective. Each group has differentiated questions that increase in cognitive ability to allow students to progress and meet the learning objective.

Student-Teams-Achievement Divisions: Students are placed in small groups. The class in its entirety is presented with a lesson and the students are subsequently tested. Individuals are graded on the team's performance. Although the tests are taken individually, students are encouraged to work together to improve the overall performance of the group. Rally Table is another process of cooperative learning. In this process, the class or the students are divided into groups. This is done to encourage group learning, team building and cooperative learning. It is the written version of Robin Table. Team Game Tournament: Students are placed into small groups to study and prepare for a trivia

game. This gives students incentive to learn and have some fun learning the material. This is a group exercise, so no student is to blame.

Benefits and applicability of cooperative teaching according to Brown and Ciuffetelli (2012), that: Students demonstrate academic achievement. Cooperative teaching methods are usually equally effective for all ability levels. Cooperative learning is effective for all ethnic groups. Student perceptions of one another are enhanced when given the opportunity to work with one another. Cooperative teaching increases self-esteem and self-concept. Ethnic and physically/mentally handicapped barriers are broken down allowing for positive interactions and friendships to occur. Cooperative teaching results increased higher level reasoning, increased generation of new ideas and solutions with greater transfer of learning between situations as stated by Johnson, Johnson and Smith (2014).

### **Cooperative Teaching Method and Student's Academic Performance**

Cooperative teaching is an educational approach which aims to organize classroom activities into academic and social learning experiences. The ancient philosopher, John Dewey opines that rote study promoted shallow thinking and a dislike for learning and posits that students actually learn all the time implying that learning is inherently social (Powell, 2015). Seweje (2010) explains further that a teacher is expected to be a facilitator whose main function is to help learners to become active participants in their learning and thereby making meaningful connection between prior knowledge, new knowledge and the process involved in learning. Akinleye (2010) confirms that if the children are given opportunity to be listened to and guided in a non-frightening environment, they would perform wonders in terms of problem-solving and decision making. Cooperative learning is a method in which the teacher leads or guides the students in expressing their opinions and ideas with a view to identifying and solving problems collectively. Akintayo (2013)

confirms the effectiveness of cooperative method for strong evidence of promoting academic performance over competitive and individualistic methods. Her thought is in line with the slogan that states “Jointly we succeed no failure in the camp”. She explains further that if cooperative method is properly managed, it will go a long way to improve students’ performance in principles of accounting.

Salend (2000) in a study by direct observation investigated the impact of cooperative learning strategies and came to the conclusion that this method resulted in increasing of self-efficacy and academic performance and improved collaboration between groups of students experiencing emotional distress. Shachar and Fischer (2014) report an increase in the academic performance of students with low or average academic performance after their participation in cooperative learning method. Artut (2018) studies the effects of Cooperative Learning on kindergarten children's ability to do arithmetic and sums and came to the conclusion that there was a significant and meaningful improvement among children in the experimental group. Artu (2018) findings shows that the distribution of tasks in Cooperative Learning groups, talking and discussing problems with friends, and finding an opportunity to speak results in interaction with classmates. Aziz and Hossein (2010) opine that cooperative teaching method had a significant impact on the academic achievement of students in the subject of mathematics. Indeed, many experts and scholars have defined the Cooperative Learning method as a key factor and solution to the existing educational problems.

### **Effect of Project-based Teaching Method on Students’ academic Performance**

According to William (2013), view project as a whole hearted purposeful activity, proceeding in a social environment. Stevenson (2012) defines project as a problematic act carried out to completion in its natural setting. According to Dewey (2016), children should be given education to satisfy their life needs and the school should function like a

mini-society in which students would acquire education by engaging themselves in a variety of group projects. Nothing should force upon children. Guven and Duman (2017) observe project-based learning as a deep investigation of selected topics that are relevant for both learner and teacher. The main aim of a project is to gather knowledge through concentrating to related questions on a topic. Additionally, they stated that project-based teaching method is one of the most effective learning strategies for constructing knowledge and thinking creatively as it provides supports and reinforces many of the principles emphasized in brain-based learning.

Buck Institute (2017) opines that project-based teaching method is a teaching method in which students' gains knowledge and skills by working for an extended period of time to investigate and respond to a complex question, problem, or challenge. A systematic approach to teaching in which students explore real-world problems and challenges simultaneously to develop 21st century skills while working in small collaborative groups is project-based teaching. To Fall (2010), project-based teaching method is an instructional approach built upon learning activities and real tasks that have brought challenges for students to solve.

Edutopia (2016) notes that project-based teaching method as a student-centered method which involves a systematic classroom approach in which it is believed that students acquire a deeper knowledge through active exploration of real-world challenges and problems. Students learn about a subject by working for an extended period of time to investigate and respond to a complex question, challenge, or problem. It is a style of active learning and inquiry-based teaching method. Project-based teaching method contrasts with paper-based, rote memorization, or teacher-led instruction that simply presents established facts or portrays a smooth path to knowledge but instead poses questions, problems or

scenarios. According to Thomas (2011), project-based teaching method is integrating knowing and doing.

### **Applications Project-based Learning**

Applications Project-based learning begins with an assignment to carry out one or more tasks that lead to the production of a final product; a design, a model, a device or a computer simulation. The culmination of the project is normally a written and/or oral report summarizing the procedure used to produce the product and presenting the outcome. A trade-off exists between lecturers being fairly directive in choosing projects, which help maintain a focus on course and curriculum objectives, and allowing students the autonomy to choose their own project formulations and strategies, which increase their motivation. de Graaf and Kolmos (2013) define three types of projects that differ in the degree of student autonomy; 1 Task project: Student teams work on projects that have been defined by the lecturer, using largely lecturer-prescribed methods. This type of project provides minimal student motivation and skill development. 2. Discipline project: The lecturer leads the class to specify in general terms the approaches to be used but the students identify the specific project and design the particular approach they will take to complete it. 3. Problem project: The students have nearly complete autonomy to choose their project and their approach to it.

The authors further noted that a common difficulty faced by students in a project-based environment is transferring methods and skills acquired in one project to another project in a different subject or discipline. Lecturers should include such transference in their course objectives and should guide students to see connections between their current project and what they have learned previously, gradually withdrawing this support as the students become more adept at seeing the connections themselves. The lecturers should also prepare students to fill in gaps in content knowledge when a need arises, taking into

account the fact that such gaps may be more likely to arise in project-based learning than in conventional lectured-based method of teaching. This was recently adapted to a distance education offering, with virtual groups meeting once or twice a week using Internet chat facilities (Jensen, Helbo, Knudsen, & Rokkjr, 2013). Many of the positive features of project work have been observed in this format as well, although the authors note that the experience seems to accentuate the differences between strong and weak students, with the latter being more likely to become demotivated and to make less progress in the distance environment than they do in a conventional classroom environment.

### **Teacher Role in Project-based teaching method**

Project-based teaching method create meaningful focused teaching, teachers must plan well and be flexible. In this approach of instruction, teachers often find themselves in the role of learner and peer with the students. Teachers can assess teaching with a combination of objective tests, checklists, and rubrics; however, these often only measure task completion. The inclusion of a reflective writing component provides for self-evaluation of student learning in project-based teaching.

### **Student Role in Project-based Learning**

Students normally works in small collaborative groups in the project-based teaching method model. They find sources, conduct research, and hold one another responsible for learning and the completion of tasks. Most importantly, students must be “self-managers” in this approach to instruction. The out-put of project-based learning research are mixed. Some studies suggest that it is an engaging instructional approach, but numerous studies have also claimed that students are not motivated by this type of learning, and that it places a great amount of stress on teachers (Korkmaz and Kaptan, 2012).

## **Project-based Teaching Method and Student's Academic Performance**

Project teaching method is any programmatic or instructional approach that utilizes multifaceted projects as a central organizing strategy for educating students. Abbott (2014) confirms that the teaching method gives students a more “integrated” understanding of the concepts and knowledge they learn, while also equipping them with practical skills they can apply throughout their lives. Foyeke (2010) explains further that a teacher is expected to tailor assignments and projects for students with a diverse variety of interests, career aspirations, learning styles, abilities, and personal backgrounds. Afolabi (2010) recommends that as a matter of urgency, teachers of principles of accounting should explore and use project method of teaching to promote knowledge to university students. He explained further that if the method is properly managed, it will go a long way to improve students' achievement in principles of accounting. Korkmaz and Kaptan (2012) examine the effect of project-based teaching method approach on the academic achievement and academic self-concept and study time of 7th grade students. While the control group followed textbook and teacher-centered activities, the experimental group students experienced a project-based teaching method. After the project process, they reported that there was a significant difference in favour of experimental group in terms of academic achievement, academic self-concept and study time.

In a similar study, Altun Yalçın, Turgut and Büyükkasap (2016) aim to determine the effect of project-based teaching method on the first year science undergraduates' attitudes towards physics, electricity achievement, and development of scientific process skills. They used quasi-experimental nonequivalent groups' pretest-posttest design study, and the sample total of 90 first year science undergraduate students enrolled in the Science Teacher Training Department in Bayburt Education Faculty in 2019/2011 academic year in Turkey. Their research findings revealed that there were statistically significant



differences between treatment group and control group with regard to students' attitude toward physics, electricity achievement and scientific process skills. The treatment results also support the idea that the project based teaching improved the students' learning and helped their attitudes towards physics and research skills to enhance. Sert Çıbık (2018) investigates the effect of project based learning approach to the development of attitude of seventh grade students towards science. A total of 44 students (22 in the experimental group and 22 in the control group) participated in the study. At the end of the study, when the experimental and control group results were compared, there was a meaningful difference in favour of experimental group.

### **Effect of Inquiry-Based Teaching Method on Students' academic Performance**

According to Bruner (2016), Inquiry-based teaching method is a basic pedagogical method developed during the discovery learning movement of 1960s as a response to traditional forms of teaching where people were required to memorize information from instructional materials. The inquiry-based teaching method is principally related to the development and practice of thinking skills (Dostál, 2015). Hornby (2015) defines inquiry as seeking knowledge, information, or truth through questioning. Harmon (2016) observes inquiry method as probing, finding out, investigating, analyzing, discovering, evaluating, questioning, thinking searching, exploring, experimenting, collecting, updating, or validating knowledge and information in the course of the study. It is a method of finding out. Idowu (2016) defines inquiry method of teaching as teaching in which the learners find answers to questions, problem or riddles by themselves. In order to come up with this, the learner is led by skillful thought provoking questions by the teacher to discover facts for themselves. Oluwaniran (2014) also defines inquiry as practicing that entails attitudinal skills such as honesty, open-mindedness and perseverance when carrying out teaching and learning task. It can be open-ended or close-ended.

## **Characteristics of Inquiry-based Teaching Method**

According to Bell, Urhahne, Schanze and Ploetzner (2010) specific teaching processes that people engage in during inquiry-learning include: creating questions of their own, obtaining supporting evidence to answer the question(s), explaining the evidence collected, connecting the explanation to the knowledge obtained from the investigative process and creating an argument and justification for the explanation. Inquiry teaching involves developing questions, making observations, doing research to find out what information is already recorded, developing methods for experiments, developing instruments for data collection, collecting, analyzing, and interpreting data, outlining possible explanations and creating predictions for future study.

## **Applications of Inquiry-based Learning**

Inquiry-based learning begins when students are presented with questions to be answered, problems to be solved, or a set of observations to be explained (Bateman, 2015). If the method is implemented effectively, the students should learn to formulate good questions, identify and collect appropriate evidence, present results systematically, analyze and interpret results, formulate conclusions, and evaluate the worth and importance of those conclusions (Lee, 2014). The same statements could also be made about problem-based learning, project-based learning and discovery learning certain forms of case-based instruction and students' research; however, inquiry learning may be considered an umbrella category that encompasses several other inductive teaching methods. Lee makes this point, observing that inquiry is also consistent with interactive lecture, discussion, simulation, service learning, and independent study, and in fact "probably the only strategy that is not consistent with inquiry-based learning is the exclusive use of traditional lecturing".

The term inquiry-based learning is to refer to instruction that uses questions and problems to provide contexts for learning and does not fall into another more restrictive inductive learning category. Besides overlapping with other inductive methods, inquiry-based learning encompasses a variety of techniques that differ from one another in significant ways. Staver and Bay (2010) differentiate between structured inquiry (students are given a problem and an outline for how to solve it), guided inquiry (students must also figure out the solution method) and open inquiry (students must formulate the problem for themselves). The author makes a similar distinction between teacher inquiry, in which the teacher poses questions, and learner inquiry, in which questions are posed by the students. In process-oriented-guided-inquiry-learning (POGIL), students work in small groups in a class that present them with information or data, followed by leading questions designed to guide them toward formulation of their own conclusions. The lecturer serves as guide or facilitator, working with student groups if they need help and addressing class-wide problems when necessary. Some educationist on inquiry suggest using a relatively structured form of inquiry in the first year, gradually shifting toward more self-directed learning as the curriculum progresses while others advocate moving immediately to self-direction (Lee, 2014). Inquiry-based courses should have four preplan end results for students which are: (a) improved critical thinking skills, (b) greater capacity for independent inquiry, (c) taking more responsibility for one's own learning, and (d) intellectual growth.

### **Inquiry-based Teaching Method and Student's Academic Performance**

Inquiry-based method commences by giving out questions, problems or scenarios rather than simply presenting established facts or portraying a smooth path to knowledge. The process is often assisted by a facilitator. Inquirers will identify and research issues and questions to develop their knowledge or solutions. Phyllis and Blumenfeld (2012) confirm

that an inquiry-based curriculum yielded significant gains in student achievement without sacrificing state curriculum standards.

In research conducted by Harry (2010) on the effect of inquiry method and the essential benefits of inquiry approach, he shows that students exposed to inquiry instructional method scored higher than those students who were taught the same concept using subject matter approach. Shymansky, et al. (2009) presented a meta-analysis of the effect of inquiry associated curricular on the students' performance and found that the curricular enhanced students' science achievement through inquiry. Recent science education standards in U.S. proposed that all students should learn about both scientific inquiry and learn science through inquiry (National Research Council, 2013). However, some previous researches have shown that an inquiry-based instruction method can improve students' science-process skills concept learning and achievement in chemistry. Research on explicit teaching, (traditional instruction) has also revealed that students' achievement is improved for certain kinds of instructional objectives (Waxman, 2013). According to Greenwald (2012), the best way for students to learn accounting is to experience challenging problems and the thoughts and actions associated with solving them. Song-Ling and Chumyen (2013) reveal that the inquiry-oriented instruction method produced significantly more positive attitudes towards the subject matter among science students that did the traditional lecture method. They further state that the inquiry teaching method significantly promotes positive attitudes towards science among group participation. Rosini (2014) also examines the relation between teaching method and attitude of students and found that inquiry method is more motivating than traditional lecture method. Ifeanyi-Uche, and Ejabukwa (2013) conclude that inquiry based method enhances effective understanding and comprehension of Home economics concepts and skill acquisition. Therefore, it should be used in teaching secondary school students.

## **Effect of Lecture Teaching Method on Students' academic Performance**

The word lecture comes from the Latin word *lectus*, from the 14th century, which translates roughly into “to read.” The term lecture, in Latin, means “that which is read.” It was not until the 16th century that the word was used to describe oral instruction given by a teacher in front of an audience learner. Lecture from the French meaning 'reading' process. Lecture is oral presentations intended to present information or teach people about a particular subject, for example by a university or college teacher. Lectures are used to convey critical information, history, background, theories, and equations. A politician's speech, a minister's sermon, or even a businessman's sales presentation may be similar in form to a lecture (Farenga, 2017). Educationalist sees lecturing method as the easiest, cheapest and most familiar but abused and least effective method in many respects and circumstances. It is verbal presentation of ideas, concepts, generalizations and facts. The teacher does most of the activities in form of talking while the learners are either passive listeners or slightly involved. This leads to rote learning whereby learners memorize what they have learnt and regurgitate the facts. The method which involves mostly talk-chalk approach will not be effective in the teaching of the course like principles of accounting because it appeals only to the sense of hearing which easily leads to forgetting. Paris (2014) observes lecturing as a teaching method that involves primarily an oral presentation given by an instructor to a body of students.

Gage and Berliner (2018) conclude about lecture teaching method suitability. These are briefly presented as follows; the basic purpose is to disseminate information. The material must be organized and presented in a particular way for a specific group. It is necessary to arouse interest in the subject. Students need to remember the material for a

short time. It is necessary to provide an introduction or directions for learning task that is going to be taught through some other teaching methods.

Teachers need to orientate their students properly at the start of lecture. Such orientation is particularly important at the start of a course, module or series of lectures, when the students are meeting for the first time. Lecture method is based on certain psychological principles as quoted by Walker, (2013); that the learner should meaningfully react to the stimuli of the teacher's teaching so that learning takes place. The teacher should be aware of the needs of the learner. Since attention span of students is not too long, the teacher should keep up the interest by injecting humorous comments, modulating his voice, and summarizing the topic. The teacher should have a realistic idea of his own teaching ability and the learning capacities of the students. Learning outcomes is essential for growth and progress in the lecturing process. As it an auditory medium, the concept is converted into mental pictures by the students and then understood. The teacher should take time to build these mental pictures, connecting the new concepts with the known, moving from simple to difficult ideas, banking on his communication ability. The teacher uses an understandable language and it depends on factors such as difficulty level of vocabulary, right examples, fluency, pronunciation of words, rate of speaking etc. The lecture method can be an effective method of instruction due to its versatility. It is virtually limitless in application, either to situation, subject matter, or student age and learning ability. At the same time, it can be one of the least effective methods if improperly used. The lecture method is more effective when visual aids, models, or some form of group participation are used. Similarly, the discussion along with learning material method when properly used can develop in the students' higher learning skills. It can give the students increased capability for generalization and transfer, a sense of the relevance of learning, and the ability to analyze, synthesize, and apply what is learned (Walker, 2013).

Summarily, teachers should focus on the desired learning outcome and make decisions about pacing and curriculum emphasis so that students may have every opportunity to learn. Teacher should use teaching methods that suit both the content and the students. A teacher may use a variety of teaching methods including cooperative method. Cooperative is a process whereby two or more people jointly clarify and pool their knowledge, experiences, opinions, and feelings together to achieve a set instructional goal.

### **Effect of Gender (male and female) on Academic Performance**

Gender is the range of characteristic pertaining to differentiating between masculinity and femininity. Depending on the context, these characteristics may include biological sex, sex-based social structures or gender identity. Social sciences sometimes approach gender as a social construct, and gender studies particularly do: Research in the natural sciences investigates whether biological differences in males and females influence the development of gender humans (Yudkin, 2011). Fasiku (2011) notes that some subjects such as science and mathematics are branded masculine, while others like home economics, secretarial studies are branded feminine. In Fasiku's comparison of the knowledge of male and female students in social studies concluded that male students were very vast in the knowledge of environmental education than female students.

Oliver (2011) in his study found out that there is no statistically significant difference interaction effect between instruction and students' achievement in Business Education based on gender and further stated that both gender on benefit almost equally from reciprocal peer tutoring teaching method which implied that the contribution of both gender the dependent measures was not significant. Oyewole (2017) in a study on effects of instructional inquiry-based on the achievement of male and female students in principles of accounting emphasized that instructional inquiry-based method was superior

to lecture method in improving the achievement of male and female students in principles of accounting. Oyewole further states that the test of interaction showed that gender had no significant interaction with teaching approach on students mean achievement. Statistics show that the literacy rate is 73 percent for men and 48 percent for women showing that gender gap in literacy rates at post basic level of education stood at 79 percent for boys and 61 percent for girls (Oyesola, 2018).

Similarly Kassab, Abu-Hijle, Al-Shboul and Hamdy (2014) and Iji, Emiakwu and Utubaku, (2015) identify gender as one of the factors that affect students' academic performance. However, Olaoye and Adu (2015) report that no significant difference exists in academic performance of students as a result of gender. The foregoing shows that gender effect on academic performance has been a controversial issue that requires further investigation in specific subject areas. This is why the issue has been attracting attention from researchers and psychologists in recent times. It is advocated that both male and female students should be given equal opportunities in education and allowed to participate actively in teaching and learning situations. This process is believed to help students take charge of their learning in order to enhance their performance irrespective of gender. There are some subjects that students could do well in but if the teaching method adopted by the teacher leads to their none-involvement in the teaching and learning processes, they would be found wanting. Principles of Accounting is considered to be one of such subjects.

### **Review of Related Empirical Studies**

Several studies were found to be similar to this investigation on cooperative, project-based and inquiry-based teaching in schools' setting. Few of them are reviewed here.



Akintayo (2013) investigated the effectiveness of cooperative learning method on students' academic achievement, retention and attitudes in home economics class in Ijebu Ode secondary schools. Five research questions and hypotheses were raised and analyzed in the study with population 78 students. The study used quasi-experimental research design and an achievement test consisting of items from the state competency test-item data bank by the state ministry of education for the course, and an attitude questionnaire administered immediately following instruction on the course unit. A retention test was administered three weeks following the achievement test. Achievement test scores and first term grades in home economics classes were used as covariates to adjust for possible pre-existing differences between the groups. Multivariate analysis of covariance showed no significant difference between the usages of cooperative learning method. It was found in the study that home economics students in the cooperative learning group had higher means score of 81.45 compared with the mean score of 77.0 of the non-cooperative group. It was also found out that ability to work with others within the group and to develop interpersonal skill justified the effectiveness of cooperative learning method. This study is related to the present study because both studies assessed effects of cooperative learning method used on students' academic achievement, notwithstanding, it is not on effects of cooperative, project-based and inquiry-based teaching methods on universities business education students' performance in business education courses especially accounting.

Çakici and Türkmen (2013) examined the effect of project-based learning activities on fifth grade children's science achievement and their attitudes towards science course for the unit on 'Sound', and to compare the effectiveness of project-based learning over more traditional teaching methods. Six research questions and hypotheses were raised and analyzed using quasi-experimental research design. The study was carried out with 44 fifth grade students at a public primary school in the Northwestern part of Turkey, during the

spring term of the 2011-2012 academic years. Students were randomly divided into two groups as control group (CG, n=22) and experimental group (EG, n=22). Initially, pre-tests (an achievement test and an attitude scale) were applied to both the CG and EG. In a period of four weeks, the EG was taught using the project-based practices, while the CG was taught using more traditional teaching practices. Children in the EG carried out three science projects for the science unit on 'sound': Bite and hear, making music with glass bottles, and designing a house with sound insulation. Then, the post-tests were carried out in order to determine the effect of a project-based learning approach on children's learning. The study is different from the present study as it was focused on secondary school level and on different subject matters and did not state any hypothesis as such the basis for generalization becomes limited. However, Çakici and Türkmen's study was on the effects of cooperative teaching method which makes it related to the current study and as such the present study drew literature from the study.

Ifeanyi-Uche, and Ejabukwa (2013) investigated inquiry based method and students academic achievement in secondary school Home Economics. The study sought to determine effect of inquiry-based method on academic achievement of secondary school students in Home Economics. The study covered secondary schools in Orumba South Local Government Area of Anambra State. Five research questions and hypotheses were raised and quasi-experiment design was used. Two study groups were randomly sampled from the 15 schools in the Local Government Area and assigned to experimental and control groups respectively. The experimental groups were taught with inquiry based method while the control group was taught using lecture method. A thirty five items Home Economics achievement test developed by the researcher and validated by experts was used to assess the subject achievement. Data collected were analyzed using the percentage, mean and t-test statistics. The findings revealed that the experimental group (inquiry-based

method) achieved significantly higher than the control group (lecture method). The study is different from the present study as it was focused on secondary school level and on different subject matters and did not state any hypothesis as such the basis for generalization becomes limited. However, Ifeanyi- Uche, and Ejabukwa's study was on effect of inquiry-based method which makes it related to the current study and as such the present study drew literature from the study.

Azra, Ali and Hussain (2015) examined the effects of cooperative teaching method on students' academic achievement in two school subject courses, namely Geography, History and Civic Education. Six research questions and hypotheses were raised. The design employed was quasi-experimental design with pretest and post-test procedures. The sampled population under study included all primary school boys in the city of Gorgan, Golestan province, Iran, during 2011-2012 school years. A total of forty participants (students) were randomly divided into control and experimental groups. The teaching method used for the experimental group was the cooperative learning and in the control group was the traditional approach. The instrument used for measuring was researcher made progress assessment tests which were approved by the supervisor for their validity and reliability. ANCOVA test was used to analyze data. The results showed that, cooperative learning method increased students' academic achievement in Geography, History and Civic Education. The study is different from the present study as it was focused on secondary school level and on different subject matters and did not state any hypothesis as such the basis for generalization becomes limited. However, the study was on the effects of cooperative teaching method which makes it related to the current study and as such the present study drew literature from the study.

Adejo (2015) examined the effects of guided Inquiry method on academic performance of chemistry students in selected senior secondary schools in Kaduna state.

Six research questions and hypotheses were raised and quasi-experiment design was used. A sample of 120 senior secondary 11 (SS2) chemistry students were selected using random sampling from two urban and two rural schools which comprised both boys and girls with 30 students each in experimental and control groups respectively. The research instruments comprised chemistry Achievement Test (CAT). The CAT contained 30 multiple choice questions with four options (A-D) and five essay questions. The students were divided into two groups; experimental and control groups which were subjected to inquiry method and traditional methods of teaching respectively. The t-test statistics was used to analyze data. Findings of the study revealed that Chemistry students taught using inquiry teaching method performed significantly better than their counterparts taught using traditional teaching method. The study concluded that inquiry teaching method produced students with significantly higher academic performance in Chemistry. The study therefore recommended among others that the use of inquiry teaching method should be encouraged in all Secondary Schools that offer Chemistry in Kaduna State and other states in Nigeria. Government should also sponsor teachers to attend various workshops and seminars on appropriate and effective use of the inquiry teaching method. The study is different from the present study as it was focused on secondary school level and on different subject matters and did not state any hypothesis as such the basis for generalization becomes limited. However, Adejo's study was on the effects of guided Inquiry method which makes it related to the current study and as such the present study drew literature from the study.

Akinyele, Olowookere and Akinlabi (2015) conducted a study on problem based learning in Ogun State. The purpose of the study was to find out the effect of problem based learning method of teaching on business education students' achievement in entrepreneurship education. Seven research questions and hypotheses were raised for the

study. The study adopted quasi-experimental design with 2 x 2 pre- Test, Post-Test and factorial matrix. The population of the study comprised 120 students in 200 level studying entrepreneurship education in business education department. Participants were met two hours each for six sessions of interaction to collect data which were analyzed using the t-test statistics with results tested for significance at 0.05 levels. The study showed that problem-based learning was more effective in improving students' achievement in entrepreneurship education. The researchers recommended among others that business educators should be equipped with skills in the modern methods of teaching so as not to over rely on traditional lecture of teaching.

This study is related to the present study because both studies are concerned with student-centered method of teaching. The reviewed study is different from the present study because it used one independent variable (problem-based learning) and students' achievement in entrepreneurship education as the dependent variable while the present study used three independent variables (cooperative, project-based and inquiry-based teaching methods) on students' academic performance in principles of accounting.

Mamman (2016) conducted an investigation on the effect of cooperative and problem-based teaching methods on the performance of business education students in corporate accounting in universities in south-west geo-political zone, Nigeria. To achieve this, five specific objectives were raised. Five research questions and five null hypotheses guided the study. Quasi experimental design was adopted for the study. The population of the study was 119 students and the sample was 99. Corporate Accounting Performance Test (CAPT) was used as the instrument for the data collection. The instrument was made up of two sections, section A was the pre-test and section B was the post-test. The data collection procedure lasted for five weeks. The demographic variable of the students was analyzed using percentages. The research questions were answered using mean and

standard deviation. The null hypotheses one and two were tested using regression statistic, hypotheses three and four were tested using the t-test while hypothesis five was tested using one-way Analysis of Variance (ANOVA). All the hypotheses were tested at level of significance 0.05. The study found that, cooperative and project-based teaching methods had effects on academic performance of business education students in corporate accounting. However, there was no significant difference between the academic performance of male and female students taught corporate accounting using cooperative and problem-based teaching methods. There was significant difference in the academic performance of business education students taught corporate accounting using cooperative, problem-based and lecture methods. Mamman's recommended among others that cooperative teaching method should be used to teach corporate accounting to university business education students and problem-based teaching method should be used to teach corporate accounting to university business education students.

Mamman's study is similar to the present study because both studies are in the same area, subject and share one independent variable (cooperative teaching). However, they are different because while Mamman's study used two independent variables (cooperative teaching and problem-based), the present study used three (cooperative teaching, project-based and inquiry-based teaching methods). Notwithstanding the present study benefited from the literature and findings of Mamman's study.

### **Appraisal of Reviewed Literature**

The complexity in the 21<sup>st</sup> century business world has made it a must for educational systems to device more effective means of imparting knowledge and skills to students such as cooperative, project-based and inquiry-based teaching methods in order for the students to be able to adequately fit into the fast changing world of work on graduation. Cooperative, project-based and inquiry-based teaching methods are student-

centered approaches. The review of literature has shown the need to use cooperative, project-based and inquiry-based teaching methods to provide student-centered learning experience that is capable of stimulating students' interest as well as improving their academic performance. However, in the review, the common views of different experts on these methods for improving students' academic performance were presented.

Literature on theoretical framework indicates that cognitive developmental theory and constructivism learning theory support the practice of instruction using cooperative, project-based and inquiry-based teaching methods. Constructivism in particular promotes a more open-ended learning experience and assist in dealing with ill-defined problems in real life situation which is associated with inquiry-based teaching. Several studies as shown in the review had compared the effectiveness of instruction using cooperative teaching method, project-based teaching method and inquiry-based teaching method with lecture method and found that cooperative, project-based and inquiry-based teaching methods are effective in improving students' academic performance in other fields of study especially in the fields of mathematics and economics. Literature also showed that gender difference is one of the factors that affect students' academic performances. Various researchers have examined the effects of gender on students' academic performance, but the results have been found to be contradictory and therefore inconclusive.

In spite of the expansion in knowledge in this twenty first century business world and the demand for skilled business educators by educational industries, there is no empirical study conducted on principles of accounting in the South-West, Nigeria. Also, almost all the literature reviewed is outside the boundaries of study area, these gaps in knowledge have necessitated the present study.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

The chapter is presented under the following sub-headings:

Research Design

Area of the study

Population for the Study

Sample and Sampling Technique

Factorial research design

Instrument for Data Collection

Validity of the Instrument

Pilot Study

Reliability of the Instrument

Procedure for Data Collection

Method of Data Analysis

#### **Research Design**

The research design employed in the study was quasi-experimental pre-test post-test control group due to its suitability in establishing positive cause and effect relationship. This design is a non-equivalent, control group design that requires non-random assignment of participant into groups. This is in line with Raymond (2013) who stated that quasi-experimental design can be used when it is not possible for the researcher to randomly sample the subjects and a lot each of them to treatment groups. The major characteristic of this design is the use of two or more organized or intact groups randomly assigned for the study (Jack & Norman, 2013). This design is used for the study because intact classes are assigned to the four learning methods of cooperative teaching, project-based teaching, inquiry-based teaching and lecture method. This is because it is not possible for the researcher to randomly sample the students and assign them to groups.



## **Area of the study**

The area selected for the study is southwestern Nigeria. Which comprises of six states namely; Ekiti, Ogun. Ondo, Oyo Osun and Lagos State. According to census 2006 cited in Alade (2013), Southwestern Nigeria covers a land area of 80,115.55 square kilometer and bounded in the south by Atlantic Ocean, in the north by Kwara and Kogi State, it is bounded by Republic of Benin in West and East by Edo State. The population was 26, 321,207 comprising of males and females, old and young.

Southwestern Nigeria is homogenous in relation to ethnic group, rich in culture and has very strong kinship ties that have a means of holding the region together. The major source of income for the greatest number of people and mainstay of the zone economy is agriculture. Three vegetation regions are identified namely forest, savannah and derived savannah. According to Adedoya (2014), the climate favours the growth of food crops like yam, plantains, rice, millet, maize, cassava, sweet potato, cocoyam and many more. Vegetables like tomatoes, pepper, ugu ewedu and fruits like pawpaw, garden egg, orange, mango, cashew e.t.c and cash crops such as cocoa, citrus, tobacco and timber and also rearing of animals like goat, sheep, cow, poultry and the like. Foyeje (2017) stated that the south western state of Nigeria is endowed with oil, bitumen, marble, gold, cocoa and limestone and the major occupations here are farming, teaching and trading.

In the zone, there are eight federal universities, seven state universities and thirteen private universities. Among these universities only five of them offering business education in different faculties and departments, they are; Ekiti State University, Lagos State University, Olabisi Onabanjo University, Tai-solarin University of Education and University of Lagos. The reason for choosing this area for the study is because of the low compliant and problem associated with the teaching of principles of accounting in this region.

## Population of the study

Basically, the primary unit of sampling in this study is one federal and four state owned universities in south-western Nigeria offering business education as at 2017/2018 academic session with a total of 836 business education students. Data collected from Ekiti State University, Lagos State University, Olabisi Onabanjo University, Tai-solarin University of Education and University of Lagos as shown in the Table 2

**Table 2: population of the study**

Universities	State	Number of Students		Total
		Male	Female	
Ekiti State University	Ekiti	45	76	121
Olabisi Onabanjo University	Ogun	102	115	217
Tai-Solarin University of Edu.	Ogun	105	120	225
Lagos State University	Lagos	74	79	153
University of Lagos	Lagos	46	74	120
<b>Total</b>		<b>372</b>	<b>464</b>	<b>836</b>

Source: Researcher's design, 2018

## Sample and Sampling Technique

This is because most universities operate an intact-group class structure. Thus, purposive random sampling technique was used for the selection of 200level students in the universities in this work. The universities chosen for the work were based on the following criteria :(1) that are either federal or state government owned. (2) Where students offers business education

Based on the above criteria four universities were impetuously selected for the experiment from the five universities offering business education in the South-West, Nigeria. They are Ekiti State University, Ado Ekiti; Olabisi Onabanjo University, Ago Iwoye; Tai-Solarin University of Education, Ijebu Ode and Lagos State University, Lagos. The universities were chosen purposefully for proper representation because four teaching methods and intact classes were needed for groups. The number of students in each

university was used for the study. The breakdown of the sample size for the study is as given in Table 3

**Table 3: Sample Size of the Study**

Universities	State	Number of Students		Total
		Male	Female	
Ekiti State University (Cooperative teaching )	Ekiti	45	76	121
Olabisi Onabanjo University (Project-based )	Ogun	102	115	217
Tai-Solarin University of Edu.(Inquiry-based)	Ogun	105	120	225
Lagos State University (lecture teaching)	Lagos	74	79	153
<b>Total</b>		<b>326</b>	<b>390</b>	<b>716</b>

Source: Researcher's design, 2018

### Factorial research design

A factorial research design of 4 x2 was adopted to test null hypotheses for this study. The first four factorial levels are the three experimental groups (Cooperative, Project-based and Inquiry-based teaching methods) and one control group (Lecture teaching method) and the second factorial level is gender occurring in either male (M) or Female (F) of course, this design allowed for the experimental groups to receive treatment while the control group did not receive any treatment. However both the experimental and control groups received the pre-test and post-test before and after the treatment. The graphical expression of the experimental design is shown in Table 4

**Table 4: 4 x 2 pre-test post-test control groups factorial design on effect of Cooperative, Project-based and Inquiry-based teaching methods on business Education students' academic performance in principles of accounting in universities insouth-west, Nigeria**

Group	Pre-Test	Treatment	Moderating variable Gender	Post-Test
Exp. Group 1 Coop	Q <sub>1</sub>	X <sub>1</sub>	M/F	Q <sub>2</sub>
Exp. Group 2 PB	Q <sub>3</sub>	X <sub>2</sub>	M/F	Q <sub>4</sub>
Exp. Group 3 IB	Q <sub>5</sub>	X <sub>3</sub>	M/F	Q <sub>6</sub>
control group LM	Q <sub>7</sub>	-	M/F	Q <sub>8</sub>

Researcher's design, 2018

#### Key:

- Q<sub>1</sub> = Pre-test of the experimental group 1 (Coop)  
X<sub>1</sub> = Treatment for the experimental group 1 (Coop)  
Q<sub>2</sub> = Post-test of the experimental group 1 (Coop)

Q<sub>3</sub> = Pre-test of the experimental group 2 (PB)  
 X<sub>2</sub> = Treatment for the experimental group 2 (PB)  
 Q<sub>4</sub> = Post-test of the experimental group 2 (PB)  
 Q<sub>5</sub> = Pre-test of the experimental group 3 (IB)  
 X<sub>3</sub> = Treatment for the experimental group 3 (IB)  
 Q<sub>6</sub> = Post-test of the experimental group 3 (IB)  
 Q<sub>7</sub> = Pre-test of the experimental Control group (LM)  
 Q<sub>8</sub> = Post-test of the experimental Control group (LM)

M/F = Male and Female students

### **Instrument for Data Collection**

Principles of Accounting Performance Test(PAPT) develop by researcher consists of two parts pre-test and post test each part was made up of 20 multiple objective test questions and two essay questions (Appendix C pg 102). The duration of the pre-test was two hours then treatment with instructional packages for five weeks after which post-test was administered for two hours. Each of the test was scored 100% the objective test carries 40% (that is 2marks for each item while essay questions carries 60 marks). The range of scores obtainable in pre-test and post-test is 0% - 100%. Table 4 specifies selection of items in principles of accounting performance test.

**Table 5: Table of Specification for Principles of Accounting**

CONTENT/INSTR- UCTIONAL OBJECTIVES	KNOWLEDGE1 4%	COMPREHENSION 6 %	APPLICATION 20%	Total 40%
General Journal. 1,2,3,4.	01	01	02	04 8%
Correction of errors. 8,6,7,5.	01	01	02	04 8%
Suspense account. 9,10,11, 12	02	-	02	04 8%
Control account. 13,14,15,16	02	-	02	04 8%
Incomplete record. 17, 18,19, 20.	01	01	02	04 8%
<b>Total</b>	<b>07</b>	<b>03</b>	<b>10</b>	<b>20</b>

Source: Researcher's design, 2018

### **Validity of the Instrument**

The data collection instrument was subjected to face and content validity. Draft copies of the PAPT (Pre-test and Post-test), instructional packages on cooperative, project-based, inquiry-based and lecture teaching method of the study were given to three experts in business and entrepreneurship education from Kwara State University, Malete and one expert in Economics from University of Ibadan. These experts were requested to scrutinize the items for relevance, clarity, content coverage or appropriateness of the instrument in managing the purpose of the work. After going through the instrument, the experts offered useful suggestions and corrections which the researcher incorporated into the final draft of the instrument. The researcher presented the corrected copy, which was finally approved by the researcher's supervisors for data collection. Confirmation letters of face and content validation given by experts are attached as appendix E pg 117.

### **Pilot Study**

After necessary validation of the instrument, a pilot study was conducted in Kwara State University, Malete, using 42 students. The forty-two students were 200 level students who had learnt aspects of partnership account. The PAPT instrument was administered on the students as pre-test and post-test. The university was used because it is outside the study area but offers the same course. All the ambiguous items in the instrument were detected or corrected following the pilot study. The result of PAPT instrument from pilot study is attached as appendix F pg 119.

### **Reliability of the Instrument**

The reliability of the instrument was determined by statistically analyzing the data collected from the pilot study using Cronbach Alpha. The reliability coefficient calculated for the instrument was 0.74. This reliability coefficient is high and therefore the instrument was considered reliable and stable, based on Nigerian Educational Research Association's

(NERA) recommendation in (2016) that reliability estimate of 0.6 and above are high and the instrument for which it is calculated reliable and stable. The reliability test result is attached as appendix G pg 120.

### **Procedure for Data Collection**

The study was conducted during the regular school semester lessons over a period of five weeks. The researcher collected letter of introduction (see appendix A pg 99) from the Head, Department of Business and Entrepreneurship Education, Kwara State University, Malete. This letter was presented to Heads of Departments of universities where the study was conducted. The researcher then proceeded to the class where the researcher and the students introduced themselves. This was done to create interaction between the researcher and the said students after which pre-test was administered. The experimental groups and control group were taught five topics for five weeks. The topics include general journal, correction of errors, suspense account, control accounts and incomplete records or single entry. After the treatment period, to limit the intervention of extraneous variable on the study, the researcher ensures that the students were free and relaxed to revise the previous work before the treatment. During the treatment period, the researcher with the support of the course lecturers (research assistant) met each group once a week for a period of two hours. In that same last week, Principles of Accounting Performance Test (PAPT) post-test was administered for duration of two hours. The control group was taught using lecture methods during the same week, pre-test and post was also administered for duration of two hours.

### **Method of Data Analysis**

The demographic variable was analyzed using percentages, while the research questions were answered using mean and standard deviation for the mean, any group with the higher mean value of 59.9 and above was assessed to have performed better and any

group with the lower mean of 49.9 and below was perceived to have performed less. The null hypotheses were tested using Analysis of CoVariance (ANCOVA) at significance level of 0.05. It is considered appropriate to determine main effects and interaction effects to answer research hypotheses, to eliminate unwanted variance on the dependent variable and also correct initial group differences that existed in the dependent variable. All the hypotheses were tested with the use of statistical package for social science (SPSS) version 21 at significance level of 0.05. In the test of hypotheses where the observed P-value is equal to or less than the fixed level of significance ( $\alpha$ ), the null hypotheses were rejected and if otherwise, the null hypotheses were supported.

## **CHAPTER FOUR**

### **PRESENTATION AND ANALYSIS OF DATA**

This chapter presents the results and discussion of the findings of the study. The presentations are organized according to research questions and null hypotheses that guided the study. They are presented under relevant sub-headings:

Demographic variables of respondents

Analysis of Research Questions

Hypotheses Testing

Summary of Findings

Discussion of Findings

#### **Demographic variables of respondents**

The demographic variables for the study were analyzed in Tables 6 as follows:

**Table 6: Percentages distribution of respondents by gender**

<b>Gender</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Male	326	45.5
Female	390	54.5
<b>Total</b>	<b>716</b>	<b>100.0</b>

Source: Field experiment, 2018

Table 6 reveals that there are 326 male respondents representing 45.5% involved in the experimental study and 390 female respondents representing 54.5%. This indicates that there are more female students offering principles of accounting in the schools used for the study.

#### **Analysis of Data Related to Research Questions**

The data to answer the research questions were analyzed and the results are presented in Tables 7 to 11.

Research Question 1: What is the effect of cooperative teaching method on business education students' academic performance in principles of accounting in universities in South-West, Nigeria?



**Table 7: Mean and standard deviation of the effect of cooperative teaching method on students' academic performance in principles of accounting**

GROUPS	Experimental Group (Cooperative method)			Control Group (Lecture Method)		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD
PRE-TEST	121	17.28	5.19	153	14.27	4.39
POST-TEST	121	58.21	5.63	153	49.46	4.69
MEAN & SD DIFFERENCE		40.93	0.44		35.19	0.30

Source: Field experiment, 2018

Data in Table 7 above reveal that the treatment group taught principles of accounting with cooperative method has a mean score of 17.28 in the pre-test and a mean score of 58.21 in the post-test with standard deviation of 5.19 and 5.63 for the pre-test and post-test, respectively, pre-test ( $\bar{X} = 17.27$ ;  $SD = 5.19$ ), post-test ( $\bar{X} = 58.21$ ;  $SD = 5.63$ ). The result gives a pre-test, post-test mean gain of the treatment group taught with cooperative method to be 40.93. The low standard deviation difference (0.44) shows that students' scores in both the pre-test and post-test are clustered around their respective mean scores. The lecture method has a mean score of 14.27 and standard deviation of 4.39 ( $\bar{X} = 14.27$ ;  $SD = 4.39$ ) in the pre-test and mean score of 49.46 and standard deviation of 4.69 ( $\bar{X} = 49.46$ ;  $SD = 4.69$ ) in the post-test, giving a pre-test post-test mean gain in the control group taught principles of accounting with lecture method to be 35.19. With this result, it is clear that cooperative teaching method is effective in improving business education students' academic performance in principles of accounting. The cooperative group did better than the lecture method group.

Research Question 2: What is the effect of project-based teaching method on business education students' academic performance in principles of accounting in universities in South-West, Nigeria?

**Table 8: Mean and standard deviation of the effect of project-based teaching method on students' academic performance in principles of accounting**

GROUPS	Experimental Group (Project-based method)			Control Group (Lecture Method)		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD
PRE-TEST	217	16.81	4.93	153	14.27	4.39
POST-TEST	217	56.26	5.61	153	49.46	4.69
MEAN & SD DIFFERENCE		39.45	0.68		35.19	0.30

Source: Field experiment, 2018

Data in Table 8 above reveal that the treatment group taught principles of accounting with project-based method has a mean score of 16.81 in the pre-test and a mean score of 56.26 in the post-test with standard deviation of 4.93 and 5.61 for the pre-test and post-test, respectively (pre-test ( $\bar{X} = 16.81$ ;  $SD = 4.93$ ), post-test ( $\bar{X} = 56.26$ ;  $SD = 5.61$ )). The result gives a pre-test, post-test mean gain of the treatment group taught with Project-based method to be 39.45. The low standard deviation difference (0.68) shows that students' scores in both the pre-test and post-test are clustered around their respective mean scores. With this result, it is clear that project-based teaching method is effective in improving academic performance business education students in principles of accounting. The project-based group performed better off the lecture method group which had a mean score gains of 35.19 only.

Research Question 3: What is the effect of inquiry-based teaching method on business Education students' academic performance in principles of accounting in universities in South-West, Nigeria?

**Table 9: Mean and standard deviation of the effect of inquiry-based teaching method on students' academic performance in principles of accounting**

GROUP	Experimental Group (Inquiry-based method)			Control Group (Lecture Method)		
	N	$\bar{X}$	SD	N	$\bar{X}$	SD
PRE-TEST	225	14.19	4.38	153	14.27	4.39
POST-TEST	225	60.58	4.82	153	49.46	4.69
MEAN & SD DIFFERENCE		46.39	0.44		35.19	0.30

Source: Field experiment, 2018

Data in Table 9 reveal that the treatment group taught principles of accounting with Inquiry-based method had a mean scores of 14.19 in the pretest and a mean scores of 60.58 in the post-test with standard deviation of 4.38 and 4.82 for the pre-test and post-test respectively, (pre-test ( $\bar{X} = 14.19$ ; SD = 4.38), post-test ( $\bar{X} = 60.58$ ; SD = 4.82)). The result gives a pre-test, post-test mean gain of the treatment group taught with Inquiry-based method to be 46.39. The low standard deviation difference (0.44) shows that students' scores in both the pre-test and post-test are clustered around their respective mean scores. With this result, it is clear that inquiry-based teaching method is effective in improving academic performance business education students in principles of accounting. The inquiry-based group performed better by far to the lecture method group which had a mean score difference of 35.19 only.

Research Question 4: What is the difference among students taught principles of accounting with cooperative, project-based, inquiry-based and lecture methods in universities in South-West, Nigeria?

**Table 10: Means and standard deviations showing difference among students taught principles of accounting with cooperative, project-based, inquiry-based and lecture teaching methods**

<b>GROUPS</b>	<b>N</b>	<b><math>\bar{X}</math></b>	<b>SD</b>
Cooperative	121	58.21	5.63
Project-based	217	56.21	5.59
Inquiry-based	225	61.08	3.55
Lecture	153	49.46	4.69

Source: Field experiment, 2018

Data in Table 10 above reveal that treatment group taught principles of accounting with cooperative teaching method has post-test mean score of 58.21 and standard deviation of 5.63 ( $\bar{X} = 58.21$ ;  $SD = 5.63$ ). In the Same way, the treatment group taught principles of accounting with project-based method has a post-test mean score of 56.21 and standard deviation of 5.59 ( $\bar{X} = 56.21$ ;  $SD = 5.59$ ), the treatment group taught principles of accounting with inquiry-based method has a post-test mean scores of 61.08 and standard deviation of 3.55 ( $\bar{X} = 61.08$ ;  $SD = 3.55$ ) while the control group taught principles of accounting with lecture method has a post-test mean scores of 49.46 and standard deviation of 4.69 ( $\bar{X} = 49.46$ ;  $SD = 4.69$ ). Table 10 reveals that the participants in treatment group three (inquiry-based method) performed better by far to their colleagues in cooperative, project-based and lecture methods because they have the highest post test mean score (mean 61.08). This is closely followed by participants in treatment group one (cooperative method) with mean of 58.21 and lastly participants in treatment group two (project-based method) with mean of 56.21. The implication here is that inquiry-based method is the most effective method of teaching principles of accounting in universities, followed by cooperative method and then project-based method.

Research Question 5: What is the effect of gender on the academic performance of Business Education students taught principles of accounting using cooperative, project-based, inquiry-based and lecture methods in universities in South-West, Nigeria?

**Table 11: Mean of pre-test and post-test of male and female Business Education students taught principles of accounting using cooperative, project-based, inquiry-based and lecture methods**

GENDER	N	Cooperative		Project-based		Inquiry-based		Lecture	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
MALE	326	56.98	5.64	56.91	6.60	61.24	3.79	47.62	5.06
FEMALE	390	58.95	5.53	55.68	4.51	60.87	3.30	51.18	3.57
MEAN & SD DIFFERENCE		1.97	0.11	1.23	2.09	0.37	0.49	3.56	1.49

Source: Field experiment, 2018

Data in Table 11 show that male business education students taught principles of accounting with cooperative method have a mean score of 56.98 and standard deviation of 5.64 ( $\bar{X} = 56.98$ ;  $SD = 5.64$ ). In the project-based method, male students have a mean score of 56.91 and standard deviation of 6.60 ( $\bar{X} = 56.91$ ;  $SD = 6.60$ ) and in inquiry-based method, male business education students have a mean score of 61.24, and standard deviation of 3.79 ( $\bar{X} = 61.24$ ;  $SD = 3.79$ ). On the other hand, business education female students taught principles of accounting with cooperative method have mean score of 58.95 and standard deviation of 5.53 ( $\bar{X} = 58.95$ ;  $SD = 5.53$ ). Those taught with project-based method, have mean score of 55.68 and standard deviation of 4.51 ( $\bar{X} = 55.68$ ;  $SD = 4.51$ ) and those in inquiry-based method, have mean score of 60.87, standard deviation of 3.30 ( $\bar{X} = 60.87$ ;  $SD = 3.30$ ). These results show that female business education students taught principles of accounting with cooperative method have higher mean score than male Business Education students ( $\bar{X}_{\text{female}} = 58.95$ ;  $\bar{X}_{\text{male}} = 56.98$ ). The Table also shows that male Business Education students taught principles of accounting with project-based method have higher mean score than female business education students ( $\bar{X}_{\text{male}} = 56.91$ ;  $\bar{X}_{\text{female}} = 55.68$ ). In addition, male business education students taught principles of accounting with inquiry-based method have higher mean score than female students ( $\bar{X}_{\text{male}} = 61.24$ ;  $\bar{X}_{\text{female}} = 60.87$ ) and in lecture method, female students have higher mean

score than male students ( $\bar{X}_{\text{male}} = 47.62$ ;  $\bar{X}_{\text{female}} = 51.18$ ). Thus, there is a slight effect attributable to gender on academic performance of students taught principles of accounting using cooperative, project-based and inquiry-based method.

### Test of Hypotheses

The null hypotheses for the study were tested using Analysis of Covariance (ANCOVA) at 0.05 level of significance and the summaries are presented in Tables 12 to 17:

H<sub>01</sub>: There is no significant effect of treatment of Cooperative teaching method on the academic performance of Business Education students taught principles of accounting in universities in South-Western Nigeria.

**Table 12: Summary of Analysis of Covariance (ANCOVA) for Test of Significance of main effect treatment of Cooperative method on academic performance of students in principles of accounting**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	6029.080 <sup>a</sup>	4	1507.270	64.327	.000
Intercept	49770.033	1	49770.033	2124.086	.000
Pretest	254.680	1	254.680	10.869	.001
Treatment	3591.299	1	3591.299	153.270	.000
Gender	550.206	1	550.206	23.482	.000
Treatment*gender	7.338	1	7.338	.313	.576
Error	6303.012	269	23.431		
Total	791461.000	274			
Corrected Total	12332.091	273			

a. R Squared = .489 (Adjusted R Squared = .481)

Source: Field experiment, 2018

Significant @ sig<0.05

Data in Table 12 show F-calculated values for effect of treatment of cooperative teaching method on academic performance of students in principles of accounting. The Table shows that there is a significant effect of treatment of cooperative method on academic performance of students in principles of accounting (F= 153.270; P = .000). Thus, the null hypothesis one that states that there is no significant effect of treatment of cooperative teaching method on the academic performance of business education students taught principles of accounting in universities in South-Western Nigeria is rejected. This implies that teaching with cooperative method has positive effect on the academic

performance of students in principles of accounting. This means that the effect observed are due to the main treatment given to students.

**Table 13: Estimated marginal means of both the treatment and control groups**

<b>Groups</b>	<b>Mean</b>	<b>Std. Error</b>
Cooperative method	57.55	0.472
Lecture method	49.67	0.400

Source: Field experiment, 2018

Data in Table 13 show the estimated marginal means for two groups that is the adjusted mean after the covariance. The Table reveals that the participants in treatment group (Cooperative method) performed better off to their mates in control group (Lecture method) because they have the highest adjusted post mean scores (mean = 57.55) as against the adjusted post-test mean scores of the control group (mean = 49.67). The implication here is that teaching with cooperative method is effective for improving business education students' academic performance of students in principles of accounting.

H<sub>02</sub>: There is no significant effect of treatment of project-based teaching method on the academic performance of business education students taught principles of accounting in universities in South-Western Nigeria.

**Table 14: Summary of Analysis of Covariance (ANCOVA) for Test of Significance of main effect treatment of project-based method on academic performance of students in principles of accounting.**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	5060.849 <sup>a</sup>	4	1265.212	49.997	.000
Intercept	71486.110	1	71486.110	2824.905	.000
Pretest	345.656	1	345.656	13.659	.000
Treatment	3435.472	1	3435.472	135.759	.000
Gender	95.846	1	95.846	3.788	.052
Treatment * Gender	443.089	1	443.089	17.509	.000
Error	9236.570	365	25.306		
Total	1071191.000	370			
Corrected Total	14297.419	369			

R Squared = .354 (Adjusted R Squared = .347)

Source: Field experiment, 2018 Significant @ sig<0.05

Data in Table 14 show F-calculated values for effect of treatment of project-based teaching method on business education students' academic performance in principles of accounting. The Table shows that there is a significant main effect of treatment of project-based method on business education students' academic performance in principles of accounting ( $F = 135.759$ ;  $P = .000$ ). Thus, the null hypothesis that states that there is no significant effect of treatment of project-based teaching method on business education students' academic performance taught principles of accounting in universities in South-Western Nigeria is rejected. This implies that teaching with project-based teaching method has positive effect on the academic performance of students in principles of accounting. This means that the effects observed are due to the main treatment given to students.

**Table 15: Estimated marginal means of both the treatment and control groups**

Groups	Mean	Std. Error
Project-based method	56.08	0.347
Lecture method	49.69	0.415

Source: Field experiment, 2018

Data in Table 15 show the estimated marginal means for two groups that is the adjusted mean after the co-variance. The Table reveals that the participants in the treatment group (project-based method) performed better off to their mates in the control



group (lecture method) because they have the highest adjusted post mean scores (mean = 56.08) as against the adjusted post-test mean score of the control group (mean = 49.66). The implication here is that teaching with project-based method is effective for improving business education students' academic performance of students in principles of accounting in universities.

H<sub>03</sub>: There is no significant effect of treatment of inquiry-based teaching method on the academic performance of business education students taught principles of accounting in universities in South-Western Nigeria.

**Table 16: Summary of Analysis of Co-variance (ANCOVA) for Test of Significance of main effect treatment of inquiry-based method on academic performance of students in principles of accounting**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	12783.559 <sup>a</sup>	4	3195.890	213.307	.000
Pretest	129.503	1	129.503	8.644	.000
Treatment	12357.986	1	12357.986	824.822	.003
Gender	206.765	1	206.765	13.800	.000
Treatment * Gender	304.982	1	304.982	20.356	.000
Error	5513.600	368	14.983		
Total	1200828.000	373			

a. R Squared = .699 (Adjusted R Squared = .695)

Source: Field experiment, 2018

Significant @ sig<0.05

Data presented in Table 16 show F-calculated values for effect of treatment of inquiry-based teaching method on business education students' academic performance in principles of accounting. The Table shows that there is a significant main effect of treatment of inquiry-based teaching method on business education students' academic performance in principles of accounting (F= 824.822; P = 003). Thus, the null hypothesis that states that there is no significant effect of treatment of inquiry-based teaching method on business education students' academic performance taught principles of accounting in universities in South-West, Nigeria is rejected. This implies that teaching with inquiry-based teaching method has significant positive effect on the academic performance of business education students in principles of accounting.

**Table 17: Estimated marginal means of both the treatment and control groups**

Groups	Mean	Std. Error
Inquiry based method	61.09	.261
Lecture method	49.37	.313

Source: Field experiment, 2018

Data in Table 17 show estimated marginal means for two groups that is the adjusted mean after the co-variance. The Table reveals that the participants in the experimental group (inquiry-based method) performed better than their counterparts in the control group (Lecture method) because they have the highest adjusted post-test mean scores (mean = 61.11) as against the adjusted post-test mean scores of the control group (mean = 49.37). The implication here is that teaching with inquiry-based teaching method is effective for improving Business Education students' academic performance of universities' students in principles of accounting.

H<sub>04</sub>: There is no significant gender effect among the mean academic performance of business education students taught principles of accounting with cooperative, project -based and inquiry-based methods in universities.

Data presented in Table 12 show F-calculated value for gender effect (23.482) on academic performance of students taught principles of accounting with cooperative method. Table 11 shows that there is a significant gender effect on the academic performance of business education students taught principles of accounting with Cooperative method (F= 23.48; P = 0.000). The observed p-value is 0.000 which is less than the fixed p-value of 0.05(P<0.05). Therefore, the null hypothesis that states that there is no significant gender effect among the mean of business education students' academic performance taught principles of accounting with cooperative method in universities is not accepted.

In addition, the data presented in Table 14 shows F-calculated value for gender effect on Business Education students' academic performance taught principles of

accounting with project-based method. Table 13 shows that there is no significant gender effect on business education students' academic performance taught principles of accounting with project-based method ( $F = 3.788$ ;  $P = 0.052$ ). The observed p-value is 0.052 which is a little greater than the fixed p-value of 0.05 ( $P > 0.05$ ). Therefore, the null hypothesis that states that there is no significant gender effect among the mean of business education students' academic performance taught principles of accounting with project-based method in universities is not rejected.

Similarly, the analysis of data in Table 16 shows F-calculated value for gender effect on business education students' academic performance taught principles of accounting with inquiry-based method. Table 15 shows that there is significant gender effect on business education students' academic performance taught principles of accounting with Inquiry-based method ( $F = 13.800$ ;  $P = 0.000$ ). The observed p-value is 0.000 which is less than the fixed p-value of 0.05 ( $P < 0.05$ ). Therefore, the null hypothesis that states that there is no significant gender effect among the mean of business education students' academic performance taught principles of accounting with inquiry-based method in universities is not accepted. In the analysis of data, the results imply that there is significant gender effect on business education students' academic performance taught principles of accounting with cooperative and inquiry-based method, while in project-based method there is no significant gender effect on business education students' academic performance taught principles of accounting.

H<sub>05</sub>: There is no significant interaction effect of treatment and gender in relation to business education students' academic performance in principles of accounting in universities.

Data presented in Table 12 show F-calculated value of 0.313 for interaction effect of treatment and gender on business education students' academic performance in

principles of accounting. The Table shows that there is no significant interaction effect of treatment of cooperative method and gender on academic performance of students in principles of accounting ( $F = 0.313$ ;  $P = 0.576$ ). The observed p-value is 0.576 which is greater than the fixed p-value of 0.05 ( $P > 0.05$ ). Therefore, the null hypothesis is supported. In addition, the data presented in Table 14 show F-calculated value for interaction effect of treatment of project-based method and gender on academic performance of students in principles of accounting ( $F = 17.509$ ;  $P = 0.000$ ). The observed p-value is 0.000 which is less than the fixed p-value of 0.05 ( $P < 0.05$ ). Therefore, the null hypothesis is rejected. This indicates a significant interaction effect of treatment of project-based and gender on the academic performance of students in principles of accounting. Analysis of data in Table 16 also shows F-calculated value for interaction effect of treatment and gender on business education students' academic performance in principles of accounting as 20.356. Data in Table 15 reveal that there is significant interaction effect of treatment of Inquiry-based method and gender on academic performance of students in principles of accounting ( $F = 20.356$ ;  $P = 0.000$ ). The observed p-value is 0.000 which is less than the fixed p-value of 0.05 ( $P < 0.05$ ). Therefore, the null hypothesis is rejected.

### **Summary of the Findings**

Based on the data collected and analyzed, the following findings emerged:

- 1 Cooperative teaching method is effective in improving business education students' academic performance in principles of accounting. Cooperative teaching method group did better than lecture method group.
- 2 Project-based is effective in improving business education students' academic performance in principles of accounting than lecture teaching method.
- 3 Teaching with project-based teaching method has positive effect on academic performance of students in principles of accounting due to treatment.

- 4 Inquiry-based method is effective in improving business education students' academic performance in principles of accounting with far better performance to lecture method.
- 5 Inquiry-based teaching method has significant positive effect on the business education students' academic performance in principles of accounting lessons
- 6 Participants in the treatment group three (inquiry-based teaching method) performed better off to their counterparts in cooperative teaching method group.
- 7 There is a slight effect attributed to gender on business education students' academic performance taught principles of accounting using Cooperative, project-based, Inquiry based and lecture teaching method.

### **Discussions of Findings**

The findings of the study indicated that there was no significant effect of treatment of cooperative teaching method on the academic performance of business education students in principles of accounting. For study revealed that cooperative method was better than project-based and lecture methods in improving students' academic performance in principles of accounting based on the students pre-test and post-test results in principles of accounting in universities. This means that post-test results were better than the pre-test results. The result meant that the treatment group taught principles of accounting with cooperative teaching method had post-test mean score of 58.21 and standard deviation of 5.63 ( $\bar{X} = 58.21$ ;  $SD = 5.63$ ) which indicated closeness in the performance and hardly had one failed the test. This finding is supported by Akintayo (2013) that the effectiveness of cooperative method is the strong evidence of promoting academic achievement and performance over competitive and individualistic methods.

Akintayo's thought is in line with the slogan that "Jointly we succeed; no failure in the camp". The author explained further that if cooperative method is properly managed, it would go a long way to improve students' achievement in principles of accounting. This finding supported Salend (2000) who researched on the impact of cooperative teaching strategies with the conclusion that this method resulted in an increase in self-efficacy, academic performance and improved collaboration between groups of students experiencing emotional distress.

The study also found out that the second null hypothesis which stated that project-based method was of no effect was not supported for it is better than lecture method in enhancing students' academic performance in principles of accounting. This meant that post-test results were better than the pre-test results. Thus the treatment group taught principles of accounting with project-based method had post-test mean score of 56.21 and standard deviation of 5.59 ( $\bar{X} = 56.21$ ;  $SD = 5.59$ ) while the control group taught principles of accounting with lecture method had a post-test mean score of 49.46 and standard deviation of 4.69 ( $\bar{X} = 49.46$ ;  $SD = 4.69$ ). This finding supports similar reports on learning integration of project-based method. The report indicates that project-based teaching gives students a more "collaborative" understanding of the concepts and knowledge they learn by enhancing them with real skills they can apply throughout their lives (Abbott, 2014).

The third research question and hypothesis revealed that the participants in treatment group three (Inquiry-based method) performed excellent than their colleagues in cooperative, project-based and lecture methods because they had the highest post mean scores of 61.08 and standard deviation of 3.55 ( $\bar{X} = 61.08$ ;  $SD = 3.55$ ) while the control group taught principles of accounting with lecture method had a post-test mean scores of 49.46 and standard deviation of 4.69 ( $\bar{X} = 49.46$ ;  $SD = 4.69$ ). This is closely followed by

the participants in treatment group I (Cooperative method) with mean scores of 58.21 and lastly the participants in the treatment group II (project-based method) with mean scores of 56.21. The implication here is that inquiry-based method is the most effective method of teaching principles of accounting in universities, followed by cooperative method and then project-based method. This finding supports the earlier findings of Song-Ling and Chumyen (2013) who found that the inquiry-oriented instruction method produced significantly more positive attitudes towards the subject matter among science students that learnt using the traditional lecture method. These findings also in line with the findings of Ifeanyi-Uche, and Ejabukwa (2013) that inquiry based method enhances effective understanding and comprehension of concepts and skill acquisition in teaching secondary school students. Therefore, with these findings the third null hypothesis was not supported that was inquiry teaching method is good for better academic performance in accounting related subjects at all levels especially in principles of accounting.

The findings of the study also revealed that there was a significant treatment effect of cooperative, project-based and inquiry-based method on the academic performance of business education students taught principles of accounting in universities in South-West, Nigeria. This implies that the treatment given to the students produced a significant improvement on their academic performance in principles of accounting. This shows that cooperative, project-based, inquiry-based method and lecture methods had significant effects on the academic performance of students in principles of accounting when combined together. This result confirmed the submission of Adunola (2011) that appropriate teacher support can allow students to function at the cutting edge of the individuals' development. It also corroborates the submission of Olaoye and Adu (2015) that teaching method that creates an atmosphere of friendliness with the students was the effective practice for effective learning and improved academic performance.

The study also found that there was no significant gender effect on the academic performance of students taught principles of accounting using cooperative, project-based and inquiry-based method. Cooperative method ( $F= 23.48$ ;  $P = 0.000$ ), project-based method ( $F= 3.788$ ;  $P = 0.052$ ) and inquiry-based method ( $F= 13.800$ ;  $P = 0.000$ ). This indicated that gender had no effect on the academic performance of students in principles of accounting. This means that male and female students performed alike. This is a clear indication that cooperative, project-based and inquiry-based and lecture method facilitate better academic performance of students in principles of accounting. This is in consonance with the assertion of Olaoye and Adu (2015) that no significant difference exists in students' academic performance as a result of gender. The authors advocated that both male and female students should be given equal opportunities in education and allowed to participate actively in teaching and learning situations. Boye (2015) affirmed that teaching methods selected by a teacher improved students' achievement largely when used properly.

The study reveals that there was no significant interaction effect of treatment and gender on the academic performance of students in principles of accounting. Cooperative method ( $F= 0.313$ ;  $P = 0.576$ ), project-based method ( $F= 17.509$ ;  $P = 0.000$ ) and inquiry-based method ( $F= 20.356$ ;  $P = 0.000$ ). This implies that interaction of treatment and gender has no effect on the academic performance of students in principles of accounting. This means that the effects observed are due to the main treatment given to students. This is a clear indication that a method properly used by a lecturer can actually produce better academic performance of students irrespective of their gender. This is in line with the findings of Olaoye and Adu (2015) who stated that no significant difference exists in academic performance of students as a result of gender.



Generally, it is evident from the study that cooperative, project-based and inquiry-based methods of teaching have significant effects on students' learning in principles of accounting. These methods are student-centered actively involve students without abdication, in provided dynamic interesting alternative to the tedium of lecture method, while considerably improving teaching and learning. In addition, cooperative learning prepares students for the world of work by impacting in them the need for synergy and team of project-based and inquiry-based learning to enhancing learning and inculcate in the student the spirit of inquiry, curiosity, discovery that is all qualities which are indispensable to the intellectual groups and for career success of the students as they begin the long march to the pinnacle of their career.

There is a need to complement the use of lecture method in the teaching of principles of accounting with cooperative, project-based and inquiry-based teaching. As it is evident in the study that the use of cooperative, project-based and inquiry-based teaching improves academic performance and also shows that lecture method is not completely ineffective; as it remains its advantage of simplicity and cheapness. However, it must be consistently complemented by inquiry-based, project-based and cooperative teaching methods if students are to enjoy all the benefit of teaching.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

This chapter is presented under the following sub-headings: Summary, Conclusion Recommendations and Suggestion for further studies

#### **Summary**

This work was carried out to determine the effects of cooperative, project-based and inquiry-based teaching methods on business education students' academic performance in principles of accounting in universities in South-West, Nigeria. In order to achieve the purpose of the study, five specific objectives were raised which included to; determine the effect of cooperative, project-based and inquiry-based learning methods on business education students' academic performance in principles of accounting in universities in South-West, Nigeria. In line with these objectives, research questions were formulated which included; what is the effect of cooperative, project-based and inquiry-based learning methods on business education students' academic performance in principles of accounting in universities in South-West, Nigeria?

Quasi-experimental pre-test post-test control group research design was adopted for the study. Five hypotheses were tested. The population of the study was 836 two hundred level business education students from universities in South-West, Nigeria. Purposive sample of 716 students from four universities were used for the study. Data collected to answer the research questions were analyzed using mean and standard deviation. The null hypotheses were tested with Analysis of Co-Variance (ANCOVA) at 0.05 level of significance. The findings included among others:

1. Inquiry-based teaching method was the most effective method of teaching principles of accounting in universities in South-West, Nigeria.

2. There was significant treatment effect of cooperative, project-based and inquiry-based method on the academic performance of business education students taught principles of accounting in universities in South-West, Nigeria
3. There was significant gender effect on the academic performance of business education students taught principles of accounting with Cooperative method ( $p = 0.000$ ).
4. There was a slight significant gender effect on the academic performance of business education students taught principles of accounting with project-based method ( $p = 0.052$ )
5. There was significant gender effect on the academic performance of business education students taught principles of accounting with Inquiry-based method ( $p = 0.000$ ).
6. There was a slight significant relationship on effect of treatment of cooperative method and gender on academic performance of students in principles of accounting ( $p = 0.576$ ).
7. There was significant impact effect of treatment of project-based method and gender on academic performance of students in principles of accounting ( $p = 0.000$ ).
8. There was significant relationship in the effect of treatment of inquiry-based method and gender on academic performance of students in principles of accounting ( $p = 0.000$ ).

## **Conclusion**

Based on the findings of the study, it is concluded that inquiry-based is the most effective method of teaching principles of accounting in universities in South-West, Nigeria, followed by cooperative method with project-based method and then lecture method. The implication therefore is that lecture method that is predominantly used in teaching principles of accounting is not as effective as the other methods. This could be responsible for the poor performance of students in principles of accounting in universities. The continued use of this method means that students may continue to perform poorly and accounting skills may not be adequately acquired. Furthermore, business education students may continue drift to other educational courses unit of dread of principles of accounting.

## **Recommendations**

Based on the findings of the study, the following recommendations are made:

1. Lecture method should be minimized, while lecturers prepare adequate leading questions / cases / scenario that can motivate inquiry-based teaching in learning principles of accounting.
2. Institutions should encourage business educators to use inquiry-based teaching method by organizing seminars, conferences and workshops to expose them its proper usage.
3. Where possible, university business educators should encourage students' interaction by utilizing e-libraries in class participation for better academic performance
4. Papers, journals and book publications should be made available on effective usage of inquiry-based, cooperative and project-based teaching methods for academic

improvement, mutual cooperation among students and students' involvement in the learning process.

### **Suggestions for further studies**

The following are suggestions for further studies:

1. Effects of study attitude, interest and inquiry teaching method on students' academic performance in international marketing in universities in South-West Nigeria.
- 2 A similar study to determine the effects of cooperative, project-based and inquiry-based teaching methods in other business education courses
- 3 A replication of the study could be carried out to cover a wider geographical area and other variables that are not covered in this study.

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**APPENDIX A**  
**LETTER OF INTRODUCTION**



**Titus Amodu Umoru, PhD, (FABEN)**  
Associate Professor of Business Education  
Head of Department

Department of Business & Entrepreneurship Education  
COLLEGE OF EDUCATION

**KWARA STATE UNIVERSITY, MALETE**

The University for Community Development  
P.M.B. 1530, Ilorin, Kwara State, Nigeria

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Ref:.....

Date: 18<sup>TH</sup> July, 2018.

Dear Sir/Madam

**LETTER OF INTRODUCTION**

This is to introduce EEBO, Timothy Olusegun (with matriculation number 14/27/PBE004) as a student of the Department of Business and Entrepreneurship Education, Kwara State University, Malete.

He is working on Ph.D Research with the topic: "Effects of Cooperative, Project-Based and Inquiry-Based Teaching Methods on Business Education Students' Academic Performance in Principles of Accounting in Universities in South-West, Nigeria " and needs some information to facilitate his research work.

Please attend to him.

Thank you.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Titus Amodu Umoru', is written over a horizontal line.

Associate Professor T.A. Umoru  
Head of Department.

## **A NOTE ON PARTICIPANTS' CONSENT**

Dear students,

I humbly solicit your assistance and consent to participate in this research. The general purpose of the research is to find out the “effects of cooperative, project-based and inquiry-based teaching methods on business education students’ academic performance in principles of accounting in universities in south-west, Nigeria”.

As part of the study you will be required to write a test (pre-test) containing twenty (20) objectives questions and two (2) essay questions thereafter you will be taught five different topics in principles of accounting course for 200level for duration of five weeks (2hours per week). At the end of the five weeks, you will be required again to write another test (post-test) containing twenty (20) objectives questions and two (2) essay questions to be drawn from the topics you will be taught.

Of course, I assure you that any score you will obtain in the two tests will not be disclosed to any other person expect you authorize me. In other words, whatever information I will get from you as a result of this study will be treated with strict confidentiality because it is only meant for research purposes only.

Just in case you may be interested in knowing your final score or getting a summary of the findings of this research when it is completed, you are free to formally indicate interest by personally informing me or through your course lecturer, better still your course representative. I will be obliged to forward a summary of the research report to you any time it is ready.

Thank you,

Yours sincerely,

Timothy Olusegun EEBO



## APPENDIX B

### SUMMARY OF STUDENTS' RESULT IN PRINCIPLES OF ACCOUNTING 2014/2015, 2015/2016 AND 2016/2017 ACADEMIC SESSION

University	2014/2015 Academic session			2015/2016 Academic session			2016/2017 Academic session		
	No. of students	Pass (%)	Fall (%)	No. of students	Pass (%)	Fall (%)	No. of students	Pass (%)	Fall (%)
Ekiti state university	98	37 (37.8%)	61 (62.2%)	101	30 (29.7%)	71 (70.3%)	120	54 (45%)	66 (55%)
Lagos state university	168	68 (40.4%)	100 (59.6%)	130	50 (41.2%)	80 (58.8%)	178	88 (33.9%)	90(76.1%)
Olabisi Onabanijo university	225	95 (34.1%)	130(65.9%)	185	84 (45.4%)	101 (55.6%)	222	85 (38.3%)	137(61.7%)
Tai solarin university of Education	220	85 (38.6%)	135 (61.4%)	186	74 (39.7%)	112 (60.3%)	220	88(40%)	132 (60%)
Total	711	275(38.7%)	436(61.3%)	602	268(44.5%)	334(55.5%)	740	276(33.2%)	464(66.8%)

**APPENDIX C**  
**PRINCIPLES OF ACCOUNTING PERFORMANCE TEST (PAPT) PRE-TEST**  
**Duration 2 Hours**

Please do not open this booklet until you are told to do so. While you are waiting read the following instruction carefully.

**INSTRUCTION:**

- This paper contains sections 'A' and 'B' Objective Test and Accounting practice
- write the name of your university
- write the name of your school/ faculty
- write the name of your department
- write your name
- Indicate your gender please
- Indicate your question type please
- There must not be multination or cancellation in your answer, any of such will be marked wrong.
- Be 100 % sure before you write any answer, any imposing will be marked wrong.
- Use pen to fill in your answers in section 'A'.
- Attempt all questions

## Objective Tests

1. \_\_\_\_\_ is another book of prime entry into which transaction are entered on a daily basis and then classified into debit and credit and then posted to the ledgers. A. Cash Book B. Journal C. Ledger D. Invoice.
2. Journal can be used for the following purposes except \_\_\_\_\_ A. Correction of errors B. Purchases of assets C. Bank reconciliation D. Disposal of fixed assets.
3. Mr. Aanu, a debtor could not pay ₦ 3,000 owed to us but he brought equipment for full settlement of his debt. A. Debt equipment, Credit Aanu B. Credit equipment, Debt Aanu. C. Debt equipment and Aanu D. Credit equipment and Aanu.
4. Sales of goods ₦ 700 to Okon posted to Okonkwo A. Credit Okon and Okonkwo B. Debit Okon, Credit Okonkwo C. Credit Okon, Debit Okonkwo D. Debit Okon and Okonkwo
5. The following errors do not affect the agreement of the trial balance except \_\_\_\_\_ A. Error of omission B. Error of commission C. Errors in transfers of totals subsidiary book D. Error of duplication
6. A receipt of cash from Toyese ₦ 2,500 has been entered on the credit of cash account and debit side of Toyese account. This is an error of \_\_\_\_\_ A. Principle B. Commission C. Omission D. Complete reversal of entry.
7. Purchase of goods for Olaiya ₦2,900 has been entered in the accounts as ₦ 9,200. Correction of error will be \_\_\_\_\_ A. Debit Purchases, Credit Olaiya account B. Credit Purchases, Debit Olaiya account C. Debit Purchases and Olaiya account D. Credit Purchases and Olaiya account
8. The main purpose of the \_\_\_\_\_ is to show the arithmetical accuracy of the entries in the ledgers A. Cash book B. Ledger C. Journal D. Trial balance
9. A \_\_\_\_\_ account is used to record difference in the trial balance temporarily until errors are detected. A Journal B. Suspense C. Financial D. Cash
10. The following errors will affect the agreement of the trial balance except \_\_\_\_\_ A. Trial balance errors B. under casting C. One sided omission D. Error of original entry
11. The petty cash book balance of ₦1,000 was omitted from the trial balance. Correction will be \_\_\_\_\_ A Debit petty cash book B. Credit Suspense account C. Debit petty cash book and Credit Suspense account D. Credit petty cash book Debit Suspense account
12. Discounts received and allowed of ₦2,500 and ₦1,000 had not been posted to the cash book, to correct this it will be \_\_\_\_\_ A. Debit discounts received and credit suspense account B. Debit both sides C. credit both sides D. Credit discounts received and debit suspense account
13. \_\_\_\_\_ account is a memorandum account into which are transferred in totals, the various amount of the transactions which have been debited or credited in detail to individual ledger account. A. Bank B. Control C. Cash D. Journal
14. Control account is classified into \_\_\_\_\_ and \_\_\_\_\_ ledger control account A. Sales and Purchases B. Cash and Credit C. Bank and Cash D. Asset and Liability

**Use the following information to answer questions 15 and 16**

The following balances have been extracted from the books of Oloriire Ltd.

	₦
Purchases ledger balance	7,000
Cash paid to creditors	17,000
Purchases journal	27,000
Cheque paid to creditors	5,000
Discounts received	1,530
Bill payable	230
Returns outwards	470

15. What is the balance carried down \_\_\_\_\_ A. 9,770 B. 7,970 C. 7,790 D. 9,070
16. The total balance is \_\_\_\_\_ A. 54,000 B. 44,000 C. 34,000 D. 24,000
17. The alternative term incomplete records are often applied to books of account kept on \_\_\_\_\_ A. Double entry system B. Three columnar entry C. Single entry system D. Cash book
18. \_\_\_\_\_ is a system of accounting which ignores the two fold aspect of each transaction. A. Cash book B. Journal C. Single entry D. Double entry

**Use the following information to answer questions 19 and 20**

The balance sheet of the partnership as at 31<sup>st</sup> December 2014 was as follows

	₦		₦
Capital	?	Fixed Assets	
Add Net profit	<u>4,650</u>	Furniture and fitting	850
	10,935	Motor Van	<u>1,440</u>
			2,290
Less Drawing	<u>2,700</u>	Current Assets	
Current liabilities		Cash	845
Bank overdraft	?	Stock	11,200
Creditors	4,200	Debtors	4,600
Bill payable	1,100	Bill receivable	<u>1,600</u>
	<u>12,300</u>		18,245
	20,535		20,535

19. What is the value of capital? A. 5,862 B. 8256 C. 6,285 D. 7,500
20. The value of Bank overdraft is \_\_\_\_\_ A. 9,000 B. 8,000 C. 7,000 D. 6,000

**SECTION B (ACCOUNTING PRACTICE)**

1. Show the journal entries necessary to correct the following errors:
  - a. Sales of motor van ₦ 8,000 had been entered in the sales account.
  - b. Purchase of goods from Akin ₦7,200 was completely omitted from the account.
  - c. Goods of ₦2,300 returned by Ayantola has been entered in Ayanlola account.
  - d. Sales were overcast by ₦9,500 as also were motor expenses
  - e. Cash paid to John ₦15,000 was entered on the credit side of his account and debited to cash account.
  - f. Purchase of goods from Olaomo ₦ 2,900 has been entered in the account as ₦ 9,200.
  - g. Payment of cash ₦ 3,200 to Abiodun has been entered twice in the two accounts
2. The following is a summary of the bank account of Olumide a retailer for the year ended 31<sup>st</sup> December, 2015.

	₦		₦
Balance b/f	3,000	Payment to creditors	12,250
Shop takings banked	18,000	Rent	750
		Electricity	300
		Telephone	150
		Repairs	70
		Drawings	1,150
		Balance c/d	6,530
	<u>21,200</u>		<u>21,200</u>

Additional information

	January 1 <sup>st</sup>	December 31 <sup>st</sup>
Furniture	5,100	5,100
Equipment	6,000	5,800
Debtors	750	670
Creditors	550	830
Rent Owing	75	65
Telephone prepaid	55	85
Stock	1,000	1,500

You are required to prepare:

- Statement of affairs as at 1/1/2015
- Debtors and Creditors control accounts
- Trading, Profit and loss accounts
- Balance sheet as at 31/12/2015

## **PRINCIPLES OF ACCOUNTING PERFORMANCE TEST (PAPT) POST-TEST**

**Duration 2 Hours**

Please do not open this booklet until you are told to do so. While you are waiting read the following instruction carefully.

### **INSTRUCTION:**

- This paper contains sections 'A' and 'B' Objective Test and Accounting practice
- write the name of your university
- write the name of your school/ faculty
- write the name of your department
- write your name
- Indicate your gender please
- Indicate your question type please
- There must not be multination or cancellation in your answer, any of such will be marked wrong.
- Be 100 % sure before you write any answer, any imposing will be marked wrong.
- Use pen to fill in your answers in section 'A'.
- Attempt all questions

## Objective Tests

1. \_\_\_\_\_ is a system of accounting which ignores the two fold aspect of each transaction. A. Cash book B. Journal C. Single entry D. Double entry

**Use the following information to answer questions 2 and 3**

The balance sheet of the partnership as at 31<sup>st</sup> December 2014 was as follows

<p style="text-align: right;">₦</p> <p>Capital ?</p> <p>Add Net profit <u>4,650</u></p> <p style="text-align: right;">10,935</p> <p>Less Drawing <u>2,700</u></p> <p>Current liabilities</p> <p>Bank overdraft ?</p> <p>Creditors 4,200</p> <p>Bill payable 1,100</p> <p style="text-align: right;"><u>12,300</u></p> <p style="text-align: right;">20,535</p>	<p style="text-align: right;">₦</p> <p>Fixed Assets</p> <p>Furniture and fitting 850</p> <p>Motor Van <u>1,440</u></p> <p style="text-align: right;">2,290</p> <p>Current Assets</p> <p>Cash 845</p> <p>Stock 11,200</p> <p>Debtors 4,600</p> <p>Bill receivable <u>1,600</u></p> <p style="text-align: right;"><u>18,245</u></p> <p style="text-align: right;">20,535</p>
--	--

2. What is the value of capital? A. 5,862 B. 8,256 C. 6,285 D. 7,500
3. The value of Bank overdraft is \_\_\_\_\_. A. 9,000 B. 8,000 C. 7,000 D. 6,000
4. Mr. Aanu, a debtor could not pay ₦ 3,000 owed to us but he brought equipment for full settlement of his debt. A. Debt equipment, Credit Aanu B. Credit equipment, Debt Aanu. C. Debt equipment and Aanu D. Credit equipment and Aanu.
5. \_\_\_\_\_ is another book of prime entry into which transaction are entered on a daily basis and then classified into debit and credit and then posted to the ledgers. A. Cash Book B. Journal C. Ledger D. Invoice.
6. Journal can be used for the following purposes except \_\_\_\_\_. A. Correction of errors B. Purchases of assets C. Bank reconciliation D. Disposal of fixed assets.
7. The petty cash book balance of ₦1,000 was omitted from the trial balance. Correction will be \_\_\_\_\_. A Debit petty cash book B. Credit Suspense account C. Debit petty cash book and Credit Suspense account D. Credit petty cash book Debit Suspense account
8. Discounts received and allowed of ₦2,500 and ₦1,000 had not been posted to the cash book, to correct this it will be \_\_\_\_\_. A. Debit discounts received and credit suspense account B. Debit both sides C. credit both sides D. Credit discounts received and debit suspense account
9. Control account is classified into \_\_\_\_\_ and \_\_\_\_\_ ledger control account A. Sales and Purchases B. Cash and Credit C. Bank and Cash D. Asset and Liability
10. The alternative term incomplete records are often applied to books of account kept on \_\_\_\_\_. A. Double entry system B. Three columnar entries C. Single entry system D. Cash book
11. \_\_\_\_\_ account is a memorandum account into which are transferred in totals, the various amount of the transactions which have been debited or credited in detail to individual ledger accounts. A. Bank B. Control C. Cash D. Journal

**Use the following information to answer questions 12 and 13**

The following balances have been extracted from the books of Oloriire Ltd.

	₦
Purchases ledger balance	7,000
Cash paid to creditors	17,000
Purchases journal	27,000
Cheque paid to creditors	5,000
Discounts received	1,530
Bill payable	230
Returns outwards	470

12. What is the balance carried down \_\_\_\_\_ A. 9,770 B. 7,970 C. 7,790 D. 9,070
13. The total balance is \_\_\_\_\_ A. 54,000 B. 44,000 C. 34,000 D. 24,000
14. Sales of goods ₦ 700 to Okon posted to Okonkwo A. Credit Okon and Okonkwo B. Debit Okon, Credit Okonkwo C. Credit Okon, Debit Okonkwo D. Debit Okon and Okonkwo
15. The following errors do not affect the agreement of the trial balance except \_\_\_\_\_ A. Error of omission B. Error of commission C. Errors in transfers of totals subsidiary book D. Error of duplication
16. A \_\_\_\_\_ account is used to record difference in the trial balance temporarily until errors are detected. A. Journal B. Suspense C. Financial D. Cash
17. The following errors will affect the agreement of the trial balance except \_\_\_\_\_ A. Trial balance errors B. under casting C. One sided omission D. Error of original entry.
18. A receipt of cash from Toyese ₦ 2,500 has been entered on the credit of cash account and debit side of Toyese account. This is an error of \_\_\_\_\_ A. Principle B. Commission C. Omission D. Complete reversal of entry.
19. Purchase of goods for Olaiya ₦2,900 has been entered in the accounts as ₦ 9,200. Correction of error will be \_\_\_\_\_ A. Debit Purchases, Credit Olaiya account B. Credit Purchases, Debit Olaiya account C. Debit Purchases and Olaiya account D. Credit Purchases and Olaiya account
20. The main purpose of the \_\_\_\_\_ is to show the arithmetical accuracy of the entries in the ledgers A. Cash book B. Ledger C. Journal D. Trial balance

**SECTION B (ACCOUNTING PRACTICE)**

1. The trial balance of Tunmise as at 31<sup>st</sup> December 2000 failed to agree. The difference of ₦ 5,000 was credited to a suspense account. Further investigation revealed the following errors:
  - a) Returns inwards book was overstated by ₦ 1,000
  - b) Purchases day book was under casted by ₦ 3,000
  - c) The closing balance of the cash book had a debit of ₦20,000 instead of ₦ 21,000
  - d) Credit sales of ₦2,500 to Glory was credited to his personal account
  - e) An amount of ₦ 5,000 received from Kola has not been posted to his account
  - f) Discounts received and allowed of ₦2,500 and ₦100 had not been posted to the cash book.
  - g) Goods worth ₦6,000 returned to supplier were entered in his personal account as ₦ 10,500.



You are required to; (a) Journalize the errors, (b) Write up the suspense account

- 2 The following is a summary of the bank account of Olumide a retailer for the year ended 31<sup>st</sup> December, 2015.

	₦		₦
Balance b/f	3,000	Payment to creditors	12,250
Shop takings banked	18,000	Rent	750
		Electricity	300
		Telephone	150
		Repairs	70
		Drawings	1,150
		Balance c/d	6,530
	<u>21,200</u>		<u>21,200</u>

Additional information

	January 1 <sup>st</sup>	December 31 <sup>st</sup>
Furniture	5,100	5,100
Equipment	6,000	5,800
Debtors	750	670
Creditors	550	830
Rent Owing	75	65
Telephone prepaid	55	85
Stock	1,000	1,500

You are required to prepare:

- e) Statement of affairs as at 1/1/2015
- f) Debtors and Creditors control accounts
- g) Trading, Profit and loss accounts
- h) Balance sheet as at 31/12/2015

**PRINCIPLES OF ACCOUNTING PERFORMANCE TEST (PAPT)  
ANSWER SHEET**

TIME- 2 HOURS

NAME OF UNIVERSITY: \_\_\_\_\_

SCHOOL/FACULTY \_\_\_\_\_

DEPARTMENT \_\_\_\_\_

YOUR NAME \_\_\_\_\_

GENDER:- MALE ☐ FEMALE ☐ QUESTION TYPE ☐

**INSTRUCTION TO CANDIDATE**

- 1 Use Grade HB Pencil for objective questions
- 2 Answer each Question by choosing one letter and shading it like this;  
A B ☒ D
- 3 Erase completely any Answer you wish to change

1	A	B	C	D	11	A	B	C	D
2	A	B	C	D	12	A	B	C	D
3	A	B	C	D	13	A	B	C	D
4	A	B	C	D	14	A	B	C	D
5	A	B	C	D	15	A	B	C	D
6	A	B	C	D	16	A	B	C	D
7	A	B	C	D	17	A	B	C	D
8	A	B	C	D	18	A	B	C	D
9	A	B	C	D	19	A	B	C	D
10	A	B	C	D	20	A	B	C	D

## **APPENDIX D**

### **PRINCIPLES OF ACCOUNTING PERFORMANCE TEST (PAPT) MARKING SCHEME OBJECTIVE QUESTIONS EACH QUESTION CARRIES TWO MARKS**

#### **PRE-TEST**

<b>1. B</b>	<b>2. C</b>	<b>3. A</b>	<b>4. B</b>	<b>5. C</b>
<b>6. D</b>	<b>7. A</b>	<b>8. D</b>	<b>9. B</b>	<b>10. D</b>
<b>11. C</b>	<b>12. A</b>	<b>13. B</b>	<b>14. A</b>	<b>15. A</b>
<b>16. C</b>	<b>17. C</b>	<b>18. C</b>	<b>19. C</b>	<b>20. C</b>

#### **POST-TEST**

<b>1. C</b>	<b>2. C</b>	<b>3. C</b>	<b>4. A</b>	<b>5. B</b>
<b>6. C</b>	<b>7. C</b>	<b>8. A</b>	<b>9. A</b>	<b>10. C</b>
<b>11. B</b>	<b>12. A</b>	<b>13. C</b>	<b>14. B</b>	<b>15. C</b>
<b>16. B</b>	<b>17. D</b>	<b>18. D</b>	<b>19. A</b>	<b>20. D</b>

**ACCOUNTING PRACTICE ANSWERS**  
**PRE -TEST**

1a

Dr	Sales account	Cr
	₦	₦
Motor van	8,000	

Dr	Motor van account	Cr
	₦	₦
	Sales	8,000

b

Dr	Purchases account	Cr
	₦	₦
Akin	7,200	

Dr	Akin account	Cr
	₦	₦
	Purchases	7,200

c

Dr	Ayantola account	Cr
	₦	₦
Ayanlola	2,300	

Dr	Ayanlola account	Cr
	₦	₦
	Ayantola	2,300

d

Dr	Sales account	Cr
	₦	₦
Motor expenses	9,500	

Dr	Motor expenses account	Cr
	₦	₦
	Sales	9,500

e

John account 15,000 x2 = 30,000    Cash account 15,000 x 2 = 30,000		
Dr	Cash account	Cr
	₦	₦
	John	30,000
Dr	John account	Cr
	₦	₦

Cash                      30,000

f

Olaomo account 9,200 – 2,900 = 6,300    Purchases account 9,200 – 2,900 = 6,300

Dr	Olaomo account	Cr
	₦	₦
Purchases	6,300	

Dr	Purchases account	Cr
	₦	₦
	Olaomo	6,300

g

Dr	Abiodun account	Cr
	₦	₦
	Cash	3,200

Dr	Cash account	Cr
₦		₦
	Abiodun	3,200

	Journal	Dr	Cr
		₦	₦
a	Sales account	8,000	
	Motor van account		8,000
	Sales of motor van entered in sales account now corrected		
b	Purchases account	7,200	
	Akin account		7,200
	Purchase of goods from Akin omitted now corrected		
c	Ayantola account		2,300
	Ayanlola account	2,300	
	Goods returned by Ayantola mistakenly entered in Ayanlola now corrected		
d	Sales account	9,500	
	Motor expenses account		9,500
	Correction of over cast of sales of motor expenses		
e	John account	30,000	
	Cash account		30,000
	Payment of cash to John mistakenly reversed now corrected		
f	Olaomo account	6,300	
	Purchases account		6,300
	Correction of error of wrong amount		
g	Abiodun account		3,200
	Cash account	3,200	
	Recording of a transaction twice in the account now corrected		

2. Dr	Statement of affairs as at 1 <sup>st</sup> January 2015	Cr
	₦	₦
	Capital 15,280	<b>Fixed Asset</b>
		Furniture 5,100
		Equipment <u>6,000</u> 11,100
	<b>Current Liabilities</b>	<b>Current Assets</b>
	Creditors 550	Stock 1,000
	Rent owing 75 625	Debtors 750
		Telephone prepaid 55
		Cash in hand <u>3,000</u> <u>4,805</u>
	<u>15,905</u>	<u>15,905</u>
Dr	Debtors Control account	Cr
	₦	₦
	Balance b/f 750	Shop takings 18,200
	Sales 18,120	Balance c/d 670
	<u>18,870</u>	<u>18,870</u>

Dr	Creditors Control account	Cr	
	₦	₦	
Cash to creditors	12,250	Balance b/f	550
Balance c/d	830	Purchases	12,530
	<u>13,080</u>		<u>13,080</u>

Dr	Trading, profit and loss account for the year ended 31/12/2015		Cr
	₦		₦
Opening Stock	1,000	Sales	18,120
Purchases	<u>12,530</u>		
	13,530		
Less closing stock	<u>1,500</u>		
Cost of goods sold	12,030		
Gross profit	<u>6,090</u>		
	<u>18,120</u>		<u>18,120</u>
<b>Expenses</b>		Gross profit	6,090
Rent (750-75+65)	740		
Electricity	300		
Telephone (150+55 -85)	120		
Repairs	70		
Depreciation: Equipment (6,000-5,800)	200		
Net Profit	<u>4,660</u>		
	<u>6,090</u>		<u>6,090</u>

Dr	Balance sheet as at 31 <sup>st</sup> December 2015				Cr
	₦				₦
			<b>Fixed Asset</b>		
Capital	15,280		Furniture	5,100	
Add Net profit	4,660		Equipment	<u>5,800</u>	10,900
	19,940		<b>Current Assets</b>		
Less Drawing	1,150		Stock	1,500	
<b>Current Liabilities</b>			Debtors	670	
Creditors	830		Cash in hand	6,530	
Rent owing	65	895	Telephone prepaid	<u>85</u>	<u>8,785</u>
		<u>19,685</u>			<u>19,685</u>

**ACCOUNTING PRACTICE ANSWERS**  
**POST -TEST**

1

	Journal	Dr	Cr
		₦	₦
a	Returns inwards account		1,000
	Suspense account	1,000	
	Correction of over cast of returns inwards		
b	Purchases account	3,000	
	Suspense account		3,000
	Undercast of purchases by 3,000 now corrected		
c	Cash book		1,000
	Suspense account	1,000	
	Correction of misposting of figures to the account		
d	Glory account		5,000
	Suspense account	5,000	
	Correction of reversal of entry in Glory account		
e	Kola account		5,000
	Suspense account	5,000	
	Correction of omission of 5,000 from Kola account		
f	Discount received account		2,500
	Suspense account	2,500	
	Correction of omission of discount received from cash book		
g	Discount allowed account	1,000	
	Suspense account		1,000
	Correction of omission of discount allowed from cash book		
h	Supplier account		4,500
	Suspense account	4,500	
	Correction of misposting of figures to the account		

c The balance should be ₦ 20,000 instead of ₦ 21,000 therefore (₦21,000- ₦20,000) = ₦1,000 must be credited to cash book in order to reduce the balance therein.

d Since the entry has been reversed the amount should be multiplied by 2 i.e. ₦ 2,500 x 2 = ₦5,000.

g. The value of goods returned was ₦6,000 but ₦10,500 was debited to the supplier account. In order to correct the account, ₦4,500 (10,500-6,000) must be credited to the supplier.

Dr	Suspense account		Cr
	₦		₦
Returns inwards	1,000	Balance b/f	5,000
Cash book	1,000	Purchases	3,000
Kola	5,000	Glory	5,000
Discount received	2,500	Discount allowed	1,000
Supplier	4,500		
	<u>14,000</u>		<u>14,000</u>

2. Dr Statement of affairs as at 1<sup>st</sup> January 2015 Cr

	₦		₦
Capital	15,280	<b>Fixed Asset</b>	
		Furniture	5,100
<b>Current Liabilities</b>		Equipment	<u>6,000</u>
Creditors	550		11,100
Rent owing	75	<b>Current Assets</b>	
	625	Stock	1,000
		Debtors	750
		Telephone prepaid	55
	<u>15,905</u>	Cash in hand	<u>3,000</u>
			<u>4,805</u>
			<u>15,905</u>

Dr Debtors Control account Cr

	₦		₦
Balance b/f	750	Shop takings	18,200
Sales	<u>18,120</u>	Balance c/d	<u>670</u>
	<u>18,870</u>		<u>18,870</u>

Dr Creditors Control account Cr

	₦		₦
Cash to creditors	12,250	Balance b/f	550
Balance c/d	<u>830</u>	Purchases	<u>12,530</u>
	<u>13,080</u>		<u>13,080</u>

Dr Trading, profit and loss account for the year ended 31/12/2015 Cr

	₦		₦
Opening Stock	1,000	Sales	18,120
Purchases	<u>12,530</u>		
	13,530		
Less closing stock	<u>1,500</u>		
Cost of goods sold	12,030		
Gross profit	<u>6,090</u>		
	<u>18,120</u>		<u>18,120</u>
<b>Expenses</b>		Gross profit	<u>6,090</u>
Rent (750-75+65)	740		
Electricity	300		
Telephone (150+55 -85)	120		
Repairs	70		
Depreciation: Equipment (6,000-5,800)	200		
Net Profit	<u>4,660</u>		
	<u>6,090</u>		<u>6,090</u>

Dr Balance sheet as at 31<sup>st</sup> December 2015 Cr

	₦		₦
Capital	15,280	<b>Fixed Asset</b>	
Add Net profit	4,660	Furniture	5,100
	19,940	Equipment	<u>5,800</u>
Less Drawing	<u>1,150</u>		10,900
<b>Current Liabilities</b>		<b>Current Assets</b>	
Creditors	830	Stock	1,500
Rent owing	65	Debtors	670
	895	Cash in hand	6,530
	<u>19,685</u>	Telephone prepaid	<u>85</u>
			<u>8,785</u>
			<u>19,685</u>



**APPENDIX E**  
**CONFIRMATION LETTERS OF FACE AND CONTENT VALIDATION**

Department of Business and Entrepreneurship Education,  
College of Education,  
Kwara State University, Malete.

Date... 29/09/2017 .....

Mr. T. O. EEBO,  
Department of Business and Entrepreneurship Education,  
College of Education,  
Kwara State University, Malete,  
Kwara State.

Dear Mr. Eebo,

**CONFIRMATION OF FACE AND CONTENT VALIDATION OF RESEARCH  
INSTRUMENT**

Your letter on the above mentioned subject matter refers. I Dr. Nwa B Nwabufor  
the Department of Business & Entrepreneurship Education, Kwara  
State University, Malete, hereby certified that I carried out face and content validity of the  
attached research instrument on "Effect of Cooperative, Project-Based and Inquiry-Based  
Teaching Methods on Business Education Students' Academic Performance in Principles of  
Accounting in Universities in South-West Nigeria".

Thanks.

Yours sincerely,

 29/09/17

Dr. B. N. Nwabufor,  
RESEARCH INSTRUMENT VALIDATOR

Att'd.

**DEPARTMENT OF ECONOMICS  
UNIVERSITY OF IBADAN, IBADAN, NIGERIA**

Lecturer II  
Noah Olasehinde,  
B. Sc., M. Sc (Econ) Ph.D. (Ibadan)



Mobile : +234 (0) 803 872 7940  
Email: [lanfaifufuness@hotmail.com](mailto:lanfaifufuness@hotmail.com)

21st November 2017

Mr. T. O. Eebo,  
Department of Business and Entrepreneurship Education,  
College of Education,  
Kwara State University, Malete,  
Kwara State.

Dear Mr. Eebo,

**Confirmation of Face and Content Validation of Research Instrument**

This is to certify that I have carried out face and content validity of the attached research instrument on "Effect of Cooperative, Project-Based and Inquiry-Based Teaching Methods on Business Education Students' Academic Performance in Principles of Accounting in Universities in South-West Nigeria". I found out that the Principles of Accounting Performance Test (PAPT) can validly achieve the purpose of the study.

Thank you.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Noah Olasehinde'.

Noah Olasehinde, PhD

# APPENDIX F

## PILOT STUDY SCORE

S/N	PRE-TEST				POST-TEST			
	LECTURE METHOD	INQUIRY- BASED	PROJECT- BASED	COOP. TEACHING	LECTURE METHOD	INQUIRY- BASED	PROJECT- BASED	COOP. TEACHING
1	26	30	32	26	50	75	63	61
2	32	34	33	30	48	64	50	66
3	30	36	34	32	48	65	52	60
4	34	32	34	36	45	72	68	75
5	32	31	31	33	50	68	65	66
6	35	31	30	38	47	70	67	65
7	30	32	36	36	46	68	58	70
8	38	31	32	34	44	88	68	52
9	28	38	35	36	38	64	60	66
10	28	32	30	36	35	75	50	64
11	33			32	36			61

## APPENDIX G

### RELIABILITY RESULT WITH SPSS PACKAGE

#### Reliability

[DataSet1] C:\Users\ISRAEL\Documents\reliab. result\2017\Mr Timothy.sav

#### Scale: ALL VARIABLES

**Case Processing Summary**

		N	%
Cases	Valid	42	100.0
	Excluded <sup>a</sup>	0	.0
	Total	42	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.736	2

**Item Statistics**

	Mean	Std. Deviation	N
Pretest	42.7143	8.69899	42
Posttest	59.8333	8.07863	42

## APPENDIX H

### INSTRUCTIONAL PACKAGE FOR EXPERIMENTAL GROUP I

**School:** Ekiti State University Lesson I

**Class:** 200 level

**Topic:** General Journal

**Duration:** 2 hours per period

**General Objective:** To guide students in learning entries in general journal

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. Explain the features of a journal and the uses of journal. 2. Solve problems relating to journal usage

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught cash book and ledger in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking questions and explains to the students the steps involved in the method.

**Introduction:** The teacher gives a brief explanation of features, class of entries and uses of journal

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10). At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher poses the following questions; i State five features of journal? ii Find out the classes of entries in journal. iii What are the uses of journal?

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives at least 3 to 5 minutes to individual to think about the questions the teacher ensure that no student talks aloud or murmur.

**Student's Activity step II:** The teacher then instructs the students to turn and form a small group of ten to discuss their thoughts and ideas or answers within themselves using at least 10 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their ideas, views and answers with the whole class using at least 10minutes.

**Teacher's Activity:** After the sharing of the ideas with the class by a representative of each group the teacher then clarifies the various ideas expressed by the students and instruct them to reflect on the correction(if any) in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i The journal is another book of prime entry into which transactions are entered on a daily basis and then classified into Debit and Credit and then posted to ledgers.

ii Journal has the following features- it is a subsidiary book used in addition to the ledger. It has five columns, Date, Particulars, Folio Dr and Cr. It shows the account to be debited and credited as well as the amount. It shows narration and entries to be posted to the ledger.

iii Journal entries can be divided into two classes ; simple and compound entries

iv Journal can be used for the following; recording of disposal of fixed assets, correction of errors, double entry transactions, recording opening entries, transfer of items between accounts, recording transactions that do not occur regularly, purchases of assets on credit.

**ASSIGNMENT:** show the journal entries necessary to correct the following errors when founds; a

Sold goods on credit to Segun ₦900. b. Returns outwards ₦100 to Ade. c. Purchases from Idowu ₦270.

d. purchases of goods ₦290 from Awolowo was completely omitted from the accounts.

**School:** Ekiti State University Lesson II

**Class:** 200 level

**Topic:** Correction of errors

**Duration:** 2 hours per period

**General Objective:** To guide students in using journal correcting errors

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. List errors that do not affect the agreement of the trial balance. 2. Itemize procedures to be followed when correcting errors 3. Solve problems relating to those errors

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught general journal in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking questions and explains to the students the steps involved in the method.

**Introduction:** The teacher gives a brief explanation on errors that do not affect the agreement of the trial balance and procedures to be followed when correcting errors.

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10). At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher poses the following questions; i State five errors that do not affect the agreement of the trial balance? ii Find out procedures to be followed when correcting errors. iii Use ledgers and journal to correct the giving errors?

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives at least 3 to 5 minutes to individual to think about the questions the teacher ensure that no student talks aloud or murmur.

**Student's Activity step II:** The teacher then instructs the students to turn and form a small group of ten to discuss their thoughts and ideas or answers within themselves using at least 10 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their ideas, views and answers with the whole class using at least 10 minutes.

**Teacher's Activity:** After the sharing of the ideas with the class by a representative of each group the teacher then clarifies the various ideas expressed by the students and instruct them to reflect on the correction(if any) in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i The main purpose of the Trial balance is to show the arithmetical accuracy of the entries in the ledgers. The two sides (Debit and Credit) must be equal if not indicates error.

ii The following errors do not affect the agreement of the trial balance; error of omission, error of commission, error of original entry, error of principle, compensation errors, complete reversal of entry and error of duplication.

iii Procedures to be followed when correcting errors includes; a. Commit these to memory, b. identification of the types of errors. c. identification of two accounts involved, d. interpretation of errors in the ledger e. Preparation of journal.

**ASSIGNMENT:** Show the journal entries necessary to correct the following errors:

- a) Sales of motor van ₦ 8,000 had been entered in the sales account.
- b) Purchase of goods from Akin ₦7,200 was completely omitted from the account.
- c) Goods of ₦2,300 returned by Ayanbola has been entered in Ayanbola account.
- d) Sales were overcast by ₦9,500 as also were motor expenses
- e) Cash paid to John ₦15,000 was entered on the credit side of his account and debited to cash account.
- f) Purchase of goods from Olaomo ₦ 2,900 has been entered in the account as ₦ 9,200.
- g) Payment of cash ₦ 3,200 to Abiodun has been entered twice in the two accounts

**School:** Ekiti State University Lesson III

**Class:** 200 level

**Topic:** Suspense Accounts

**Duration:** 2 hours per period

**General Objective:** To guide students in learning entries in suspense accounts

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. meaning of suspense accounts. 2. Uses of suspense accounts and its nature. 3. List and explain errors that affect the agreement of the trial balance. 4. Itemize procedures to be followed when correcting errors

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught correcting errors in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking questions and explains to the students the steps involved in the method.

**Introduction:** The teacher gives a brief explanation meaning of suspense accounts, its uses and nature, errors that affect the agreement of the trial balance and procedures to be followed when correcting errors in suspense accounts.

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10).

At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher poses the following questions; 1. what is suspense accounts? 2. State four uses of suspense accounts? 3. List and explain five errors that affect the agreement of the trial balance. 4. Itemize five procedures to be followed when correcting errors

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives at least 3 to 5 minutes to individual to think about the questions the teacher ensure that no student talks aloud or murmur.

**Student's Activity step II:** The teacher then instructs the students to turn and form a small group of ten to discuss their thoughts and ideas or answers within themselves using at least 10 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their ideas, views and answers with the whole class using at least 10minutes.

**Teacher's Activity:** After the sharing of the ideas with the class by a representative of each group the teacher then clarifies the various ideas expressed by the students and instruct them to reflect on the correction(if any) in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i A suspense account is used to record differences in the trial balance temporarily until errors are detected.

ii suspense account is used for recording differences temporarily until errors are detected, to provides an account for deferred expenses, to provides an account to which one side of double entry recording of transaction can be posted until it correct destination is known.

iii The following errors affect the agreement of the trail balance; one sided omission, misposting of figures to the account, errors in transfers of totals of subsidiary book, two entries on the same side, trial balance errors and under casting or overcasting of balances

iv Procedures involved in correction of errors includes; b. identification of errors.

c. illustration of errors in the ledger, d. correction e. Posting to the journal, f. Preparation of suspense account.

**ASSIGNMENT:** The trial balance of Tunmise as at 31<sup>st</sup> December 2000 failed to agree. The difference of ₦ 5,000 was credited to a suspense account. Further investigation revealed the following errors:

- a) Returns inwards book was overstated by ₦ 1,000
- b) Purchases day book was under casted by ₦ 3,000
- c) The closing balance of the cash book had a debit of ₦20,000 instead of ₦ 21,000
- d) Credit sales of ₦2,500 to Glory was credited to his personal account
- e) An amount of ₦ 5,000 received from Kola has not been posted to his account
- f) Discounts received and allowed of ₦2,500 and ₦100 had not been posted to the cash book.
- g) Goods worth ₦6,000 returned to supplier were entered in his personal account as ₦ 10,500.

You are required to; (a) Journalize the errors, (b) Write up the suspense account



**School:** Ekiti State University Lesson IV

**Class:** 200 level

**Topic:** Control Accounts

**Duration:** 2 hours per period

**General Objective:** To guide students in learning posting in control accounts

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. meaning of control accounts. 2. Uses of control accounts and its classification. 3. List items in the debit and credit sides of sales ledger control. 4. Itemize items in the debit and credit sides of purchases ledger control

**Teaching and learning material:** Posters and chart on format of sales and purchases ledger control account

**Entry Behaviour:** The students have been taught suspense accounts in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking questions and explains to the students the steps involved in the method.

**Introduction:** The teacher gives a brief explanation meaning of control accounts, its uses and classification, items in the debit and credit sides of sales ledger control and items in the debit and credit sides of purchases ledger control

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10). At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher poses the following questions; 1. what is control accounts? 2. State five uses of control accounts? 3. List five items in the debit and credit sides of sales ledger control 4. Itemize five items in the debit and credit sides of purchases ledger control.

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives at least 3 to 5 minutes to individual to think about the questions the teacher ensure that no student talks aloud or murmur.

**Student's Activity step II:** The teacher then instructs the students to turn and form a small group of ten to discuss their thoughts and ideas or answers within themselves using at least 10 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their ideas, views and answers with the whole class using at least 10minutes.

**Teacher's Activity:** After the sharing of the ideas with the class by a representative of each group the teacher then clarifies the various ideas expressed by the students and instruct them to reflect on the correction(if any) in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i Control account is a memorandum account into which are transferred in totals, the various amount of the transactions which have been debited or credited in detail to individual ledger accounts.

ii Control account is used for location of errors, prevention of fraud, aids management control, internal check on ledgers clerk, easy detection of missing figure, ascertainment of debtors and creditors balances, preparation of interim final account, save time, grouping of accounts.

iii Control account is classifies into two sales control account and purchases control account.

The following items in the debit and credit sides of sales ledger control;

**Debt side**

Sales (Credit)  
 Interest charges  
 Dishonoured cheque  
 Dishonoured bill  
 Carriage outwards  
 Discounts disallowed  
 Debited note issued  
 Payment to debtors for claims

**Credit side**

Cash received from customers  
 Cheque from customers  
 Discounts allowed  
 Bill receivable  
 Allowances  
 Bad debts  
 Returns inwards  
 Credit note issued, contra entry

The following items in the debit and credit sides of purchases ledger control;

**Debt side**

Cash to suppliers  
 Cheque to suppliers  
 Returns outwards  
 Bill payable  
 Credit note received  
 Discounts received  
 Contra entry

**Credit side**

Credit purchases  
 Discounts received withdrawn  
 Cash refunds

**ASSIGNMENT:** The following balances were extracted from the book of Kayode Enterprises on 31<sup>st</sup> August 2016:

	₦
Sales ledger balance (Dr)	9,826
Sales ledger balance (Cr)	237
Bought ledger balance (Cr)	7,219
Bought ledger balance (Dr)	421
Credit sales	78,154
Purchases journal	51,362
Discounts allowed	2,475
Discounts received	1,932
Returns inwards	745
Contra settlement	622
Bill dishonoured	750
Bad debt written off	526
Bill receivable	13,473
Returns outwards	892
Cash refunded to customers (debtors)	127
Cash paid to suppliers	49,514
Cash received from debtors	68,923
Purchases ledger balance (Dr)	334
Sales ledger balance (Cr)	201

You are required to prepare: Sales ledger control account and Purchases ledger control account

**School:** Ekiti State University Lesson V

**Class:** 200 level

**Topic:** Incomplete records and single entry

**Duration:** 2 hours per period

**General Objective:** To guide students in using Incomplete records and single entry.

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. Define single entry. 2. List characteristic of single entry. 3. Itemize advantages and disadvantages of single entry. 4. Itemize steps in ascertain profit from incomplete records

**Teaching and learning material:** Posters and chart on format of statement of affairs

**Entry Behaviour:** The students have been taught control accounts in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking questions and explains to the students the steps involved in the method.

**Introduction:** The teacher gives a brief explanation on definition of single entry, characteristic, advantages and disadvantages of single entry with steps in ascertaining profit from incomplete records

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10). At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher poses the following questions; 1. Define single entry. 2. List characteristic of single entry. 3. Itemize advantages and disadvantages of single entry. 4. Itemize steps in ascertain profit from incomplete records

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives at least 3 to 5 minutes to individual to think about the questions the teacher ensure that no student talks aloud or murmur.

**Student's Activity step II:** The teacher then instructs the students to turn and form a small group of ten to discuss their thoughts and ideas or answers within themselves using at least 10 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their ideas, views and answers with the whole class using at least 10 minutes.

**Teacher's Activity:** After the sharing of the ideas with the class by a representative of each group the teacher then clarifies the various ideas expressed by the students and instruct them to reflect on the correction(if any) in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i Incomplete records or single entry is a system of accounting which ignores the two fold-aspect of each transaction.

ii The following are some characteristics of single entry: only personal accounts of debtors and creditors are kept, profit or loss could only be ascertained by comparing capital at the beginning and capital at the end and real and nominal accounts are not kept

iii The following are advantages of single entry: it very easy and simple to operate, profit is easily computed under this system, it is very useful for small business enterprise and it is economical as it does not require large volume of book for recording transactions.

The following are disadvantages of single entry includes: it is not acceptable for tax purpose Because of incomplete records of transactions, it does not show the true profit or loss of the Organization, flexibility of the principles of double entry is not present, fraud may be easily Committed, double entry principles is ignored, record of information are not complete and it

is not possible to ascertain the arithmetical accuracy of the book.

iii The following are steps in ascertaining of profit from incomplete records:

Step1 prepare the opening statement of affairs

Step2 preparation of closing statement of affairs

Step3 preparation of statement of profit

Step4 preparation of balance sheet

**ASSIGNMENT:** The following is a summary of the bank account of Olumide a retailer for the year ended 31<sup>st</sup> December, 2015.

	₦		₦
Balance b/f	3,000	Payment to creditors	12,250
Shop takings banked	18,000	Rent	750
		Electricity	300
		Telephone	150
		Repairs	70
		Drawings	1,150
		Balance c/d	6,530
	<u>21,200</u>		<u>21,200</u>

Additional information

	January 1 <sup>st</sup>	December 31 <sup>st</sup>
Furniture	5,100	5,100
Equipment	6,000	5,800
Debtors	750	670
Creditors	550	830
Rent Owing	75	65
Telephone prepaid	55	85
Stock	1,000	1,500

You are required to prepare:

- Statement of affairs as at 1/1/2015
- Debtors and Creditors control accounts
- Trading, Profit and loss accounts
- Balance sheet as at 31/12/2015

## APPENDIX I

### INSTRUCTIONAL PACKAGE FOR EXPERIMENTAL GROUP II

**School:** Olabisi Onabanjo University Lesson I

**Class:** 200 level

**Topic:** General Journal

**Duration:** 2 hours per period

**General Objective:** To guide students in learning entries in general journal

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. Explain the features of a journal and the uses of journal. 2. Solve problems relating to journal usage

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught cash book and ledger in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by giving sufficient guidance and feedback on steps involved in the method

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10). At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher presents each group with instructional package relating to features, class of entries and uses of journal

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives checklist and rubrics to the questions.

**Student's Activity step II:** The teacher then instructs the students to turn and form small collaborative groups of ten to conduct research or answers within themselves using at least 40 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their results and answers with the whole class using at least 10minutes each.

**Teacher's Activity:** After the presentation of results with the class by a representative of each group the teacher and students reflect their outcomes for self-evaluation in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i The journal is another book of prime entry into which transactions are entered on a daily basis and then classified into Debit and Credit and then posted to ledgers.

ii Journal has the following features- it is a subsidiary book used in addition to the ledger. It has five columns, Date, Particulars, Folio Dr and Cr. It shows the account to be debited and credited as well as the amount. It shows narration and entries to be posted to the ledger.

iii Journal entries can be divided into two classes ; simple and compound entries

iv Journal can be used for the following; recording of disposal of fixed assets, correction of errors, double entry transactions, recording opening entries, transfer of items between accounts, recording transactions that do not occur regularly, purchases of assets on credit.

**ASSIGNMENT:** show the journal entries necessary to correct the following errors when

Found; a Sold goods on credit to Segun ₦900. b. Returns outwards ₦100 to Ade.

c. Purchases from Idowu ₦270. d. purchases of goods ₦290 from Awolowo was completely omitted from the accounts.

**School:** Olabisi Onabanjo University Lesson II

**Class:** 200 level

**Topic:** Correction of errors

**Duration:** 2 hours per period

**General Objective:** To guide students in using journal correcting errors

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. List errors that do not affect the agreement of the trial balance. 2. Itemize procedures to be followed when correcting errors 3. Solve problems relating to those errors

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught general journal in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by giving sufficient guidance and feedback on steps involved in the method

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10). At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher presents each group with instructional package relating to: i Errors that do not affect the agreement of the trial balance? ii Procedures to be followed when correcting errors. iii Use ledgers and journal to correct the giving errors?

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives checklist and rubrics to the questions.

**Student's Activity step II:** The teacher then instructs the students to turn and form small collaborative groups of ten to conduct research or answers within themselves using at least 40 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their results and answers with the whole class using at least 10minutes each.

**Teacher's Activity:** After the presentation of results with the class by a representative of each group the teacher and students reflect their outcomes for self-evaluation in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i The main purpose of the Trial balance is to show the arithmetical accuracy of the entries in the ledgers. The two sides (Debit and Credit) must be equal if not indicates error.

ii The following errors do not affect the agreement of the trail balance; error of omission, error of commission, error of original entry, error of principle, compensation errors, complete reversal of entry and error of duplication.

iii Procedures to be followed when correcting errors includes; a. Commit these to memory, b. identification of the types of errors. c. identification of two accounts involved, d. interpretation of errors in the ledger e. Preparation of journal.

**ASSIGNMENT:** Show the journal entries necessary to correct the following errors:

- a) Sales of motor van ₦ 8,000 had been entered in the sales account.
- b) Purchase of goods from Akin ₦7,200 was completely omitted from the account.
- c) Goods of ₦2,300 returned by Ayantola has been entered in Ayanlola account.
- d) Sales were overcast by ₦9,500 as also were motor expenses
- e) Cash paid to John ₦15,000 was entered on the credit side of his account and debited to cash account.
- f) Purchase of goods from Olaomo ₦ 2,900 has been entered in the account as ₦ 9,200.
- g) Payment of cash ₦ 3,200 to Abiodun has been entered twice in the two accounts

**School:** Olabisi Onabanjo University Lesson III

**Class:** 200 level

**Topic:** Suspense Accounts

**Duration:** 2 hours per period

**General Objective:** To guide students in learning entries in suspense accounts

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. meaning of suspense accounts. 2. Uses of suspense accounts and its nature. 3. List and explain errors that affect the agreement of the trial balance. 4. Itemize procedures to be followed when correcting errors

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught correcting errors in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by giving sufficient guidance and feedback on steps involved in the method

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10). At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher presents each group with instructional package relating to meaning of suspense accounts, its uses and nature, errors that affect the agreement of the trial balance and procedures to be followed when correcting errors in suspense accounts.

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives checklist and rubrics to the questions.

**Student's Activity step II:** The teacher then instructs the students to turn and form small collaborative groups of ten to conduct research or answers within themselves using at least 40 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their results and answers with the whole class using at least 10minutes each.

**Teacher's Activity:** After the presentation of results with the class by a representative of each group the teacher and students reflect their outcomes for self-evaluation in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i A suspense account is used to record differences in the trial balance temporarily until errors are detected.

ii suspense account is used for recording differences temporarily until errors are detected, to provides an account for deferred expenses, to provides an account to which one side of double entry recording of transaction can be posted until it correct destination is known.

iii The following errors affect the agreement of the trail balance; one sided omission, misposting of figures to the account, errors in transfers of totals of subsidiary book, two entries on the same side, trial balance errors and undercasting or overcastting of balances

iv Procedures involved in correction of errors includes; b. identification of errors.

c. illustration of errors in the ledger, d. correction e. Posting to the journal, f. Preparation of suspense account.

**ASSIGNMENT:** The trial balance of Tunmise as at 31<sup>st</sup> December 2000 failed to agree. The difference of ₦ 5,000 was credited to a suspense account. Further investigation revealed the following errors:

a) Returns inwards book was overstated by ₦ 1,000

b) Purchases day book was under casted by ₦ 3,000

- c) The closing balance of the cash book had a debit of ₦20,000 instead of ₦ 21,000
- d) Credit sales of ₦2,500 to Glory was credited to his personal account
- e) An amount of ₦ 5,000 received from Kola has not been posted to his account
- f) Discounts received and allowed of ₦2,500 and ₦100 had not been posted to the cash book.
- g) Goods worth ₦6,000 returned to supplier were entered in his personal account as ₦ 10,500.

You are required to; (a) Journalize the errors, (b) Write up the suspense account



**School:** Olabisi Onabanjo University Lesson IV

**Class:** 200 level

**Topic:** Control Accounts

**Duration:** 2 hours per period

**General Objective:** To guide students in learning posting in control accounts

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. meaning of control accounts. 2. Uses of control accounts and its classification. 3. List items in the debit and credit sides of sales ledger control. 4. Itemize items in the debit and credit sides of purchases ledger control

**Teaching and learning material:** Posters and chart on format of sales and purchases ledger control account

**Entry Behaviour:** The students have been taught suspense accounts in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by giving sufficient guidance and feedback on steps involved in the method

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10). At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher presents each group with instructional package relating to meaning of control accounts, uses of control accounts and its classification, items in the debit and credit sides of sales ledger control and items in the debit and credit sides of purchases ledger control

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives checklist and rubrics to the questions.

**Student's Activity step II:** The teacher then instructs the students to turn and form small collaborative groups of ten to conduct research or answers within themselves using at least 40 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their results and answers with the whole class using at least 10minutes each.

**Teacher's Activity:** After the presentation of results with the class by a representative of each group the teacher and students reflect their outcomes for self-evaluation in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i Control account is a memorandum account into which are transferred in totals, the various amount of the transactions which have been debited or credited in detail to individual ledger accounts.

ii Control account is used for location of errors, prevention of fraud, aids management control, internal check on ledgers clerk, easy detection of missing figure, ascertainment of debtors and creditors balances, preparation of interim final account, save time, grouping of accounts.

iii Control account is classifies into two sales control account and purchases control account.

The following items in the debit and credit sides of sales ledger control;

<b>Debt side</b>	<b>Credit side</b>
Sales (Credit)	Cash received from customers
Interest charges	Cheque from customers
Dishonoured cheque	Discounts allowed
Dishonoured bill	Bill receivable
Carriage outwards	Allowances

Discounts disallowed  
Debited note issued  
Payment to debtors for claims

Bad debts  
Returns inwards  
Credit note issued, contra entry

The following items in the debit and credit sides of purchases ledger control;

**Debit side**

Cash to suppliers  
Cheque to suppliers  
Returns outwards  
Bill payable  
Credit note received  
Discounts received  
Contra entry

**Credit side**

Credit purchases  
Discounts received withdrawn  
Cash refunds

**ASSIGNMENT:** The following balances were extracted from the book of Kayode Enterprises on 31<sup>st</sup> August 2016:

	₦
Sales ledger balance (Dr)	9,826
Sales ledger balance (Cr)	237
Bought ledger balance (Cr)	7,219
Bought ledger balance (Dr)	421
Credit sales	78,154
Purchases journal	51,362
Discounts allowed	2,475
Discounts received	1,932
Returns inwards	745
Contra settlement	622
Bill dishonoured	750
Bad debt written off	526
Bill receivable	13,473
Returns outwards	892
Cash refunded to customers (debtors)	127
Cash paid to suppliers	49,514
Cash received from debtors	68,923
Purchases ledger balance (Dr)	334
Sales ledger balance (Cr)	201

You are required to prepare: Sales ledger control account and Purchases ledger control account

**School:** Olabisi Onabanjo University Lesson V

**Class:** 200 level

**Topic:** Incomplete records and single entry

**Duration:** 2 hours per period

**General Objective:** To guide students in using Incomplete records and single entry. **Behavioural**

**Objective:** By the end of the lesson, students should be able to: 1. Define single entry. 2. List characteristic of single entry. 3. Itemize advantages and disadvantages of single entry. 4. Itemize steps in ascertain profit from incomplete records

**Teaching and learning material:** Posters and chart on format of statement of affairs

**Entry Behaviour:** The students have been taught control accounts in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by giving sufficient guidance and feedback on steps involved in the method

**Teacher's Activity:** The teacher organizes the students into groups (counting heads 1 to 10). At this point, utmost care is taken to avoid rowdiness or some students wanting to be partners of brilliant students.

**Teacher's Activity:** The teacher presents each group with instructional package relating to define single entry, its characteristic, advantages and disadvantages with steps in ascertain profit from incomplete records

**Student's Activity step I:** At this point, the teacher presents questions to be answered to students and gives checklist and rubrics to the questions.

**Student's Activity step II:** The teacher then instructs the students to turn and form small collaborative groups of ten to conduct research or answers within themselves using at least 40 minutes. Here again the teacher ensure that nobody makes any noise while at the same time encourage them to listen to one another carefully and attentively.

**Student's Activity step III:** The teacher calls on a group leader of each group to come out or stand where they are to present their results and answers with the whole class using at least 10minutes each.

**Teacher's Activity:** After the presentation of results with the class by a representative of each group the teacher and students reflect their outcomes for self-evaluation in their note books

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

i Incomplete records or single entry is a system of accounting which ignores the two fold-aspect of each transaction.

ii The following are some characteristics of single entry: only personal accounts of debtors and creditors are kept, profit or loss could only be ascertained by comparing capital at the beginning and capital at the end and real and nominal accounts are not kept

iii The following are advantages of single entry: it very easy and simple to operate, profit is easily computed under this system, it is very useful for small business enterprise and it is economical as it does not require large volume of book for recording transactions.

The following are disadvantages of single entry includes: it is not acceptable for tax purpose Because of incomplete records of transactions, it does not show the true profit or loss of the Organization, flexibility of the principles of double entry is not present, fraud may be easily Committed, double entry principles is ignored, record of information are not complete and it is not possible to ascertain the arithmetical accuracy of the book.

iii The following are steps in ascertaining of profit from incomplete records:

Step1 prepare the opening statement of affairs

Step2 preparation of closing statement of affairs

Step3 preparation of statement of profit

Step4 preparation of balance sheet

**ASSIGNMENT:** The following is a summary of the bank account of Olumide a retailer for the year ended 31<sup>st</sup> December, 2015.

	₦		₦
Balance b/f	3,000	Payment to creditors	12,250
Shop takings banked	18,000	Rent	750
		Electricity	300
		Telephone	150
		Repairs	70
		Drawings	1,150
		Balance c/d	6,530
	<u>21,200</u>		<u>21,200</u>

Additional information

	January 1 <sup>st</sup>	December 31 <sup>st</sup>
Furniture	5,100	5,100
Equipment	6,000	5,800
Debtors	750	670
Creditors	550	830
Rent Owing	75	65
Telephone prepaid	55	85
Stock	1,000	1,500

You are required to prepare:

- Statement of affairs as at 1/1/2015
- Debtors and Creditors control accounts
- Trading, Profit and loss accounts
- Balance sheet as at 31/12/2015

## APPENDIX J

### INSTRUCTIONAL PACKAGE FOR EXPERIMENTAL GROUP III

**School:** Tai solarin University of Education Lesson I

**Class:** 200 level

**Topic:** General Journal

**Duration:** 2 hours per period

**General Objective:** To guide students in learning entries in general journal

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. Explain the features of a journal and the uses of journal. 2. Solve problems relating to journal usage

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught cash book and ledger in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by telling the students the purpose of the teaching method to be used and steps to be followed. Here the teacher explains in the detail the whole process of inquiry-based to the class while assuring them that when they have gotten used to this method they will begin to enjoy classroom interaction more than ever before

Phase of inquiry	Expected Questions	Expected Activities
Tune in	What is Journal?	Students are expected to begin the process of situating meaning of Journal through their personal experiences.
Preparing to find out	Explain the features of a journal	With the help of teaching method students begin to examine the rationale behind the topic
Find out	What are the uses of journal	At this point the teacher provides some explanation about uses of journal. The students also seek for further understanding by going through the teaching and learning materials.
Sorting out	How can we solve problems relating to journal?	Here, the teacher assists students in getting further clarification and allow diverse range of outcomes.
Going further	Are there other means treat the given questions	He provides more information on journal entries
Making connections	In all of these, what have you achieved?	Here, the teacher draws conclusion while students reflect on the learning process itself.
Taking action	What can we possibly do now?	Personal and practical commitments are taken by the students. The teacher also leads the students to make a collective commitment based on the lesson learnt.

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concepts;

i The journal is another book of prime entry into which transactions are entered on a daily basis and then classified into Debit and Credit and then posted to ledgers.

ii Journal has the following features- it is a subsidiary book used in addition to the ledger. It has five columns, Date, Particulars, Folio Dr and Cr. It shows the account to be debited and credited as well as the amount. It shows narration and entries to be posted to the ledger.

iii Journal entries can be divided into two classes ; simple and compound entries

iv Journal can be used for the following; recording of disposal of fixed assets, correction of errors, double entry transactions, recording opening entries, transfer of items between accounts, recording transactions that do not occur regularly, purchases of assets on credit.

**ASSIGNMENT:** show the journal entries necessary to correct the following errors when

Found; a Sold goods on credit to Segun ₦900. b. Returns outwards ₦100 to Ade.

c. Purchases from Idowu ₦270. d. purchases of goods ₦290 from Awolowo was completely omitted from the accounts.

**School:** Tai solarin University of Education Lesson II

**Class:** 200 level

**Topic:** Correction of errors

**Duration:** 2 hours per period

**General Objective:** To guide students in using journal correcting errors

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. List errors that do not affect the agreement of the trial balance. 2. Itemize procedures to be followed when correcting errors 3. Solve problems relating to those errors

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught general journal in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by telling the students the purpose of the teaching method to be used and steps to be followed. Here the teacher explains in the detail the whole process of inquiry-based to the class while assuring them that when they have gotten used to this method they will begin to enjoy classroom interaction more than ever before

Phase of inquiry	Expected Questions	Expected Activities
Tune in	What is main purpose of the trial balance?	Students are expected to begin the process of situating purpose of the trial balance through their personal experiences.
Preparing to find out	What are the errors that do not affect the agreement of the trial balance?	With the help of teaching method students begin to examine the rationale behind the topic
Find out	Itemize procedures to be followed when correcting errors	At this point the teacher provides some explanation about procedures to be followed when correcting errors. The students also seek for further understanding by going through the teaching and learning materials.
Sorting out	How can we solve problems relating to those errors?	Here, the teacher assists students in getting further clarification and allow diverse range of outcomes.
Going further	Are there other means to solve the given questions	He provides more information on journal entries
Making connections	In all of these, what have you achieved?	Here, the teacher draws conclusion while students reflect on the learning process itself.
Taking action	What can we possibly do now?	Personal and practical commitments are taken by the students. The teacher also leads the students to make a collective commitment based on the lesson learnt.

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concepts;

- i The main purpose of the Trial balance is to show the arithmetical accuracy of the entries in the ledgers. The two sides (Debit and Credit) must be equal if not indicates error.
- ii The following errors do not affect the agreement of the trial balance; error of omission, error of commission, error of original entry, error of principle, compensation errors, complete reversal of entry and error of duplication.
- iii Procedures to be followed when correcting errors includes; a. Commit these to memory,

- b. identification of the types of errors. c. identification of two accounts involved,  
d. interpretation of errors in the ledger e. Preparation of journal.

**ASSIGNMENT:** Show the journal entries necessary to correct the following errors:

- a) Sales of motor van ₦ 8,000 had been entered in the sales account.
- b) Purchase of goods from Akin ₦7,200 was completely omitted from the account.
- c) Goods of ₦2,300 returned by Ayantola has been entered in Ayanlola account.
- d) Sales were overcast by ₦9,500 as also were motor expenses
- e) Cash paid to John ₦15,000 was entered on the credit side of his account and debited to cash account.
- f) Purchase of goods from Olaomo ₦ 2,900 has been entered in the account as ₦ 9,200.
- g) Payment of cash ₦ 3,200 to Abiodun has been entered twice in the two accounts



**School:** Tai solarin University of Education Lesson III

**Class:** 200 level

**Topic:** Suspense Accounts

**Duration:** 2 hours per period

**General Objective:** To guide students in learning entries in suspense accounts

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. meaning of suspense accounts. 2. Uses of suspense accounts and its nature. 3. List and explain errors that affect the agreement of the trial balance. 4. Itemize procedures to be followed when correcting errors

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught correcting errors in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by telling the students the purpose of the teaching method to be used and steps to be followed. Here the teacher explains in the detail the whole process of inquiry-based to the class while assuring them that when they have gotten used to this method they will begin to enjoy classroom interaction more than ever before

Phase of inquiry	Expected Questions	Expected Activities
Tune in	What is suspense account?	Students are expected to begin the process of situating suspense account through their personal experiences.
Preparing to find out	What are the uses of suspense accounts and its nature?	With the help of teaching method students begin to examine the rationale behind the topic
Find out	Itemize errors that affect the agreement of the trial balance	At this point the teacher provides some explanation about errors that affect the agreement of the trial balance. The students also seek for further understanding by going through the teaching and learning materials.
Sorting out	How can we solve problems relating to suspense account?	Here, the teacher assists students in getting further clarification and allow diverse range of outcomes.
Going further	Are there other means to solve the given questions	He provides more information on suspense account
Making connections	In all of these, what have you achieved?	Here, the teacher draws conclusion while students reflect on the learning process itself.
Taking action	What can we possibly do now?	Personal and practical commitments are taken by the students. The teacher also leads the students to make a collective commitment based on the lesson learnt.

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concepts;

i A suspense account is used to record differences in the trial balance temporarily until errors are detected.

ii suspense account is used for recording differences temporarily until errors are detected, to provides an account for deferred expenses, to provides an account to which one side of double entry recording of transaction can be posted until it correct destination is known.

iii The following errors affect the agreement of the trail balance; one sided omission, misposting of figures to the account, errors in transfers of totals of subsidiary book, two entries on the same side, trial balance errors and undercasting or overcastting of balances

iv Procedures involved in correction of errors includes; b. identification of errors.

c. illustration of errors in the ledger, d. correction e. Posting to the journal, f. Preparation of suspense account.

**ASSIGNMENT:** The trial balance of Tunmise as at 31<sup>st</sup> December 2000 failed to agree. The difference of ₦ 5,000 was credited to a suspense account. Further investigation revealed the following errors:

- a) Returns inwards book was overstated by ₦ 1,000
- b) Purchases day book was under casted by ₦ 3,000
- c) The closing balance of the cash book had a debit of ₦20,000 instead of ₦ 21,000
- d) Credit sales of ₦2,500 to Glory was credited to his personal account
- e) An amount of ₦ 5,000 received from Kola has not been posted to his account
- f) Discounts received and allowed of ₦2,500 and ₦100 had not been posted to the cash book.
- g) Goods worth ₦6,000 returned to supplier were entered in his personal account as ₦ 10,500.

You are required to; (a) Journalize the errors, (b) Write up the suspense account

**School:** Tai solarin University of Education Lesson IV

**Class:** 200 level

**Topic:** Control Accounts

**Duration:** 2 hours per period

**General Objective:** To guide students in learning posting in control accounts

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. meaning of control accounts. 2. Uses of control accounts and its classification. 3. List items in the debit and credit sides of sales ledger control. 4. Itemize items in the debit and credit sides of purchases ledger control

**Teaching and learning material:** Posters and chart on format of sales and purchases ledger control account

**Entry Behaviour:** The students have been taught suspense accounts in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by telling the students the purpose of the teaching method to be used and steps to be followed. Here the teacher explains in the detail the whole process of inquiry-based to the class while assuring them that when they have gotten used to this method they will begin to enjoy classroom interaction more than ever before

Phase of inquiry	Expected Questions	Expected Activities
Tune in	What is control account?	Students are expected to begin the process of situating control account through their personal experiences.
Preparing to find out	What are the uses of control accounts and its classification?	With the help of teaching method students begin to examine the rationale behind the topic
Find out	Itemize items in the debit and credit sides of sales ledger control	At this point the teacher provides some explanation about items in the debit and credit sides of sales ledger control. The students also seek for further understanding by going through the teaching and learning materials.
Sorting out	How can we solve problems relating to control account?	Here, the teacher assists students in getting further clarification and allow diverse range of outcomes.
Going further	Are there other means to solve the given questions	He provides more information on control account
Making connections	In all of these, what have you achieved?	Here, the teacher draws conclusion while students reflect on the learning process itself.
Taking action	What can we possibly do now?	Personal and practical commitments are taken by the students. The teacher also leads the students to make a collective commitment based on the lesson learnt.

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concepts;

i Control account is a memorandum account into which are transferred in totals, the various amount of the transactions which have been debited or credited in detail to individual ledger accounts.

ii Control account is used for location of errors, prevention of fraud, aids management control, internal check on ledgers clerk, easy detection of missing figure, ascertainment of debtors and creditors balances, preparation of interim final account, save time, grouping of accounts.

iii Control account is classifies into two sales control account and purchases control account.

The following items in the debit and credit sides of sales ledger control;

<b>Debt side</b>	<b>Credit side</b>
Sales (Credit)	Cash received from customers
Interest charges	Cheque from customers
Dishonoured cheque	Discounts allowed
Dishonoured bill	Bill receivable
Carriage outwards	Allowances
Discounts disallowed	Bad debts
Debited note issued	Returns inwards
Payment to debtors for claims	Credit note issued, contra entry

The following items in the debit and credit sides of purchases ledger control;

<b>Debt side</b>	<b>Credit side</b>
Cash to suppliers	Credit purchases
Cheque to suppliers	Discounts received withdrawn
Returns outwards	Cash refunds
Bill payable	
Credit note received	
Discounts received	
Contra entry	

**ASSIGNMENT:** The following balances were extracted from the book of Kayode Enterprises on 31<sup>st</sup> August 2016:

	₦
Sales ledger balance (Dr)	9,826
Sales ledger balance (Cr)	237
Bought ledger balance (Cr)	7,219
Bought ledger balance (Dr)	421
Credit sales	78,154
Purchases journal	51,362
Discounts allowed	2,475
Discounts received	1,932
Returns inwards	745
Contra settlement	622
Bill dishonoured	750
Bad debt written off	526
Bill receivable	13,473
Returns outwards	892
Cash refunded to customers (debtors)	127
Cash paid to suppliers	49,514
Cash received from debtors	68,923
Purchases ledger balance (Dr)	334
Sales ledger balance (Cr)	201

You are required to prepare: Sales ledger control account and Purchases ledger control account.

**School:** Tai solarin University of Education Lesson V

**Class:** 200 level

**Topic:** Incomplete records and single entry

**Duration:** 2 hours per period

**General Objective:** To guide students in using Incomplete records and single entry.

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. Define single entry. 2. List characteristic of single entry. 3. Itemize advantages and disadvantages of single entry. 4. Itemize steps in ascertain profit from incomplete records

**Teaching and learning material:** Posters and chart on format of statement of affairs

**Entry Behaviour:** The students have been taught control accounts in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by telling the students the purpose of the teaching method to be used and steps to be followed. Here the teacher explains in the detail the whole process of inquiry-based to the class while assuring them that when they have gotten used to this method they will begin to enjoy classroom interaction more than ever before

Phase of inquiry	Expected Questions	Expected Activities
Tune in	What is single entry?	Students are expected to begin the process of situating single entry through their personal experiences.
Preparing to find out	What are the characteristic of single entry?	With the help of teaching method students begin to examine the rationale behind the topic
Find out	Itemize advantages and disadvantages of single entry	At this point the teacher provides some explanation about advantages and disadvantages of single entry. The students also seek for further understanding by going through the teaching and learning materials.
Sorting out	How can we solve problems relating to single entry?	Here, the teacher assists students in getting further clarification and allow diverse range of outcomes.
Going further	Are there other means to solve the given questions	He provides more information on single entry
Making connections	In all of these, what have you achieved?	Here, the teacher draws conclusion while students reflect on the learning process itself.
Taking action	What can we possibly do now?	Personal and practical commitments are taken by the students. The teacher also leads the students to make a collective commitment based on the lesson learnt.

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concepts;

i Incomplete records or single entry is a system of accounting which ignores the two fold-aspect of each transaction.

ii The following are some characteristics of single entry: only personal accounts of debtors and creditors are kept, profit or loss could only be ascertained by comparing capital at the beginning and capital at the end and real and nominal accounts are not kept

iii The following are advantages of single entry: it very easy and simple to operate, profit is

easily computed under this system, it is very useful for small business enterprise and it is economical as it does not require large volume of book for recording transactions.

The following are disadvantages of single entry includes: it is not acceptable for tax purpose Because of incomplete records of transactions, it does not show the true profit or loss of the Organization, flexibility of the principles of double entry is not present, fraud may be easily Committed, double entry principles is ignored, record of information are not complete and it is not possible to ascertain the arithmetical accuracy of the book.

iv The following are steps in ascertaining of profit from incomplete records:

Step1 prepare the opening statement of affairs

Step2 preparation of closing statement of affairs

Step3 preparation of statement of profit

Step4 preparation of balance sheet

**ASSIGNMENT:** The following is a summary of the bank account of Olumide a retailer for the year ended 31<sup>st</sup> December, 2015.

	₦		₦
Balance b/f	3,000	Payment to creditors	12,250
Shop takings banked	18,000	Rent	750
		Electricity	300
		Telephone	150
		Repairs	70
		Drawings	1,150
		Balance c/d	6,530
	<u>21,200</u>		<u>21,200</u>

Additional information

	January 1 <sup>st</sup>	December 31 <sup>st</sup>
Furniture	5,100	5,100
Equipment	6,000	5,800
Debtors	750	670
Creditors	550	830
Rent Owing	75	65
Telephone prepaid	55	85
Stock	1,000	1,500

You are required to prepare:

- Statement of affairs as at 1/1/2015
- Debtors and Creditors control accounts
- Trading, Profit and loss accounts
- Balance sheet as at 31/12/2015

## APPENDIX K

### INSTRUCTIONAL PACKAGE FOR EXPERIMENTAL GROUP IV

**School:** Lagos State University Lesson I

**Class:** 200 level

**Topic:** General Journal

**Duration:** 2 hours per period

**General Objective:** To guide students in learning entries in general journal

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. Explain the features of a journal and the uses of journal. 2. Solve problems relating to journal usage

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught cash book and ledger in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking some leading questions and defining the concept of general journal

**Presentation:**

**Step I:** The teacher teaches students meaning of journal to be “another book of prime entry into which transactions are entered on a daily basis and then classified into Debit and Credit and then posted to ledgers”.

**Step II:** He explains the features of general journal to the students as follows (1)it is a subsidiary book used in addition to the ledger.(2) It has five columns, Date, Particulars, Folio Dr and Cr. (3)It shows the account to be debited and credited as well as the amount. (4) It shows narration and entries to be posted to the ledger.

**Step III:** The teacher leads the class into classification of journal entries to be simple and compound entries

**Step IV:** He teaches the class uses of journal to be; recording of disposal of fixed assets, correction of errors, double entry transactions, recording opening entries, transfer of items between accounts, recording transactions that do not occur regularly, purchases of assets on credit.

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

**ASSIGNMENT:** show the journal entries necessary to correct the following errors when found; a Sold goods on credit to Segun ₦900. b. Returns outwards ₦100 to Ade. c. Purchases from Idowu ₦270. d. purchases of goods ₦290 from Awolowo was completely omitted from the accounts.

**School:** Lagos State University Lesson II

**Class:** 200 level

**Topic:** Correction of errors

**Duration:** 2 hours per period

**General Objective:** To guide students in using journal correcting errors

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. List errors that do not affect the agreement of the trial balance. 2. Itemize procedures to be followed when correcting errors 3. Solve problems relating to those errors

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught general journal in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking some leading questions and defining the concept of errors

**Presentation:**

**Step I:** The teacher explains to students the main purpose of the Trial balance is to show the arithmetical accuracy of the entries in the ledgers. The two sides (Debit and Credit) must be equal if not indicates error.

**Step II:** He teaches the students errors that do not affect the agreement of the trial balance; error of omission, error of commission, error of original entry, error of principle, compensation errors, complete reversal of entry and error of duplication.

**Step III:** He teaches the class the procedures to be followed when correcting errors which includes; a. Commit these to memory, b. identification of the types of errors. c. identification of two accounts involved, d. interpretation of errors in the ledger e. Preparation of journal.

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept

**ASSIGNMENT:** Show the journal entries necessary to correct the following errors:

- a) Sales of motor van ₦ 8,000 had been entered in the sales account.
- b) Purchase of goods from Akin ₦7,200 was completely omitted from the account.
- c) Goods of ₦2,300 returned by Ayantola has been entered in Ayanlola account.
- d) Sales were overcast by ₦9,500 as also were motor expenses
- e) Cash paid to John ₦15,000 was entered on the credit side of his account and debited to cash account.
- f) Purchase of goods from Olaomo ₦ 2,900 has been entered in the account as ₦ 9,200.
- g) Payment of cash ₦ 3,200 to Abiodun has been entered twice in the two accounts



**School:** Lagos State University Lesson III

**Class:** 200 level

**Topic:** Suspense Accounts

**Duration:** 2 hours per period

**General Objective:** To guide students in learning entries in suspense accounts

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. meaning of suspense accounts. 2. Uses of suspense accounts and its nature. 3. List and explain errors that affect the agreement of the trial balance. 4. Itemize procedures to be followed when correcting errors

**Teaching and learning material:** Posters and chart relating to journal

**Entry Behaviour:** The students have been taught correcting errors in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking some leading questions and defining the concept of suspense

**Presentation:**

**Step I:** The teacher explains to students that suspense account is used to record differences in the trial balance temporarily until errors are detected.

**Step II:** He teaches the students uses suspense account to be for recording differences temporarily until errors are detected, to provides an account for deferred expenses, to provides an account to which one side of double entry recording of transaction can be posted until it correct destination is known.

**Step III:** He teaches the class errors that affect the agreement of the trial balance; one sided omission, misposting of figures to the account, errors in transfers of totals of subsidiary book, two entries on the same side, trial balance errors and undercasting or overcasting of balances

**Step IV:** He teaches the class procedures involved in correction of errors includes using suspense account; b. identification of errors. c. illustration of errors in the ledger, d. correction e. Posting to the journal, f. Preparation of suspense account

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

**ASSIGNMENT:** The trial balance of Tunmise as at 31<sup>st</sup> December 2000 failed to agree. The difference of ₦ 5,000 was credited to a suspense account. Further investigation revealed the following errors:

- a) Returns inwards book was overstated by ₦ 1,000
- b) Purchases day book was under casted by ₦ 3,000
- c) The closing balance of the cash book had a debit of ₦20,000 instead of ₦ 21,000
- d) Credit sales of ₦2,500 to Glory was credited to his personal account
- e) An amount of ₦ 5,000 received from Kola has not been posted to his account
- f) Discounts received and allowed of ₦2,500 and ₦100 had not been posted to the cash book.
- g) Goods worth ₦6,000 returned to supplier were entered in his personal account as ₦ 10,500.

You are required to; (a) Journalize the errors, (b) Write up the suspense account

**School:** Lagos State University Lesson IV

**Class:** 200 level

**Topic:** Control Accounts

**Duration:** 2 hours per period

**General Objective:** To guide students in learning posting in control accounts

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. meaning of control accounts. 2. Uses of control accounts and its classification. 3. List items in the debit and credit sides of sales ledger control. 4. Itemize items in the debit and credit sides of purchases ledger control

**Teaching and learning material:** Posters and chart on format of sales and purchases ledger control account

**Entry Behaviour:** The students have been taught suspense accounts in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking some leading questions and defining the concept of control account

**Presentation:**

**Step I:** The teacher explains to students that control account is a memorandum account into which are transferred in totals, the various amount of the transactions which have been debited or credited in detail to individual ledger accounts.

**Step II:** He teaches the students uses control account as in locating errors, prevention of fraud, aids management control, internal check on ledgers clerk, easy detection of missing figure, ascertainment of debtors and creditors balances, preparation of interim final account, save time, grouping of accounts.

**Step III:** He teaches the class the two classes of control account as sales control account and purchases control account.

**Step IV:** He teaches the class items in the debit and credit sides of sales and purchases ledger Control as follows;

The following items in the debit and credit sides of sales ledger control;

<b>Debt side</b>	<b>Credit side</b>
Sales (Credit)	Cash received from customers
Interest charges	Cheque from customers
Dishonoured cheque	Discounts allowed
Dishonoured bill	Bill receivable
Carriage outwards	Allowances
Discounts disallowed	Bad debts
Debited note issued	Returns inwards
Payment to debtors for claims	Credit note issued, contra entry

The following items in the debit and credit sides of purchases ledger control;

<b>Debt side</b>	<b>Credit side</b>
Cash to suppliers	Credit purchases
Cheque to suppliers	Discounts received withdrawn

Returns outwards  
 Bill payable  
 Credit note received  
 Discounts received  
 Contra entry

Cash refunds

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

**ASSIGNMENT:** The following balances were extracted from the book of Kayode Enterprises on 31<sup>st</sup> August 2016:

	₦
Sales ledger balance (Dr)	9,826
Sales ledger balance (Cr)	237
Bought ledger balance (Cr)	7,219
Bought ledger balance (Dr)	421
Credit sales	78,154
Purchases journal	51,362
Discounts allowed	2,475
Discounts received	1,932
Returns inwards	745
Contra settlement	622
Bill dishonoured	750
Bad debt written off	526
Bill receivable	13,473
Returns outwards	892
Cash refunded to customers (debtors)	127
Cash paid to suppliers	49,514
Cash received from debtors	68,923
Purchases ledger balance (Dr)	334
Sales ledger balance (Cr)	201

You are required to prepare: Sales ledger control account and Purchases ledger control account.

**School:** Lagos State University Lesson V

**Class:** 200 level

**Topic:** Incomplete records and single entry

**Duration:** 2 hours per period

**General Objective:** To guide students in using Incomplete records and single entry.

**Behavioural Objective:** By the end of the lesson, students should be able to: 1. Define single entry. 2. List characteristic of single entry. 3. Itemize advantages and disadvantages of single entry. 4. Itemize steps in ascertain profit from incomplete records

**Teaching and learning material:** Posters and chart on format of statement of affairs

**Entry Behaviour:** The students have been taught control accounts in the previous lesson.

**Instructional Procedure:** The teacher introduces the lesson by asking some leading questions and defining the concept of incomplete records or single entry

**Presentation:**

**Step I:** The teacher explains to students that incomplete records or single entry is a system of accounting which ignores the two fold-aspect of each transaction

**Step II:** He teaches the students characteristics of single entry to be only personal accounts of debtors and creditors are kept, profit or loss could only be ascertained by comparing capital at the beginning and capital at the end and real and nominal accounts are not kept

**Step III:** He teaches the class advantages and disadvantages of single entry, the following are advantages of single entry includes; it very easy and simple to operate, profit is easily computed under this system, it is very useful for small business enterprise and it is economical as it does not require large volume of book for recording transactions. The following are disadvantages of single entry includes: it is not acceptable for tax purpose because of incomplete records of transactions, it does not show the true profit or loss of the organization, flexibility of the principles of double entry is not present, fraud may be easily committed, double entry principles is ignored, record of information are not complete and it is not possible to ascertain the arithmetical accuracy of the book.

**Step IV:** He leads the class to steps in ascertaining of profit from incomplete records:

Step1 prepare the opening statement of affairs

Step2 preparation of closing statement of affairs

Step3 preparation of statement of profit

Step4 preparation of balance sheet

**EVALUATION:** The teacher assesses the students based on the topic taught.

**CONCLUSION:** The teacher summarizes the lesson by emphasizing the key concept;

**ASSIGNMENT:** The following is a summary of the bank account of Olumide a retailer for the year ended 31<sup>st</sup> December, 2015.

	₦		₦
Balance b/f	3,000	Payment to creditors	12,250
Shop takings banked	18,000	Rent	750
		Electricity	300
		Telephone	150
		Repairs	70
		Drawings	1,150
		Balance c/d	6,530
	<u>21,200</u>		<u>21,200</u>

Additional information

	January 1 <sup>st</sup>	December 31 <sup>st</sup>
Furniture	5,100	5,100
Equipment	6,000	5,800
Debtors	750	670
Creditors	550	830
Rent Owing	75	65
Telephone prepaid	55	85
Stock	1,000	1,500

You are required to prepare:

- a) Statement of affairs as at 1/1/2015
- b) Debtors and Creditors control accounts
- c) Trading, Profit and loss accounts
- d) Balance sheet as at 31/12/2015

## APPENDIX L

### PRINCIPLES OF ACCOUNTING PERFORMANCE SCORES

	PRE-TEST				POST-TEST			
	LECTURE	INQUIRY-BASED	PROJECT-BASED	COOPERATIVE	LECTURE	INQUIRY-BASED	PROJECT-BASED	COOPERATIVE
1	20	18	15	15	35	55	55	50
2	20	12	20	20	40	60	58	62
3	18	05	16	27	42	68	60	56
4	05	20	16	20	40	70	52	62
5	20	22	20	23	38	74	50	61
6	16	20	21	32	50	64	62	60
7	08	22	22	20	43	58	48	64
8	08	06	16	15	45	68	56	58
9	20	20	15	14	45	64	61	52
10	22	18	20	18	40	62	66	54
11	18	12	10	20	45	60	50	60
12	16	08	21	22	48	60	55	63
13	15	10	22	15	40	62	54	65
14	06	12	20	20	36	64	46	64
15	18	15	21	18	48	68	62	60
16	15	20	15	20	50	68	60	55
17	15	08	16	25	52	68	67	50
18	16	05	17	20	54	60	55	58
19	16	10	16	21	53	60	53	52
20	15	12	18	24	50	62	55	51
21	16	14	18	05	54	64	58	50
22	12	18	20	10	50	58	60	52
23	14	20	21	26	48	55	50	51
24	14	15	08	20	50	68	45	50
25	12	14	10	22	48	60	60	52
26	08	16	15	16	40	60	62	54
27	12	14	20	15	50	60	58	60
28	10	16	16	18	50	58	60	40
29	20	18	28	16	52	60	68	64
30	18	20	12	18	45	58	54	55
31	16	20	21	20	48	58	54	65
32	16	12	18	21	50	50	50	62
33	14	14	12	28	52	60	53	58
34	12	12	08	15	50	60	55	60
35	10	15	18	15	52	62	60	52
36	08	14	14	20	45	60	50	54
37	16	18	18	15	45	65	47	60
38	18	14	20	12	47	60	66	58
39	20	07	18	16	52	60	54	58
40	18	08	12	21	48	62	64	52
41	16	10	22	16	48	60	58	50
42	16	10	18	20	50	61	46	60
43	13	18	15	22	52	65	60	65
44	12	20	18	21	50	60	60	60
45	10	18	08	20	42	65	62	65
46	06	06	12	25	48	58	50	66
47	10	08	20	28	50	57	55	64
48	15	08	15	20	55	60	50	61
49	16	10	20	21	56	60	60	65
50	15	10	14	15	48	60	58	58
51	12	15	12	16	56	62	60	57
52	10	14	20	20	48	62	30	54
53	10	12	12	18	35	60	54	50
54	15	10	18	19	55	60	66	60
55	14	12	16	20	45	58	50	68
56	16	10	18	20	48	60	66	55
57	12	12	12	18	50	68	54	66
58	10	10	06	12	38	60	54	70

59	15	08	18	18	48	60	70	48
60	20	10	16	08	50	64	62	50
61	16	20	22	24	52	58	65	58
62	15	18	20	16	50	60	55	64
63	08	15	14	10	48	62	60	54
64	08	20	26	20	40	58	58	64
65	05	20	18	22	40	60	57	55
66	10	20	20	27	52	62	60	60
67	16	20	18	15	55	60	60	54
68	10	18	15	08	50	60	55	60
69	05	16	20	10	50	60	58	62
70	14	15	15	08	48	64	67	54
71	15	15	18	12	48	64	55	55
72	16	17	15	22	47	55	58	61
73	12	18	22	15	50	60	54	62
74	14	18	20	16	52	62	67	60
75	14	17	22	18	50	60	48	65
76	16	12	30	20	54	58	68	58
77	18	14	26	17	48	50	60	60
78	12	06	18	15	48	55	66	62
79	10	10	15	14	50	68	55	52
80	15	15	18	18	55	60	62	60
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