EFFECTS OF GUIDED-DISCOVERY AND TUTORIAL TEACHING METHODS ON PERFORMANCE OF BUSINESS EDUCATION STUDENTS IN ECONOMICS IN FEDERAL COLLEGE OF EDUCATION, ZARIA, NIGERIA

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JULY, 2018

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BY

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A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS EDUCATION DEGREE

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JULY, 2018

DECLARATION

I hereby declare that the work in this dissertation titled Effect of Guided-discovery and Tutorial Teaching Methods on Performance of Business Education Students in Economics in Federal College of Education, Zaria, Nigeria, has been carried out by me in the Department of Vocational and Technical Education. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma at this or any other Institution.

_____ _____

Ibrahim MOHAMMAD Date

CERTIFICATION

This dissertation titled: EFFECT OF GUIDED-DISCOVERY AND TUTORIAL TEACHING METHODS ON PERFORMANCE OF BUSINESS EDUCATION STUDENTS IN ECONOMICS IN FEDERAL COLLEGE OF EDUCATION, ZARIA, NIGERIA written by Ibrahim MOHAMMED meets the regulations governing the award of the degree of Master of Business Education of the Ahmadu Bello University and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This dissertation is dedicated to my father, Muhammad Ibrahim, my dear mother Wahinat Adamu, my beloved wife, Safiyya Aliyu, and my children Isma`il and Ishaq.

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OPERATIONAL DEFINITION OF TERMS

Performance: Is the result of students' mental ability in an educational setting

Guided-discovery method: Is a teaching method that enable learners create their own learning experiences, with the guidance of a teacher

Tutorial method: Is a method that seeks to teach by examples, and supplies the information to completing a certain task.

Economics: Is concerned with human behaviour, such as how people earn their living and make a choice between alternatives to satisfy their wants.

Teaching method: The process of transmitting facts, skills, information and knowledge with an appropriate integration of instructional materials so as to engage students in meaningful learning

ABSTRACT

The study investigated the Effect of Guided-discovery and Tutorial Teaching Method on Performance of Business Education Students in Economics in Federal College of Education, Zaria, Nigeria. Five research questions were answered and five null hypotheses were tested. This study used quasi experimental design. The population was 581Business Education students in Federal College of Education Zaria. The sample size was 180 and purposive sampling was used in selecting NCE II Business Education Students. The instrument used for data collection was Economics Achievement Test designed by the researcher. The instrument was designed by the researcher and was vetted by four experts. Pilot study was conducted at Federal College of education Katsina and data collected from the pilot study were subjected to statistical analysis using `Kuder-Rechardson formula. The reliability co-efficient obtained was 087. The research questions were answered using mean rating and t-test statistical tool was used in testing all the null hypotheses at 0.005 level of significance. The analysis revealed that guided discovery and tutorial had significant effects on students` academic performance in teaching and learning economics in Federal College of Education Zaria. On the basis of the findings, the research concluded that the guided discovery and tutorial are appropriate method to be used in teaching and learning economics for the improvement of students' academic performance, it will enable them to have good grades which will make them and their parents proud. The researcher made some recommendations which include guided discovery and tutorial method should be used in teaching financial accounting in Federal College of Education Zaria.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The Federal College of Education Zaria, formerly known as the Advanced Teachers College, (A.T.C), Zaria, is located in Zaria. The College started in 1962. It achieved autonomy in running of pre-NCE, remedial courses, and Nigeria Certificate of Education (NCE). There were seven schools in the College, one of the seven was School of Vocational and Technical Education which house the Department of Business Education.

Education is the process of facilitating learning or the acquisition of knowledge, skills, values, beliefs, and habits. Education is bedrock for national development. Quality education is attained through effective teaching, and effective teaching is actualized through adopting appropriate methods of teaching (Idoko, 2015). Teaching entails active and systematic process of guiding learners to acquire information, knowledge and skills that would lead to a desirable behaviour change by a teacher. A teacher is responsible for supervising all tasks of lessons over a specific time. The plan of the teaching process, its practice, and the expected evaluation are carried out by the same teacher. The evaluation of the teaching process is carried out by the teacher on students he taught through continuous assessment and examinations. The arrival of new strategies of teaching, issues of motivation, the satisfaction of students' academics needs such as cultural, family and psychological contributing to successful teaching activities all are looking forward into the creative genius of a single teacher. The seeming difficulty of addressing all these elements

simultaneously by a single pedagogue appeals for a new alternative in the method of teaching.

Mkpa (2009) explained that, method of teaching is the totality of strategies, techniques and ways that, a teacher employs to maximize and facilitate classroom interaction. Method of teaching is a means of conveying facts and decoding messages that eventually results in the realization of stated educational objectives. Teaching method, therefore, refers to strategies of instruction or style of instruction. Business Education involves teaching students the fundamentals, theories, and processes of business, of which economics is a subset. Economics is an activity-oriented subject. The way it is taught is important in helping students acquire basic scientific knowledge, skills, and attitude needed to solve different problems in life. Economics being a social science subject taught in the Colleges of Education Zaria, the subject involves the teacher using different teaching methods that gives the students opportunity to be actively involved in the learning and practice. Economics has been defined by different scholars. Dewett (2006) defined economics as a science of human welfare. It is a study of the method of allocating scarce resources (physical and human) among unlimited wants or competing needs. The most widely accepted definition, is that of Robbins as cited in Augustine (2010) that, Economics is a social science which studies human behaviour as a relationship between ends and scarce means which have alternative uses. This definition is widely accepted because it better reflects the fundamental Economic problems of scarcity and choice.

In line with Stanford's Centre for Teaching and Learning (CTL) (2013) stated that, guided-discovery encourages students' natural curiosity. Carefully constructed

puzzles, problems, and questions push students to go beyond facts to discovery of principles in solving problems. Discovery learning is an inquiry-based instructional technique where students 'learn by doing. Jerome Bruner, a renowned cognitive psychologist, promoted the approach on the basis that, students are more likely to remember concepts and principles when they discover them on their own. Guided-discovery problems may precede introduction of relevant content, allowing students to begin building their knowledge of the subject before class discussion. Whether students collaborate or proceed individually, they are developing skills in disciplined inquiry fundamental to many areas of knowledge, as online learning grows, games of discovery will likely grow as well, bringing more sophisticated resources and real world challenges to guided-discovery learning activities. *Guided-discovery, also known as an inductive approach, is a technique where a teacher provides examples of a language item and helps the learners to find the rules themselves.*

According to Abdullahi (2007), guided-discovery method of teaching is a student-centred exploration of an authentic problem using in the tertiary institutions of learning, the processes and tools of the discipline referred to the pedagogy that exposes students to various situations, questions, or tasks that allow students to "discover" for themselves the intended concept or materials. Abdullahi (2007) stated that guided-discovery method of teaching is student–based, activity-oriented teaching strategy in which the teacher guides students to discover answers. Igboegwu (2012) reported that, this method makes activities enjoyable, accessible, and it promotes students' language and communication skills while in the tutorial method of teaching is a means of transferring knowledge and may be used as a part of learning process.

Dayioglu (2004) explained that, tutorial teaching method is more interactive and specific in nature; it seeks to teach by example and supply the information to complete a certain task.

Another important teaching method according to Ashwin (2005), is tutorial method which is a unique aspect of the educational experience that offers students opportunity to learn. In spite of a wide variety of tutors' approaches to tutorials, there are common elements which contribute to this uniqueness, and these include; students meeting individually or in very small groups, with a tutor from their discipline in their college, typically once a week or once a fortnight. Students spending time independently reading and preparing written work for the tutorial (self-directed learning). While students' study time varies widely, it was reported that, an average of 13 hours of independent study per tutorial is required for a tutorial class. This will include students discussing their written work with the tutor, thus, honing their oral communication skills and giving them an opportunity to receive constant feedback (formative assessment) from their tutors. Archer (2007) stressed that, tutorials are generally intended to help students to gain deep understanding of the subject matter in their discipline. Discussion in tutorials helps students to see the significance and implications of their knowledge so they can apply what they have learnt in new contexts; students should also develop a healthy scepticism about the literature. It enables students to learn how to think, for instance to synthesize disparate sources, to formulate a thesis and justify it, to anticipate criticisms of their arguments, and to respond to questions and challenges, thus, thinking 'on one's feet' in the tutorial setting.

Depending on the context, guided-discovery or tutorial teaching methods can take one of more forms, ranging from a set of instructions on how to complete a task to an interactive problem solving session (usually academia) which will end with an assessment of students' performances to ascertain whether or not the students' understand what they were taught using the instructional methods.

The classroom teachers conduct formative and summative tests to evaluate students' mastery of course content and provides grades for students and parents. This relative achievement of students is an example that has internal and external impact depending on the method adopted by the teacher. It is in the light of the above discussed, variables that form the background of this study were set on effect of guided discovery and tutorial teaching methods on performance of Business Education Students in Economics in Federal College of Education, Zaria, Nigeria.

1.2 Statement of the Problem

The popular opinion in Nigeria today is that, the standard of education has fallen short of what it should be. Students are no longer applying their natural curiosity and inquisitiveness in learning situations and they rather focussed on only what the teacher gives them. Application of carefully constructed puzzles, problems, and questions push students to go beyond facts to discovery of principles in solving problems. Different learning approaches are adopted by teachers during classroom instruction on the basis that students are more likely to grasp and remember concepts and principles with the teacher or on their own.

The fall in the standard of education is perceived by many as the inability of the teachers to impact knowledge to the learners, the way they will understand and

perform well in examinations. Reports by examination officers in some colleges of education have disclosed the recurrent and endemic failure of students, especially in Economics examinations, at NCE level annual reports; (2013-2016) performance revealed that about thirty eight percent of the students passed while sixty two percent failed in economic at the Federal College of Education Zaria.

Over the past three years revealed high rate of failure of students in Economic as 47.5%, 55% fail respectively both in first and second semester in 2013/2014 session. Also in 2014/2015, the percentage was 55% and 55.8% respectively. 2015/2016, the performance failure rate increased to of 60%. Ejim (2010) observed that, despite the importance of economics to individuals and the society, significant number of Business Education students perform poorly in the subject. The problem may be connected to poor lecturers teaching methods in economics and this reason may not be far different in federal college of education Zaria. The researcher observations showed that some lecturers do not have traditional pattern, even when the traditional method is neither to promoting students' interest nor performance in the subject. The researcher wonder, could it be the teaching methods adopted by teachers? Or could it be lack of interest or understanding in the subject matter? Or what could be responsible for the poor performance of students in economics?

It is against this problem that, the researcher examined the effects of guided-discovery and tutorial teaching methods on performance of business education students in economics in Federal College of Education Zaria, Nigeria.

1.3 Objectives of the Study

The general objective of this study was to assess the effects of guided discovery and tutorial on performance of business education students in Economics in Federal College of Education Zaria, Nigeria. The specific objectives are to:

1. determine the effect of guided-discovery teaching method on business education students' performance in Economics in Federal College of Education, Zaria.
2. ascertain the effect of tutorial teaching method on business education students' performance in Economics in Federal College of Education, Zaria.
3. establish the difference between the performance of business education students taught Economics using guided-discovery teaching method, and those taught using tutorial teaching method in Federal College of Education, Zaria.
4. determine the difference between the performance of male business education students taught Economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education, Zaria.
5. establish the difference between the performance of female business education students taught Economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education, Zaria.

1.4 Research Questions

The research was guided by the following research questions:

1. What is the effect of guided-discovery teaching method on business education students' performance in Economics in Federal College of Education, Zaria?

2. What is the effect of tutorial teaching method on business education students' performance in Economics in Federal College of Education, Zaria?
3. What is the difference between the performance of students taught Economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education, Zaria?
4. What is the difference between the performance of male business education students taught Economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education?
5. What is the difference between the performance of female business education students taught Economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education, Zaria?

1.5 Research Hypotheses

In line with the specific objectives and research questions, the following null hypotheses were tested at 0.05 level of significance:

1. Guided-discovery teaching method has no significant effect on business education students' performance in Economics in Federal College of Education, Zaria.
2. Tutorial teaching method has no significant effect on business education students' performance in Economics in Federal College of Education, Zaria.
3. There is no significant difference between the performance of business education students taught Economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education, Zaria.

4. There is no significant difference between the performance of male students taught Economics using guided-discovery teaching method, and those taught using tutorial teaching method in Federal College of Education, Zaria.
5. There is no significant different between the performance of female business education students taught Economic using guided-discovery teaching method, and those taught using tutorial teaching method in Federal College of Education, Zaria.

1.6 Significance of the Study

The result of the study after publication in journal and other media will be significant to students, lecturers, authorities of colleges of education and National Commission for Colleges of Education (NCCE) in the following ways:-.

The findings of the study suggested ways for students learning economics in the College of Education will improve in their learning performance of the subject. The result of this study will also help to motivate, arouse interest and curiosity of the students in economics, thus enhancing their understanding of the subject.

The result of the study will sensitize and improve the task of lecturers to improve in their methodology toward impact learning activities in economics subject. This is because by discovering the appropriate and most effective teaching methods, lecturers will use these methods and strive to do better in their course.

The result of the study will be of significance to the authorities of the colleges to assess student's performance in economics subject year by year. In addition, the finding will help the authorities to plan for the update of available teaching methods. Finally, the result of this work will be of immense importance to NCCE as it will use

the findings in its blueprints on appropriate teaching methods to be adopted in colleges of education for effective teaching and this can be achieved through seminars, workshop, and conferences.

1.7 Basic Assumptions

The following basic assumptions were made for the study: -

1. Guided discovery and tutorial teaching methods may improve performance of students in Economics in Federal College of Education Zaria, Nigeria.
2. In this study it was assumed that other variables such school, peer influence, parental influence, methodology and health challenges, among others affect students' performance in Federal College of Education, Zaria.

1.8 Delimitation of the Study

The study was delimited to NCE two (2) Business Education students of Federal College of Education, Zaria - Kaduna State and the reason being that they offer Economics as a course of study. The study further was delimited to 'basic tools for economic analyses. The choice of this topic was because it was one of the topics in NCE II curriculum. This aspect of the curriculum was aimed at enhancing students' analysis of concepts in economics and makes them adjust in the present predicaments of the society. The study was delimited to NCE II because it is the hope of the researcher that they will be able to provide answers on the instruments of this study. The study was further delimited to guide discovery and tutorial methods of teaching because they are methods not commonly used by teachers and adopted for the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter reviewed related literature and empirical studies related to this study. The review is organized under the following sub-heading:

2.1 Theoretical Framework

2.2 Conceptual Framework

2.2.1 Concept of Guided-discovery Teaching Method

2.2.2 Concept of Tutorial Teaching Method

2.2.3 Concept of Performance

2.2.4 Concept of Economics

2.2.5 Concept of Teaching

2.3 Effects of Teaching Methods on Student Performance in Economics

2.4 Effect of Guided Discovery Teaching Method on Performance of Students

2.5 Effect of Tutorial Teaching Method on Performance of Students

2.6 Empirical Studies

2.7 Summary of the Literature Reviewed

2.1 Theoretical Framework

This work is based on Bruner Constructivist Learning Theory (1967). Bruner Constructivist Learning Theory was adopted because it was found to be specifically relevant to this study. Bruner argued that learning is an active process in which learners construct new ideas or concepts based on current/past knowledge. The theory stated that learning is a process in which the learner is able to build on present and previous information through practice and activity. The student should be able to

take information, create ideas and make choices by utilizing a thought process. The teacher is to encourage students to develop the skills to find out principles on their own. According to Bruner, constructivist learning takes place in problem-solving situations where the learner draws on his past experience and existing knowledge to discover facts and relationships and new truths to be learned. As a result, students are more likely to remember what they see and practise on their own. Students therefore interact with the world by exploring and manipulating objects, wrestling with questions and controversies or performing experiments. Bruner believe that it has many advantages, which include encouraging active engagement, promotes motivation, promoting autonomy, responsibility and independence, promoting activity learning, helping in development of creativity and problem-solving skills, encouraging the use of all the five senses in learning and promoting a tailored learning experience. This research work is related to Bruner's Constructivist Learning Theory because theory has to do with activity learning and this work is also on activity learning.

2.2 Conceptual Framework

The following concepts are discussed extensively; concept of guided-discovery teaching method, concept of tutorial teaching method, concept of performance and concept of economics.

2.2.1 Concept of Guided-discovery Teaching Method

Guided-discovery is a teaching method that enables learners create their own learning experiences, with the guidance of the teacher. According to Moses (2003), this method has recently been emphasized in modern teaching. It has been identified

as providing meaningful learning and thus teachers are encouraged to use them. A guided-discovery method involves an unstructured exploration in some problem-solving experiences in which students can draw general conclusions from data gathered through measuring, classifying, inferring, predicting, communicating, analysing, clarifying, describing, and formulating relevant questions (Moses, 2003). The Guided-discovery method is a teaching technique that encourages students to take a more active role in their learning process by answering a series of questions or solving problems designed to introduce a general concept (Mayer 2003). Discovery method therefore refers to how much guidance a teacher should give their students. Mayer (2003) identified that the third strategy, guided discovery, has many similarities with instruction in that it is very much a structured and facilitated process, but it follows a very different sequence of events. While instruction moves from theory to practice, from the general to the specific, guided discovery starts with the specific and moves to the general. It is an inductive process – it leads the learner towards insights and generalisations, rather than providing them on a plate. Because this process is much less certain and predictable, guided discovery rarely has specific learning objectives – every learner will take out of the process something unique and personal. What they take out will depend not only on the insights they gain from the particular learning experience, but also to a great deal on their prior knowledge and previous life experience.

Mayer (2003) pointed that guided discovery can take many forms – experiments in a laboratory, simulations, scenarios, case studies or team-building activities. In each of these cases, the learner is presented, alone or in a group, with a

task to accomplish. Having undertaken that task, the learner is then encouraged to reflect on the experience – what, how well? How could the successes be repeated and the failures avoided? The conclusions can be taken forward to further exercises and then hopefully applied to real-world tasks. Mayer (2003) said that guided discovery can also take place in a more informal, on the job training. A good example is coaching. The coach helps the learner to reflect on their real-world experiences, gain insights, and make new generalisations that can be tested in future tasks. The coach's job is not so much to give advice but to challenge, support and encourage the learner as they come to their own conclusions. Job rotation and job enrichment, both of which seek to provide the employee with new job challenges, can also be regarded as examples of guided discovery.

According to Mayer (2003), less confident, dependent learners should be comfortable with guided discovery, as long as the process is carefully structured and facilitated, and does not leave them floundering. What is more important is that the learner should have enough knowledge and experience of the subject matter or the situations underlying the learning activity that they can make a reasonable attempt at completing the task – you can't build on prior knowledge if you don't have any.

Mayer (2003) said that guided discovery requires careful design and facilitation this including the following

1. The tasks that learners are set must be carefully designed to draw out key issues that are meaningful to the learner's job.
2. The tasks should be challenging but must not seem unachievable.
3. The learner must be able to relate to the issues raised by the task.

4. The learner should not feel they are being manipulated into taking a position that they do not really believe in.
5. Ideally the learner should be able to experiment with different approaches without fear of criticism.
6. The facilitator (should there be one) should resist the temptation to give advice unless their expertise is called upon by the learner.

2.2.2 Concept of Tutorial Teaching Method

A tutorial teaching method is a method of transferring knowledge and may be used as a part of a learning process. It is more interactive and specific than lecture method. Tutorial teaching method seeks to teach by examples, and supplies the information to completing a certain task. Depending on the context, a tutorial can take one of many forms, ranging from a set of instructions to completing a task to an interactive problem solving session. It is a highly individualized remedial teaching (Wikipedia, 2016). According to Ashwin (2005), tutorial teaching is when a tutor guides an individual or a small group of students. In the meantime, students expect that such tutorials can help them make better sense of the subject matter and promote their essential academic skills. As they see the significance and implications of their knowledge with the help of discussion in tutorials, they can apply the knowledge they have learned to use new contexts. Similarly, both tutors and students may be encouraged and accomplished by such a kind of particular education experience. After discussing the area of difficulty with the students, the tutor can offer an opportunity for continuous feedback. Indeed, students' feedback plays a vital role in reflective practices, which is emphasised by Brookfield (2000) because students'

feedback and advice are helpful to their teachers or tutors in reforming their teaching styles for their future teaching practice.

Tutorials allow students to pursue their personal academic interests within the context of their subject. The tutorial system, with its smaller classes, presents a teaching context that allows a student-centred teaching approach (Ndubisi, 2007). Additionally, it utilizes a learning approach with an emphasis on the development of an individual understanding of the course materials (Gow & Kember, 2003). This is of great significance because students with a deep learning approach are apt to obtain better results in terms of learning outcomes than those students with a surface learning approach (Ndubisi, 2007). Therefore, there seems to be a relationship between the ways in which academics deal with their teaching and the quality of their students' learning outcomes. A good tutorial teaching approach will inspire, exact, challenge and be fulfilling for tutors and students alike. Some experienced tutors offer brilliant tutorials and many do it very well, without ever clearly stating any theory as an explanation for their actions. However, novice tutors develop their teaching skills by combining scholarly knowledge, practice, and sound common sense? The top priority is that teachers should consider their own experiences when applying knowledge to practice. This notion is echoed in the principle of reflective practice which is discussed in next section.

In line with the oxford tutorial (Palfreyman, 2001) tutorial teaching is a unique aspect of the educational experience that Oxford offers its students. In spite of a wide variety of tutors' approaches to tutorials, there are common elements which contribute to this uniqueness, and these include:

1. Students meeting individually or in very small groups, with a tutor from their discipline in their college, typically once a week or once a fortnight.
2. Students spending time independently reading and preparing written work for the tutorial (i.e. self-directed learning). While students' study time varies widely, the Commission of Inquiry (1997) reported an average of 13 hours of independent study per tutorial.
3. Students discussing their written work with the tutor, thus honing their oral communication skills and giving them an opportunity to receive constant feedback (i.e. formative assessment) from their tutors.

According to Commission of Inquiry (1997) that tutorials are generally intended to:

1. Help students to gain a deep understanding of the subject matter in their discipline - discussion in tutorials helps students to see the significance and implications of their knowledge so they can apply what they have learned in new contexts; students should also develop a healthy scepticism about the literature.
2. Enable students to learn how to think; for instance, to synthesize disparate sources, to formulate a thesis and justify it, to anticipate criticisms of their arguments, and to respond to questions and challenges – thinking 'on one's feet' – in the tutorial setting.
3. Develop students' basic academic skills (e.g. identification and evaluation of relevant resources, effective communication both orally and in writing, effective time-management, critical self-assessment).

4. Enable students to pursue their individual academic interests within the context of their subject.
5. Develop students' ability to think and act like a professional in their discipline, like a classicist, mathematician, historian, scientist, or social scientist, rather than like a student 'covering' a syllabus in classics, maths, history or a science.
6. Foster a close relationship between student and tutor over the course of the academic degree, thereby personalizing students' university experience and supporting students' overall personal development throughout their student career.

The University's Education Committee summaries and defines the purpose of a tutorial as being "to develop an individual student's capacity to think in depth about a subject area, and to operate with growing confidence within its techniques and methodologies, with the expectation that the process will promote increased understanding of the discipline for both tutor and student." To achieve this purpose, tutorials are organised differently across the university, depending on discipline, the stage of the student's course and tutors' own styles. A number of experienced tutors describe their approaches in The Oxford Tutorial (Palfreyman, 2001).

Organisation of teaching at Oxford

Palfreyman, (2001) that typically, the University's faculties, departments, and schools provide lectures and classes whilst colleges organised tutorial teaching. College Tutors, as well as themselves teaching, co-ordinate students' programmes of study and arrange tutorials within the College if suitable expertise is available, but

often with appropriate academics ('out-tutors') from other Colleges. Due to this structure, in which university and college teaching are often organised independently from each other, the relationship between them can vary. For example, in one department, a lecturer may give a programme of lectures and design problem sheets for use by all college tutors in associated tutorials which take place week by week in the same term. Another department might have a series of lectures running in one term, but the students who go to them attend tutorials on the theme of those lectures at some other time in their studies, with each tutor independently setting essay questions, or other written tasks. Sometimes tutorial frequency and the balance between college and university teaching (e.g. tutorials vs. classes) change as students move into the later years of their courses.

Palfreyman, (2001) that tutorials take a variety of forms. Occasionally students are taught in singletons; pairs are much more common, threesomes and foursomes are also found. There is no simple advice about the 'best number' of students to teach at a time. An important consideration is that the larger the group, the less possible it is to provide individual attention or to be flexible and match content to the particular level or interests of individual students. Groups of two or three are probably the most effective, offering the advantage of supporting discussion and argument between students: as well as being productive in itself, this can serve to lift students' confidence in expressing their ideas. Singleton teaching can be extremely successful and especially enjoyable, but, as a very personal approach to teaching, it is unavoidably influenced by the degree of compatibility between student and tutor; in

particular, it is essential there be a good level of understanding and trust – singleton tutorials can be disastrous if a student finds them intimidating.

Palfreyman, (2001) that students usually pursue a course of tutorials in a given area (perhaps corresponding to a ‘paper’ in the examination) over the course of an eight-week term; this is typical for an 'option' in 'Schools' (i.e. final examinations), though sometimes options are taught fortnightly across two terms. Students might be studying more than one option at a time, but rarely more than two. Each discipline has its own norms, in History for example, standard practice is for each undergraduate to study one option weekly in parallel with another taken fortnightly. This particular pattern assumes three tutorials per fortnight. In that students find tutorials supportive, there is sometimes a tendency for them to ask for more, and it is important to bear in mind that a student attempting more than two tutorials in any one week will have time to prepare only at a superficial level, the focus of the tutorial then necessarily shifts away from intellectual discussion towards a simple covering of the knowledge base. Whilst there are subjects where such teaching might be needed for certain parts of the course, the general view is that this too easily becomes a squandering of tutorial resource: if it is needed, such teaching can be done in larger groups, and there is in any case much to be said for asking students to become more self-reliant and to do more of their work independently. The following section (Content of Tutorials) further addresses the best use of tutorial resource.

Palfreyman, (2001) said that students generally produce a piece of written work for each tutorial, based on bibliographic guidance provided by the tutor. The form of

that written work varies across disciplines. For instance, the Humanities rely most heavily on the essay. Other forms of written work used as a basis for tutorials include:

1. problem sets (typically in maths and the physical sciences, and sometimes with a requirement for the student to write explanatory text as well as the solution);
2. data handling exercises (with commentary, deductions and/or diagnosis);
3. book reviews;
4. summaries of published papers (from which the abstracts were deleted);
5. essay plans;
6. review of a designated topic in note form;
7. hand-outs for a presentation;
8. exhibition reviews;
9. deductions of chemical/biochemical reaction sequences and mechanisms.

These essays and other pieces of work do not count towards examination marks. Constant formative assessment (typically given in the form of brief written comments and/or verbal feedback during tutorials) is central to the Oxford system. All tutors contribute to the process of reporting on student's performance and progress using the OxCORT (Oxford Colleges Online Reports for Tutorials) system. Termly reports are forwarded to the students' College Tutors and to Senior Tutors (College officers with overall responsibility for academic affairs). Once a report is released by the College Tutor, students themselves may use OxCORT to access and read the reports on their work. Tutors should discuss these reports with each student in a timely way. For students reading joint degrees and so having two or more

College Tutors, it is common for one of these tutors to be given responsibility for the general oversight of each student's progress.

Palfreyman, (2001) said all colleges should provide a means for students to give written feedback to Senior Tutors on their tutorials, to report both on the students' perception of the support they have received, on the progress they see themselves as making and on areas where they feel they need more help. Uptake of student feedback in colleges is typically low, but, when the process is used, it can provide useful insight into the effectiveness of tutorial teaching and into the needs of individual students.

Content of Tutorials

The Franks Commission of 1966 warned against using tutorials as an opportunity to convey additional information to students, considering the proper role of tutorials as being “to teach the pupil how to think” (quoted in Commission of Inquiry, 1997).We recommend tutors in any discipline to read How tutorials work an extract from course information for the BA in Archaeology and Anthropology. It provokes thought about what tutorials are (and are not) and how the student-tutor relationship promotes student learning. While new tutors may wonder how to 'cover' all the material in a weekly tutorial, the extract argues for a different purpose of tutorials, unlike lectures, tutorials do not add up to a survey...of any body of material. They are about ‘problems in’ rather than ‘bits of’ the subject.” To prepare for tutorials, students must follow an “ambitious programme of reading.” In parallel with the lectures, students gain a thorough understanding of the subject through their reading. The tutor “guides and calibrates” the reading programme but s/he is not required to take the student through it step by step. Focusing in the tutorial on

building up students' skills rather than their knowledge may help here. In some ways 'coverage' is the student's responsibility, not the tutor's.

Lecture Method: The method pointed out the framework of this method and its relevance in the learning process, Makama (2005) identifies that the method may be seen as one of the oldest and the most popular and extensively in use today in our colleges. It involves unorganised verbal presentation of a body of content centred on a behavioural topic. It uses oral form of communication and usually to the entire class. When the method is properly used, it can assist in introducing activities for motivating students, for summarising at the end of the unit and for explaining difficult points. It can be useful in bridging gaps between topics to be studied in depth and for presenting information.

Being a one-way medium and a teacher-centred, it is primarily a method for cognitive learning and factual transmission. Makama (2005) states that lecture method is satisfactory in attaining the objective of teaching knowledge and transferring information but when the objective is to develop concepts and problem-solving skills, other methods are preferable. Establish instructional needs develop instructional purpose plan for the lecture, presentation of the lecture, follow-up on the lecture, and projection of the lecture. Focusing on the role of the teacher, Makama (2008) claims that, it stimulates students' thoughts concerning the content of the lecture, challenges the thinking and ideas of the students, arouse the interest and involvement of the students, observes students behaviour for the purpose of channelling the lecture into productive areas, evaluate student's reaction to see if the message is getting through. Lecturer and students in the lecture method, Makama

(2008) states that, it is a challenge that the substance of the lecture relates to his needs, organises the lecture information into a framework for application, evaluates the content of the lecture to his students where students are only to take down notes, and listen well to the lecturer points where necessary

2.2.3 Concept of Performance

Performance is the result of student's mental ability in an educational setting. David (2007) opined that students' performance involves the general mental capability to reason, solve problems, think abstractly, learn and understand new materials through profiting from past experience, which in turn is measured against the stated specific objectives. Performance has to do with how well students meet up with educational standard – aims goal and objectives of education at a particular time. It is how student deal with their academic programmes, and how they cope with or accomplish different tasks given to them by their teachers. Performance is the outcome of education, the extent to which a students, teacher, and institution have achieved their education goals.

Performance is often defined in terms of performance in examination. Nnabi (2007) stated that performance in teaching/learning process has to do with attainment of set objectives of instruction. In a school system, if a learner accomplishes a task successful and attains the specified goals for a particular learning experience, he is said to have achieved. Gouch (2009) maintained that performance is the way and manner students deal with their studies and how they cope with or accomplish different tasks given to them by their teachers. Students' success depends on the

amount of learning that takes place in the classroom and other related areas (Akinsolu, 2010).

Lafer and Markert in Ibrahim (2011) explained that there are two broad groups of definitions of performance. The first one refers to numerical scores of pupil's knowledge, which measure the degree of pupil's adaptation to school work and to the educational system. The second group is a more subjective one, as its determination of academic success in reliant upon the student's attitudes towards his academic achievement and himself, as well as by the attitudes of significant other towards the academic achievement and himself, as well as by the attitudes of significant others towards his success. Mammam (2011) explained that performance in an educational institution is how well a student meets standards set out by the government and the institution itself. Ibrahim (2011) added that performance has to do with ability to not only understand and assimilate facts, but to be able to recall these facts in future. Performance, measured by examination results, is one of the major goals of a school. Hoyle, in Nurulafizan (2012), argued that schools are established with the aim of imparting knowledge and skills to those who go through them, and behind all these is the idea of enhancing good performance.

Raymond and Chadi, in Nurulafizan (2012), on the initiative to reduce the failure rate in an undergraduate, Accounting Information System course without compromising academic standards, found out that initiative relied on the development of generic skills in the major assessment tasks. Raymond and Child also reported that generic skills intervention was responsible for the majority of the improvement in students' performance. From the forgoing, one could conclude that students'

performance has to do with acquisition of knowledge, ability to make this knowledge part of them, use the acquired knowledge to perform well academic task given them now and inn future.

2.2.4 Concept of Economics

Economics is concerned with human behaviour, such as how people earn their living and make a choice between alternatives to satisfy their wants. It focuses on the study of firms and the government whose activities are geared to the production of goods and services for the satisfaction of human wants. Since economics is concerned with human behaviour. Economics is a social science, and like any social science subject, the reasoning procedure in economics is practical, its analysis is systematic, and the validity of its various theories can be tested. Economics has as many definitions, as there are many economists. This is because various economists see the subject from different points of view. Some of them are interested in monetary economics while some are interested in Industrial economics and some are interested in business economics, welfare economics, international economics, and economics of education (Ndupuechi, 2009).

They therefore define economics to reflect their interest and this is why there is no definition of economics that is all–embracing. For example, an economist writing during a period of economic recession may include aspects of it in his definition of economics.

Economics is basically the study of the allocation of resources among alternative uses to satisfy human wants. It is concerned with the choice people make in using limited resources to satisfy unlimited wants. Economics deals with

production, exchange, distribution, as well as consumption of goods and services. Below are some definitions of economics given by some economists? The earliest definitions as observed by Ochejele, (2007) were in terms of wealth or material welfare. Jhingan (2013), Adams Smith was regarded as the father of economist because he was the one that laid the foundation of economics as a discipline. He defined economics as an enquiry into the nature and causes of the wealth of nations. Smith was interested in the wealth of political economies. His main interest was to investigate the reasons why some countries are poor or under-developed and why others are rich or developed. Economics as the practical science of production and distribution of wealth (Jhingan, 2013). He was interested in what determines the amount of wealth possessed by an individual, or how wealth is produced and shared out among the various members of the society. Davenport in Ndupuechi (2009) defined economics as the science that treats phenomenon from the start point of price. He was interested in exchange value, i.e. anything that has monetary value is the framework of economics.

Economics is the science of material welfare. He was interested in consumption, which is an aspect of welfare economics. His concern was how to increase the material wellbeing/standard of living of man through increase in total production (Ndupuechi, 2009). Marshall in Jhingan (2013), a great Vectorian economist, defined economics as the study of mankind in the everyday business of life. He saw economics as the study of wealth on one side and the study of man on the other side. Robbins in Jhingan (2013), defined economics as "the science which studies human behaviour as a relationship between ends and scarce means which have

alternative uses." Robbins definition is the most widely acceptable definition of economics. It is analytical and is the most scientific and most embracing. It shows that economics is a social science because it studies human behaviour, human wants are unlimited, and there are limited resources to satisfy the unlimited human wants, scarce resources are capable of being put to the alternative uses.

2.2.5 Concept of Teaching

Teaching is the process through which knowledge, skills, and values are consciously or unconsciously transmitted as a result of interaction between the teacher and his students. Therefore, teaching, as a profession, plays an important role in every educational system. Teaching is a conscious and deliberate attempt by matured and experienced persons to impact information, knowledge, skills, attitude, values, and habits to others with the intention of bringing about learning. Aliyu (2001) stated that teaching is the imparting of knowledge and skills for effective skill acquisition. There are different ways in which teaching can be carried out depending on what an individual wants to achieve or wants to impact on a learner at a given point in time. Also Duncan in Nzeribe and Sawa (2002) outlined that teaching is an activity, a unique profession and a humane act in which one's creativities and imaginations are put into use. Teaching in other words, is a cluster of activities that one engages in doing some specific time which is an act of a particular kind. Lenier in Nzeribe and Sawa (2002) viewed teaching as manipulating the variable of instruction to produce intended changes in learners‟ behaviour. Okoh (2003) defined teaching as the conscious and deliberate effort by a mature or experienced person to impact information, knowledge, and skills and so on, to an immature or less

experienced person with the intention that the learner will learn or come to believe what he is taught on good grounds.

According to Abimbola (2004) teaching is a process of facilitating students learning through proper management by the teacher of the interrelationships among students interests, content for learning and the methods as well as materials he or she intends to use in the teaching and learning of the content material. Mishara (2007) observed that teaching is much more difficult than most faculties are willing to acknowledge. Mishra (2007) opined that teaching and learning should be inseparable, in that learning is the goal of teaching. Mishra further explained that teaching is part of a whole, which comprises of the teacher, the learner, the disciplinary content, the learning / teaching process, and the evaluation of both the teacher and the learner. Cain (2008) emphasized that, the success in teaching is measured by the degree to which the teacher is able to achieve the desired learning in his students, and to achieve this, the teacher must know the type of learning needed by his pupils and how to bring about such learning. In other words, the basic thing in teaching concerns the selection of content and material. Yet Walk (2008) described teaching as an art which can be made concrete through practice and not by formal study. There are different ways teaching could be carried out, depending on what an individual intends to achieve or wants to impact in the learner at a given time. According to Weboon (2009), teaching is the activity of educating or instructing an activity that impacts knowledge or skill which results in to learning, and in turn brings about change in behaviour and skill acquisition of the learner. Therefore, the success in teaching is measured by the degree to which the teacher is able to achieve

his or her desired learning in the student, and to achieve this, the teacher must know the type of learning needed by his pupils, and how to bring about such learning.

2.3 Effects of Teaching Methods on Student Performance in Economics

Methodology is very vital in any teaching-learning situation (Ameh& Dantani, 2012). They further posited that the method adopted by the teacher may promote or hinder learning. Method of teaching adopted may sharpen mental activities which are the bases of social power or may discourage initiatives and curiosity thus making self-reliance and survival difficult. Teacher effects on students go beyond and can interact with teaching methods to influence students' learning. These effects may include the teachers' knowledge of and experience with teaching economic, coverage of curriculum as it is assessed at the end of course. Rapport between the teacher and students, and classroom management practices. Any of these teacher effects can interact with teaching methods to enhance or detract from it.

A study was conducted by Raimond (2012) on the effects of teaching methods in business instruction course using different teaching methods. In the experimental group with (58 students) the researcher used directed small group activities and lectured in the control group with (77 students). Two-way ANCOVA statistics and t-tests results showed that while both teaching methods had a significant effect on students' performance, the small group study performed better. The results also showed that students' attitude toward the class did not affect performance; however, students' attitude were affected by the teaching methods used in the class.

As an educator, the researcher has always been fascinated by the relationship between teaching methods and students' performance; especially when it comes to

applications in the context of 21st century education. It seems that there is something in teaching that opens the gate of learning. It is true that successful learning depends on various factors that are all teacher-related, but the methods that a teacher uses continue to play an important role in students learning and in their academic achievement. The challenges that educators face in the 21st century are so diverse that using better teaching methods is more crucial now than ever before.

Gibbs and Jenkins in Raimond (2012) argued that the context of class and society has changed, but the teaching methods have remained unchanged. Various recent studies attempting to address the issues that affect teaching methods and student learning today include educational technology integration (Abbitt, 2004), students' attitudes (Akkuzu & Akcay, 2011), as well as the increased interdependence of society today (Schul, 2011). These phenomena are affecting higher education globally today. This is true especially when considering how students should be taught.

Studies on teaching methods are not something new in educational research. A large number of studies have been done on this area. Pascarella and Trenzini in Raimond (2012) have written a compendium of research studies conducted in this area of teaching methods. These show both increased interest and knowledge in the area of teaching strategies and learning theories. For many years, the search for better teaching methods to provide the best learning has been the goal of education. However, teaching method is not a one-size-fits-all preposition. Flexibility is crucial in adapting teaching methods in the class. Since all teachers are different, the strategies they use, and they use them will depend on the context and situation of their

class (McCornac and PhanThuy, in Raimond, 2012), as well as their own personality and biases.

The main question that still lingers, even after the larger number of studies that have been done is, what are the most suitable teaching methods, and how do they impact students' learning in today's setting, especially in large classes? Can cooperative learning provide better results than just demonstration teaching method in this situation? Do students' attitudes towards the class have any relationship with teaching and learning?

The effect of teaching methods on students learning should be the interest of every teacher. In the field of business teaching, there have been various studies done in an attempt to measure teaching methods. Robinson and Colleagues in Raimond (2012) conducted a study on several teaching methods in business studies to explore the reasons for their use, and perception of effectiveness. The result of their study suggested that various methods do influence teaching effectiveness. Xu and Yang (2010) acknowledged the positive impact of social interaction in groups. Hosal-Akman and Simga-Mugan (2010) stated that cooperative learning teaching method had positive effect on student's performance. This is not surprising since research has shown that cooperative learning has good potential for increasing understanding (Ahles&Contento, 2006; McLeish, 2009; Bennett, Hogarth, Lubben, Campbell, & Robinson, 2010; and Schul, 2011). In Nigeria where class sizes are usually large and teacher-directed class are considered the norm, it is important to see how cooperative learning method can play a role in students' performance.

Cooperative learning has been found to be a popular choice of teaching methods in recent years. Cooperative learning allows students to work well together for specific tasks. The core point of cooperative learning is the positive interdependence learning atmosphere created as the students work in a group. Numerous studies indicate that cooperative learning is a favourable teaching approach for academic and social gain when used responsibly. Ediger, (2011), argued that class should go beyond lecture and include active learning where collaboration is encouraged. Cooperative learning is also considered to help students develop the requisite skills of knowing how to work together in today's pluralistic society. It is also seen as an integrative and holistic approach to learning, with a focus on social implication (Schul, 2011).

Bell, Jasper and Quazi in Raymond (2012) studied thirteen teaching methods. These were suggested by empirical studies on teaching and students' perception for best learning. The result suggested that cooperative learning and small group activities are closely correlated with students' learning.

The traditional teaching method also has strong literature support. Various research studies have concluded that demonstration method is still the most widely used teaching method today (Berrett, 2012). A recent study Covill (2011) on college student' perceptions of the traditional lecture method suggest that lecture is of great value and receives positive responses from students. Covil (2011) further suggested that the lecture method may carry learning characteristics such as problem solving and critical thinking, usually found only in active learning.

Lecture is seen as the most convenient teaching method even though it may not have the greatest impact on student teaching (Jones, 2007), because it seems to be the easiest to prepare compared to other methods. Nevertheless, the impact of lecture should not be underestimated. Tourney and Henchy (2008) stated that the effect will be seen greater when lecture is revised and combined with other teaching methods or used with educational technology. This sort of enhanced lecture does contribute to student learning (Berry, 2008; Burke, James &Ahmadi, 2009; Campbell, & Mayer, 2009).

Literature supporting small group learning and lecture as a teaching method is vast. There have been many studies conducted to support each method. But few studies have discussed the comparative effects of guided discovery and demonstration methods of teaching on students' performance. A study carried out by Hosal-Akman and Simga-Mugan, (2010) revealed that the mean score of the cooperative learning group were slightly higher than the lecture group (Hosale-Akman and Simga-Mugan, 2010). Another study showed that teaching methods did have significant effect on students' scores on achievement test (Sadi and Cakiroglu, 2011).Several studies showed that students' attitudes have a relationship with teaching method and performance. Sadi and Cakiroglu's (2011) study also found that the method used seemed to affects students' attitude toward the class, and this may be the factor that most influences leaning. A study by Akkuzu and Akcay (2011) showed a relationship between students' attitude and their performance. They suggested that students' positive attraction toward certain kinds of teaching may help increase their

performance. Eastman and Iyer, (2011) suggested that when students have a positive attitude toward something, they will do the task well.

2.4 Effect of Guided Discovery Teaching Method on Performance of Students

Guided discovery is one of those teaching methods that employ exploration, manipulation, and experimentation to find out new ideas; it is a problem solving oriented method (Akuma, 2008). Guided discovery instructional strategy, is characterized by convergent thinking. The instructor devises a series of statements or questions that guide the learner, step by logical step, making a series of discoveries that leads to a single predetermined goal. In other words, the teacher initiates a stimulus and the learner reacts by engaging inactive inquiry thereby discovering the appropriate response. Extensive review of the literature by DeJong and Jooling showed that generally speaking guided simulation discovery leads to better results than non-guided ones. It aided better understand of concepts and of course better train for the discovery process itself (DeJong & Joolingen, 2003).

According to Okoye, (2004) and Nwagbo (2004), during the early 70's the rational for science teaching shifted as discovery strategy was adopted worldwide. This was because students tended to memorize facts and concepts, most of which they did not understand. This resulted in a lack of retention and application of concepts. They maintained that there was a great burst of interest as the guided discovery strategy was adopted in the Nigeria curriculum. The guided discovery strategy is activity oriented and involves practical demonstration, discussion, and experimentation. During such instruction the students employ the processes of science like observation, classification, investigation and critical interpretation of

findings. In Biology, it is possible for guided discovery strategy of teaching to be enhancing students' performance. This is because of the activity oriented nature of the guided discovery strategy (Okoye, Momoh, Aigbomain & Okecha, 2008).

Successful learning depends largely on the correct use of teaching methods, whose activities targets most learning experiences (Bello, 2003). Students may learn through the use of guided-discovery method theoretically. Through guided discovery method of learning, the teacher may guide the class through various steps in working and application of figures in the format. Guided-discovery requires the learners to discover the scientific knowledge that they will learn. The instructor directs what problems the learners will solve and sets the pace that they will learn at. The students, however, have to figure out how to solve the problem that they are given. Guided discovery method of teaching involving helping the learner to discover certain facts or answers to a given problem. Abdullahi (2007) explained that guided discovery method of teaching is a student-centred and activity-oriented teaching strategy in which the teacher guides student through problem-solving approach to discover answers to question/problems at hand. This means guided discovery is a teaching technique that encourages students to take an active role in their learning process by answering a series of questions or solving problem designed to introduce a general concept. In this teaching approach, the instructor guides the students' through process by answering a series of questions or solving problems designed to introduce a general concept. In this teaching approach, the instructor guides the students thought process by posing a series of questions, and students' responses would lead to the understanding of a concept before it is explicitly stated. Students act as directed as

they solve concept-attainment activities in stimulating learning environments. The guided discovery method of teaching is believed to increase retention of materials because students organize the new information and integrate it with information that has already been stored (Koko, 2008).

Mkpa (2009) viewed guided discovery, as a strategy which helps to develop in learners thinking and decision-making and decision-making abilities. In guided discovery the answer to a problem is already known to the teacher but he wants the learner to discover it by himself. The teacher guides the learner's progress by means of command and cues. The method ensures that learning materials, facts, concepts, and problems are presented to the learner systematically in a gradual process. It incorporates discussions, questions and cues intended to guide the learner to move from one step to the next. It provides feedback to the learner.

Many educators such as Koko (2008), who advocated this method, believed that many concepts and principles in various disciplines, particularly in financial accounting, should not be taught to learners, but rather the learners should be guided to discover some of those concepts and principles through problem-solving approach.

2.5 Effect of Tutorial Teaching Method on Performance of Students

Tutorial teaching method is a strategy considered both as autocratic and permissive type of teaching. It is generally considered to be one of the most valuable educational experiences. Lecture strategy is followed by tutorials because individual difficulties cannot be solved in lecture method. Tutorials are highly individualized type of teaching. Tutorial aims at providing remedial help to the learner or to help individual difficulties of the learner. The cognitive and affective objectives of

learning can also be achieved through the tutorial teaching method. The key strategy of teaching sciences related courses should focus on keeping the students' interests on the courses. If the students are interested in learning sciences, then the teacher's task becomes easier.

Tutorials help students to link together what they have heard in lectures and what students have read in textbooks, and to give them an opportunity to discuss these ideas. A good tutorial is highly interactive, promotes opportunity for discussion, debate and critical reflection, and engages students in the subject content by way of analysis of the material being studied. Tutorials give students the opportunity to make mistakes (and learn from them) in a collegial and supportive environment. This strategy helps students to review the material they have learned in lectures, develop their ideas and implement their learning though questions and problem-solving. Group tutorials are useful for average students. These can satisfy the needs of less exceptional students. For group tutorials, the teacher should have the background of social psychology and group dynamics so that he can deal with group of learners effectively in solving their problems. Group tutorials are more useful in adult teaching. It is a valuable teaching strategy from individual differences point of view and it provides an opportunity to organize remedial teaching. It can fulfil the need of entering behaviour of the learner. It is also more useful for achieving higher order cognitive, affective, and psychomotor objectives of learning.

Teaching of students with learning difficulties reveals that they predominantly focused on language, reading, and writing issues, while little concern was given to mathematics (Osmon et al., 2006). Some authors were greatly concerned with

mathematics learning difficulties and their studies, in general, sought to develop remedial strategies basically for students having problems related to attention, memory, perception, and motivation, have ineffective skills in the computational operations, mathematical inference, mathematical concepts and other problems related to executive strategies all of which contribute to their low performance (Barnes et al., 2006). Tutorial teaching method has uncovered the need for the study on the nature and effect of group tutorials teaching strategy on students' mathematics achievement.

Tutorials teaching method is an important method of teaching which affects students' performance in mathematics and other related subjects like economic, geography, physic, chemistry to mention but a few. Kinder et al. (2005), confirmed the effectiveness of group tutorials based method lies in the fact that, it is a valuable teaching method from individual differences point of view. It also provides an opportunity to organize remedial teaching. It was also fulfilled the need of entering behaviour of the learner. It is more useful for achieving higher order cognitive, affective, and psychomotor objectives of learning. The implication of tutorial based method on science curriculum reform is likely to make learning more contextual and engage learner in decision making, forming cooperative groups, locating resources, and applying the knowledge. Furthermore, since the cognitive style level of the students was found to be crucial at determining their achievement in science courses, teachers should endeavour to design lesson plans capable of enhancing the performance of students with varied cognitive style levels.

Teachers should provide the remedial help in the subject of students own interest and tutorial teaching method should be formed on the basis of students' difficulties in the subject. This is because achievement gain resulting from tutorial teaching method is insightful to students' academic success.

The tutorial teaching method was implemented by eight student teachers on teaching practice for the first time. Although the tutorial teaching method was used only for nine weeks, they discussed their teaching practice and made adjustments throughout the period. The student teachers thought that the students paid more attention to learning with a tutorial teaching method. When a student did not understand the content, he or she could immediately raise questions and got instant feedback. The student teachers got feedback from students and devised solutions at every step of the process. This tutorial teaching method exposed students learning weaknesses and offered them an opportunity to correct mistakes at any time. Moreover, the tutorial teaching method provided a monitoring their progress more accurately. According to Ken (2004), tutorial teaching gives every student the ample opportunity to see critical elements involved in solving problems. According to a study by Ortega (2011), small group teaching was helpful improving their English ability. He stress that tutorial teaching is better than whole class teaching as all the students liked small group teaching to whole class teaching. They felt more joyful than ahead of the tutorial teaching. Moreover, the students enjoyed interacting with their tutorial teachers.

2.6 Review of Empirical Studies

For the purpose of this study, the following empirical studies were reviewed. Raymond and Ogunbameru (2005) carried out a study on "A Comparative Analysis of two Methods of Teaching Financial accounting at Senior Secondary School in Ondo State". The population of the study comprised of 820 students in Okiti-pupa Local Government Area in Ondo State, offering financial accounting in the secondary schools. SS2 students were randomly chosen for the study. Four research questions were raised and four null hypotheses were formulated. The research adopted quasi experimental pre-test post-test control group design with randomisation. Data were collected and the results were analysed at the alpha level of 0.05 using t-test/z-test as the main statistical tool. The result showed that the use of guided discovery method in place of conventional method improved student's performance in financial accounting. It was concluded that guided-discovery teaching method is very effective in teaching financial accounting. The researcher observed that the sample populations of four schools selected were too many due to the fact that it was an experimental research. It would be difficult to control the extraneous variables. Nevertheless the present study is related to the previous study because t-test statistic was used, but different because of the level that was used which was senior secondary two (SS2).

Prince (2006) carried out a research on "the relevance of guided-discovery and exposition teaching methods on skill acquisition in teaching financial accounting in commercial colleges in Anambra State." The objective of the study was to find out the measures of improving students‟ skill acquisition through effective use of guided discovery and expository teaching in training students. It was also aimed at finding

out problems in teaching and learning economics in commercial colleges in Anambra State. The population consisted of 220 students in Commercial Colleges in Anambra State, and a sample of ninety (90) students was used. Four research questions were raised and four null hypotheses were formulated. Quasi experimental pre-test post-test control group design was adopted for the study.

After four weeks (4) of treatments, a test was conducted and the results were analysed at the (α) alpha level of 0.05, using t-test statistical method. The study revealed that students cram facts and principles, most of which they don't understand, only to regurgitate during examinations. It was concluded that guide-discovery and exposition teaching methods are effective in skill acquisition. Based on the findings, recommendations were given to the government, school authorities, lecturers and students, so students who pass through the department will achieve higher skill acquisition in the subject. Nevertheless, the previous study is related to the present study because of the teaching method used, which is experimental in nature, but different because it emphasizes on skill acquisition rather than performance.

Musa (2007) conducted a research work; to determine "the effectiveness of Game Simulation and Demonstration Method of Teaching on Academic Skills of Senior Secondary School Home Economics Students, in Kano State." The objective of the study was to determine the difference in academic skill acquisition between students taught with demonstration and those taught with game simulation method. The research adopted the quasi experimental design and the population of the study was five hundred and sixty (560) students from some selected senior secondary schools in Kano State. Four research questions were raised and four null hypotheses

were formulated. Data through the use of teacher-made test were administered to these students as pre-test and post-test, before, and after treatment.

The data collected were subjected to the ANOVA statistical analysis and t-test to determine the level of the significant difference. The result of the findings showed that game simulation and demonstration teaching methods are particularly effective in teaching home economies in Kano State. It was concluded that students learn more when their interest is stimulated through activity learning. The researcher made some recommendations such as, both methods should be involved in teaching because of the playful attitudes of students will help to transform their nature into a meaningful learning environment. This present Study is similar to the past study in the sense that demonstration teaching method was also adopted and different because of the subject used for the study.

Sanusi (2007) conducted a research work to determine the relevance of guided-discovery and demonstration methods on students‟ achievement in Physics in senior secondary schools in Kano state. The objective of the study was to determine the difference in achievement between students taught with guided-discovery and demonstration method of teaching. The design used in the study was quasi experimental pre-test post-test control group design with randomisation. The population of the study was eight hundred and three (803) students offering Physics in Private Senior Secondary Schools in Kano state. Four research questions were raised and three null hypotheses were formulated. Data through the use of teacher-made test were administered to students as pre-test and post-test treatments. The data collected were subjected to analysis of variance (ANOVA), based on this all the three

null hypotheses were rejected. The finding obtained among others was that students in demonstration group had a higher mean score than those in the guided-discovery group. It was concluded that demonstration teaching method was more effective than the guided-discovery teaching method in teaching physics. The researcher made some recommendations which include that, both methods should be used in teaching because they make students develop principles of observation, inquiry, and group work. The present study is similar to the past study in the sense that demonstration and guided-discovery teaching methods were used to teach senior secondary school students, but different in terms of the subject taught.

Umar (2010) carried out a research on the "comparative analysis of exposition and inquiry methods of teaching and learning financial accounting in senior secondary schools in Kaduna state." The objective of the study was to determine the level of performance on students pre-test and post-test mean achievement scores in both experimental and control groups. The research was also conducted to determine the level of mean performance in financial accounting by students taught using both methods. The population of the study consisted of one hundred and eighty-seven (187) senior secondary II Financial accounting students in eight (8) private schools in Zaria metropolis. Four (4) null hypotheses were formulated which included: (There was no significant difference in the students mean achievement score of both experimental and controlled group. There was no significant difference in the mean achievement scores of students taught with the exposition teaching and those taught with inquiry teaching method. There was no significant difference in the mean performance scores of male and female students taught with only expository teaching

methods. There is no significance difference in the mean performance scores of male and female students taught with only inquiry teaching method), and on the basis of these null hypotheses, data through a validated practical skill competence scale was used to collect data.

The data collected from both groups were subjected to the t-test/z-test statistics to determine the significant difference in the mean performance of students in financial accounting, taught with Expository and Inquiry Teaching methods. The null hypotheses were tested at 0.05 probability level using two instruments, Financial accounting achievement test 1 (FAAT-1) and Financial accounting evaluation test 2 (FAET-2). The findings of the study revealed that students performed better in the post-test than the pre-test. It was concluded that the pre-test and post-test difference in mean performance of students in financial accounting was significant. Based on the findings, recommendations were made as to the proper application of learning strategies and theories by teachers in using any type of teaching method, also students should be motivated by their teachers to develop interest in economics. The study was obviously in line and in agreement with the researcher's work, because it focused on teaching Senior Secondary School Students Financial accounting, but different because it adopted Exposition and Inquiry teaching methods.

Mutuah (2014) carried out a research on "the effects of cooperative learning, problem-solving and strategies on junior secondary school students' performance in business studies in Kaduna state." The objective of the study was to determine the effects of cooperative learning, problem-solving and strategies on junior secondary school student's performance in business studies in Kaduna state. The population of

the study was 39,227 and the sample size was 270. Six research questions were raised and six null hypotheses were formulated. The instrument used in collecting data was standardized business achievement test (SBAT). Data collected from the study was statistically analysed using mean, standard error and standard deviation for the research questions, and the null hypotheses were tested using independent t-test at 0.05 level of significance.

One of the findings revealed that there was significant difference between the mean performances of students taught business studies using cooperative learning than those using lecture strategies, it was concluded that cooperative learning strategy was the most effective method in teaching business studies in junior secondary schools. The recommendation was that teachers should help students along the road to independent learning. The previous study is similar to the present study because it makes use of independent t-test in analysing the data, but different because of the level which was junior secondary schools, and the subject which was business studies.

Egunjobi (2014), carried out a research on "the effect of Tutorial Mode of Computer- Assisted Instruction (CAI) on students 'performance in practical geography in Nigeria". However, the sample population of eighty (80) Senior Secondary School Two geography students that were randomly selected from two privately owned secondary schools in Ibadan metropolis, Nigeria, participated in the study. They were comprised male and female students. Pre-test, post-test control group quasi-experimental design was adopted in the study. Two instruments were utilized for data collection viz: Geography Tutorial CAI MODE [GTCAIM,

KR=0.85] and Practical Geography Performance Test [PGPT, KR=0.82]. Two null hypotheses were tested at $p<0.05$, T-test statistical analysis was employed to compute the data collected. Finding revealed that, there was a significant difference in students' performance between the students' exposed to GTCAIM and the control group [conventional. method-Talk and Chalk] with the result TV=4, 05>tc=1.98, df=78, at $p<0.05$. That is, students exposed to GTCAIM performed significantly better than their counterparts in control group: However, there was no significant difference in the male and female students' performance with the result TV=1.67 <Tc=1.98, DF=78, at $p<0.05$. The implication of these findings is that, the tutorial mode of CAI enhanced students' performance in geography more than the conventional method and that, with the utilization of tutorial mode of CAI, gender-inequality in geography instruction is no more a barrier. Therefore, recommendations are proffered for the utilization of tutorial mode of CAI, so as to enhance students' performance in geography and in fact, in other school subjects. The previous study is similar to the present study because it makes use of independent t-test in analysing the data, but different because of the level which was secondary school, and the subject which is geography.

Obeka (2010) carried out a research on the topic: effects of inquiry and demonstration methods of teaching on students' academic achievement and retention in some environmental education concepts of Geography among senior secondary school students in Otukpo local government area of Benue State. A quasi-experiment, non-equivalent group design was adopted. The purpose of the study was to determine the relative effectiveness of inquiry and demonstration methods of teaching on

students' cognitive achievement and retention in some environmental education concepts in geography. A random sampling technique was used to choose three SS 2 intact classes for experime1, experiment 2, and control respectively. The population of the study was 225 students. Three research questions and three hypotheses were formulated to guide the study. Two instruments – Geography Achievement Retention Test (GART) and Interest Scale on Geography Test (ISGT) were used for data collection.

2.7 Summary of Reviewed Literature

In this chapter the theoretical framework on which the study was anchored upon was discussed. Literature related to the study was reviewed and the review was done in stages, the literature on the meaning of economics and as well as concepts of economics. Economics is concerned with human behaviour.

Literature is also reviewed on method of teaching, performance, Guided discovery method of teaching which was described as a careful planning, close supervision, on-going assessment and targeted intervention by an instructional team of teacher through the discovery process that gradually leads students towards independent learning. Its ultimate goal is to develop independent learners who know to expand their knowledge and expertise through skilled use of a variety of information source employed both inside and outside of the school. It requires students to find out things for themselves. Tutorial teaching method been a strategy considered both as autocratic and permissive type of teaching. Tutorial aims at providing remedial help to the learner or to help individual difficulties of the learner. The cognitive and affective objectives of learning can also be achieved through the

tutorial teaching method. Tutorials help students to link together what they have heard in lectures and what students have read in textbooks, and to give them an opportunity to discuss these ideas. A good tutorial is highly interactive, promotes opportunity for discussion, debate, and critical reflection, and engages students in the subject content by way of analysis of the material being studied.

It was observed that none of the researcher above has attempted to research on effects of guided-discovery and tutorial teaching methods on performance of business education students in economics in Federal College of Education Zaria, Nigeria of which this study has tried to answer in order to reduce poor performance in the learning of the subjects among students. This therefore closes the gap in the empirical studies.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter discussed the research design and methodology use in this study, under the following sub-headings:

3.1 Research Design

3.2 Population for the Study

3.3 Sample Size and sample procedure

3.4 Instrument for Data Collection

3.4.1 Validity of the Instrument

3.4.2 Pilot Study

3.4.3 Reliability of the Research Instrument

3.5 Procedure for Data Collection

3.6 Procedure for Data Analysis

3.1 Research Design

The research design adopted for this study was the quasi-experimental research design. The quasi-experimental used for this study consisted of control and experimental groups based on pre-test post-test design. The design involved the manipulation of independent variables (guided-discovery and tutorial teaching methods). It however lacks full control and randomisation. The design according to Olayiwola (2007) does not allow randomisation of treatments and also provides some degree of control for possible extraneous variables that might pose a threat to the internal and external validity or both.

3.2 Population of the Study

The population of the study was 581, students of business education for 2016/2017 sessions in Federal College of Education, Zaria, Kaduna. The students consisted of NCE I, II and III. The breakdown of the population for the study is as shown in Table 1.

Table 1:Population of the Study

Level	No of Respondents	Percentage
NCE I	225	39
NCE II	180	31
NCE III	176	30
Total	581	100

Source: Departmental record office, 2016

3.3 Sample Size and Sampling Procedure

The sample was 180 as shown in Table 2. The researcher used intact class, which enabled proper classroom management, and control. A research assistant was employed, NCE II Business Education Students of Federal College of Education, Zaria, were purposely selected as the sample of this study because of it availability of teaching aids and trained manpower teaching the course in the college. Over the years, the department had improved it business education program.

Table 2: Sample of the Study

NCE II	Number	Percentage
Male	82	46
Female	98	54
Total	180	100

3.4 Instrument for Data Collection

The instrument for data collections was designed and named Economics Achievement Test One (EAT-1) by the researcher. The instrument consisted of two parts. The first part was the pre-test and the second part was the post-test as

(Appendix II and VII). The items of the two tests were developed based on the NCE syllabus with reference to past question papers in order to insure standard. The pre-test instrument contained twenty (20) items selected from NCE past examination from the year 2015 to 2016 which requested the students to indicate true or false against each statement. Each statement carried five (5) marks making a total of one hundred (100) marks. The time for the test was one hour only. The post-test was made up of five theory questions which requested the students to answer all the questions in which each of the question carried a total of twenty 20 marks. In all, the score for the post-test was 100 marks.

3.4.1 Validation of the Instrument

For the content validity of the instrument, standardised questions were selected from NCE past examinations from the years (2012 to 2014) and were given to fours experts in the Department of Vocational and Technical Education, Ahmadu Bello University, Zaria. This was done to ensure that the questions were clear, relevant, unambiguous, and related to the topic to be taught, which Concept of Economics, their inputs is in cooperated before printing the final copy.

3.4.2 Pilot Study

A pilot study was conducted at Federal College of Education, Katsina using (30) thirty students. The reason for the choice of the Federal College of Education, Katsina is that it possesses the same characteristics with the students that were used for the study school. The pilot testing was conducted in order to know the suitability of the instrument for its adequacy and effectiveness. The pilot testing ascertains the clarity, authenticity, and suitability of the instrument for data collection. The main

objective of conducting the pilot study was to determine the ease and difficulty that could be encountered in answering the questions by the respondents.

3.4.3 Reliability of the Instrument

The split half method was used to determine the reliability of the instrument. The data collected from the pilot study was subjected to statistical analysis using Kuder-Richardson method of testing reliability. The method was selected based on the advice of Uzoagulu (2011) who stated that, statistical tools can be used when administering a single form of test to a group of test takers. A reliability co-efficient of 0.73 was obtained. This reliability coefficient was high, and therefore the instrument was adjudged stable and reliable as postulated by Olayiwola (2007) that, a reliability estimate co-efficient of 0.65 and above is adequate and the instrument for which it is calculated is reliable. Therefore, this test instrument was found as reliable for the study.

3.5 Procedure for Data Collection

The researcher obtained an Introductory Letter from the Department of Vocational and Technical Education, Ahmadu Bello University; Zaria (Appendix I). The letter was given to the authorities of Federal College of Education, Zaria to permit the researcher carry out his research in the institution. Having gotten permission from the school management and considering the importance of the research, the researcher introduced himself to the students; experimental group one, experimental group two and control group respectively. Pre-test was given to the students for the purpose of determining prior knowledge and equivalence of the groups. The experimental group one was exposed in the teaching of topics in

Economics using guided discovery, experimental group two was exposed using tutorial while control group was exposed using lecture method. Four weeks were used during the exercise in order to collect data for this study during which the topic; basic tool for Economics analysis was covered with the aid of detailed lesson plans as (Appendix I to V). The two groups (Guided-discovery and Tutorial groups) were exposed for experiments by the researcher once a week for two hours each, making a total of twelve visits.

In the first week the researcher exposed the groups on the use of tables, charts and graphs in basic toolsfor economics analysis. In the second week, the researcher exposed the groups to measure of central tendency in basic tools for economics analysis. The third week, the researcher taught the groups measure of dispersion. In the four week, the groups were taught interpretation and use of standard deviation respectively. The fifth week was used to examine the students using the post- test questions (appendix IX). While in the Sixth week, the post-test answer scripts of the students were marked.

3.6 Procedure for Data Analysis

The data collected were analysed using mean and standard deviation in order to answer the research questions; while hypotheses 1 and 2 were tested using Pearson product moment correlation coefficient and hypotheses 3 to 5 were tested using t-test. The t-test had proved to be one of the most effective methods of comparing differences between two group means. This was in line with Frank (2005) who stated that since the t-test statistic is a parametric tool and which require assumptions, it became therefore imperative in testing the null hypotheses stated based on differences

between two groups in the study. All the null hypotheses were tested at 0.05 level of significance (P=0.05).

Decision Rule:

To answer the research questions, a mean difference was considered for the judgment. For the research questions one and two, a mean score of any of the two (2) experimental methods that was found greater than that of the control method, that method was considered as more effective. For research three, a mean score of any of the two (2) experimental methods (Guided-discovery and Tutorial) that was found higher, was considered as more effective. For research four, a mean score of any of the two (2) experimental methods (Guided-discovery and Tutorial) that was found higher, was considered as more effective for male students. Likewise, for research five, a mean score of any of the two (2) experimental methods (Guided-discovery and Tutorial) that was found higher, was considered as more effective for female students. In the test of hypotheses, where the P-value was found greater than or equals to the Alpha value ($P \geq 0.05$) the hypothesis was retained. On the other hand, where the P-value was found less than the Alpha value ($P < 0.05$) the hypothesis was retained.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

In this chapter, the researcher presented the results of data collected for analysis and discussion. The presentation was done under the following headings:

4.1 Answers to research questions

4.2 Test the Null Hypotheses

4.3 Discussions of Major Findings

4.1 Answers to Research Questions

Research Question One: What is the effect of guided-discovery teaching method on business education students' performance in economics in Federal College of Education, Zaria?

The data collected in respect to research question one is showed in table 3.

Table 3: Mean and Standard Deviation showing effect of guided-discovery teaching method on business education students' performance in Economics in Federal College of Education, Zaria

Variable	N	$\overline{x}$	SD	Mean Difference
Guided-discovery method	60	62.76	12.898	15.76
Lecture method	60	47.00	13.524	

Source: Field Study, 2017

The results of Table 3 showed the effect of guided-discovery teaching method **on performance of students** in economics in Federal College of Education, Zaria**. The analysis revealed a mean score of 62.76 and standard deviation of 12.898 of students taught Economics using** guided-discovery teaching method**, and a mean score of 47.00 and a standard deviation of 13.524 for students taught using Lecture method. This indicated a mean difference of 15.76 showing that** guided-discovery teaching method **had more effect on students' performance in**

Economics over the Lecture method. Therefore, it shows that guided-discovery teaching method **is more effective in teaching** Economics **Kaduna state.**

Research Question Two: What is the effect of tutorial teaching method on business education students' performance in economics in Federal College of Education, Zaria?

The data generated in research question two is showed in table 4.

Table 4: Mean and Standard Deviation showing effect of tutorial teaching method on business education students' performance in Economics in Federal College of Education, Zaria

Variable	N	$\bar{x}$	SD	Mean Difference
Tutorial teaching method	60	64.73	11.297	**17.73**
Lecture method	60	47.00	13.524	

Source: Field Study, 2017

The results of Table 4 indicated the effect of tutorial teaching method **on performance of students** in economics in Federal College of Education, Zaria**. The analysis revealed a mean score of 64.73 and standard deviation of 11.297 of students taught Economics using** tutorial teaching method**, and a mean score of 47.00 and a standard deviation of 13.524 for students taught using Lecture method. This indicated a mean difference of 17.73 showing that** tutorial teaching method **had more effect on students' performance in Economics over the Lecture method. Therefore, it shows that** tutorial teaching method **is more effective in teaching** Economics **Kaduna state.**

Research Question Three: What is the difference between the performance of students taught economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education, Zaria?

The data collected in research question three is showed in table 5.

Table 5; Mean and Standard Deviation showing difference in performance of students taught Economics using guided-discovery teaching method and tutorial teaching method in Federal College of Education, Zaria

Variable	N	$\bar{x}$	SD	Mean Difference
guided-discovery method	60	62.76	12.898	
				1.97
tutorial teaching method	60	64.73	11.297	

Source: Field Study, 2017

The results of Table 5 indicated the effect of guided-discovery and tutorial teaching methods **on performance of students** in economics in Federal College of Education, Zaria**. The analysis revealed a mean score of 64.73 and standard deviation of 11.297 of students taught Economics using** tutorial teaching method**, and a mean score of 62.76 and a standard deviation of 12.898 for students taught using guided-discovery method. This indicated a mean difference of 1.97 showing that** tutorial teaching method **had more effect on students' performance in Economics over the guided-discovery method. Therefore, it shows that** tutorial teaching method **is more effective in teaching Economics in college of education Zaria.**

Research Question four: What is the difference between the performance of male business education students taught economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education?

The data generated in research question four is showed in table 6

Table 6: Mean and Standard Deviation showing difference in performance of male students taught Economics using guided-discovery teaching method and tutorial teaching method in Federal College of Education, Zaria

Variable	N	$\bar{x}$	SD	Mean Difference
guided-discovery method	31	64.67	9.806	
				0.80
tutorial teaching method	27	65.47	8.423	

Source: Field Study, 2017

The results of Table 6 indicated the effect of guided-discovery and tutorial teaching methods **on performance of male students** in economics in Federal College of Education, Zaria**. The analysis revealed a mean score of 64.67 and standard deviation of 9.806 of male students taught Economics using** guided-discovery teaching method**, and a mean score of 65.47 and a standard deviation of 8.423 for students taught using** tutorial teaching method**. This indicated a mean difference of 0.80 showing that male students performed better when taught Economics using** tutorial teaching method **over the guided-discovery method. Therefore, it shows that** tutorial teaching method **is more effective in teaching Economics for male students in college of education Zaria.**

Research Question five: What is the difference between the performance of female business education students taught economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education, Zaria?

The data collected in research question five is showed in table

Table 7: Mean and Standard Deviation showing difference in performance of female students taught Economics using guided-discovery teaching method and tutorial teaching method in Federal College of Education, Zaria

Variable	N	$\bar{x}$	SD	Mean Difference
Guided-discovery method	29	60.93	15.150	
				2.40
Tutorial teaching method	33	63.33	13.969	

Source: Field Study, 2017

The results of Table 7 indicated the effect of guided-discovery and tutorial teaching methods **on performance of female students** in economics in Federal College of Education, Zaria**. The analysis revealed a mean score of** 60.93 **and standard deviation of** 15.150 **of male students taught Economics using** guided-discovery teaching method**, and a mean score of** 63.33 **and a standard deviation of** 13.969 **for students taught using** tutorial teaching method**. This indicated a mean difference of 0.80 showing that male students performed better when taught Economics using** tutorial teaching method **over the guided-discovery method. Therefore, it shows that** tutorial teaching method **is more effective in teaching Economics for female students in college of education Zaria.**

4.2 Test of Hypotheses

Hypothesis One: Guided-discovery teaching method has no significant effect on business education students' performance in Economics in Federal College of Education, Zaria.

The summary of the significant effect was presented in table 8

Table 8: Pearson product moment correlation coefficient showing effect of guided-discovery teaching method on performance of students taught Economics in Federal College of Education, Zaria

Variables	N	$\bar{x}$	Df	r-cal	r-crit	Sig
Guided-discovery method	60	62.76	178	.638	.195	.000
Lecture method	60	47.00				

Source: Field Study, 2017

The analysis of data in Table 8 shows the effect of guided-discovery teaching method on performance of students taught Economics in federal college of education Zaria. The analysis revealed r-calculated of 0.638 at 178 degree of freedom showing positively high related effect of guided-discover method on students' performance. The significant α p-value of 0.000 was obtained. Since the r-calculated of 0.638 is greater than the r-critical of 0.195 and the calculated p-value of 0.000 is less than the alpha value of 0.05, the null hypothesis was rejected. This means that guided-discovery method had statistical and significant effect on students' performance in federal college of education Zaria.

Hypothesis Two: Tutorial teaching method has no significant effect on business education students' performance in Economics in Federal College of Education, Zaria**.**

The summary of the significant effect was presented in table 9

Table 9: Pearson product moment correlation coefficient showing effect of tutorial teaching method on performance of students taught Economics in Federal College of Education, Zaria

Variables	N	$\bar{x}$	Df	r-cal	r-crit	Sig
Tutorial teaching method	60	64.73	118	.521	.195	.000
Lecture method	60	47.00				

Source: Field Study, 2017

The analysis of data in Table 9 shows the effect of tutorial teaching method on performance of students taught Economics in federal college of education Zaria. The analysis revealed r-calculated of 0.521 at 118 degree of freedom showing positively related effect of tutorial teaching method on students' performance. The significant α p-value of 0.000 was obtained. Since the r-calculated of 0.521 is greater than the r-critical of 0.195 and the calculated p-value of 0.000 is less than the alpha value of 0.05, the null hypothesis was rejected. This means that tutorial teaching method had statistical and significant effect on students' performance in federal college of education Zaria.

Hypothesis Three: There is no significance difference between the performance of business education students taught Economics using guided-discovery teaching method and those taught using tutorial teaching method in Federal College of Education, Zaria.

The summary of the difference (t-test) was presented in table 10

Table 10: t-test analysis showing difference in performance of students taught Economics using guided-discovery teaching method and tutorial teaching method in Federal College of Education, Zaria

Variables	N	$\bar{x}$	Df	t-cal	t-crit	Sig
Guided-discovery method	60	62.763		37.377		
			118		.196	0.000
Tutorial teaching method	60	64.729		44.012		

Source: Field Study, 2017

In Table 10, an independent t-test was conducted to compare mean the difference between the performance of students taught Economics using guided-discovery method and those taught using tutorial method. The analysis revealed the mean of (62.763) for guided-discovery method against the mean (64.729) for tutorial method with degree at a degree of freedom 118 respectively and the t-value (37.377

and 44.012) with a p-value of 0.000 which was lower than α at 0.05 significant level. The result, therefore, indicated that significant difference existed between the mean performance of students taught Economics using guided-discovery and tutorial teaching methods. Hence, the null hypothesis was rejected.

Hypothesis Four: There is no significant difference between the performance of male students taught Economics using guided-discovery teaching method, and those taught using tutorial teaching method in Federal College of Education, Zaria.

The summary of the difference (t-test) was presented in table 11

Table 11: t-test analysis showing difference in performance of male students taught Economics using guided-discovery teaching method and tutorial teaching method in Federal College of Education, Zaria

Variables	N	$\bar{x}$	Df	t-cal	t-crit	Sig
Male guided-discovery method	31	64.667	56	36.120	.196	0.000
Male tutorial teaching method	27	65.467		42.571		

Source: Field Study, 2017

In table 11, an independent t-test was conducted to compare mean the difference between the performance of male students taught Economics using guided-discovery method and those taught using tutorial method. The analysis revealed the mean of (64.667) for male students taught Economics using guided-discovery method against the mean (65.467) for those taught using tutorial method with degree at a degree of freedom 56 respectively and the t-value (36.120 and 42.571) with a p-value of 0.000 which was lower than α at 0.05 significant level. The result, therefore, indicated that significant difference existed between the mean performance of male students taught Economics using guided-discovery and tutorial teaching methods. Hence, the null hypothesis was rejected.

Hypothesis Five: There is no significant different between the performance of female business education students taught Economic using guided-discovery teaching method, and those taught using tutorial teaching method in Federal College of Education, Zaria.

The summary of the difference (t-test) was presented in table 12.

Table 12: t-test analysis showing difference in performance of female students taught Economics using guided-discovery teaching method and tutorial teaching method in Federal College of Education, Zaria

Variables	N	$\bar{x}$	Df	t-cal	t-crit	Sig
Guided-discovery method	29	60.933		22.030		
			60		.196	0.000
Tutorial teaching method	33	63.333		24.833		

Source: Field Study, 2017

In table 12, an independent t-test was conducted to compare mean the difference between the performance of female students taught Economics using guided-discovery method and those taught using tutorial method. The analysis revealed the mean of (60.933) for female students taught Economics using guided-discovery method against the mean (63.333) for those taught using tutorial method with degree at a degree of freedom 60 respectively and the t-value (22.030 and 24.833) with a p-value of 0.000 which was lower than α at 0.05 significant level. The result, therefore, indicated that significant difference existed between the mean performance of female students taught Economics using guided-discovery and tutorial teaching methods. Hence, the null hypothesis was rejected.

4.3 Discussions of Major Findings

The study findings on research question one and hypothesis one revealed that guided-discovery teaching method **is more effective in teaching** Economics **than lecture methods. Similarly,** the significant α value of 0.000 in the test of hypothesis

was obtained. Since the r-calculated of 0.638 was greater than the r-critical of 0.195 and the calculated p-value of 0.000 is less than the alpha value of 0.05. According to Moses (2003), guided-discovery method has recently been emphasized in modern teaching. This is because guided-discovery method is a teaching technique that encourages students to take a more active role in their learning process by answering a series of questions or solving problems designed to introduce a general concept (Mayer, 2003). It therefore leads the learner towards insights and generalisations, rather than providing them on a plate, hence has been recommended for teaching and learning situations (Mayer, 2003).

Results on research question and hypothesis showed **a mean difference of 17.73 between tutorial teaching method and lecture method in favour of tutorial method, showing that** tutorial teaching method **had more effect on students' performance in Economics over the Lecture method. In the test of hypothesis,** the significant α value of 0.000 was obtained. Again, since the r-calculated of 0.521is greater than the r-critical of 0.195 and the calculated p-value of 0.000 is less than the alpha value of 0.05. According to Ashwin (2005) students expect that tutorials help them make better sense of the subject matter and promote their essential academic skills. As students see the significance and implications of their knowledge with the help of discussion in tutorials, they apply the knowledge they have learned to use new contexts. The authors emphasized that, both tutors and students may be encouraged and accomplished by such a kind of particular educational experiences. Corroborating on this issue, Ndubisi, (2007) stated that tutorials allow students pursue their personal academic interests within the context of their subject. Additionally, the tutorial

system, with its smaller classes, presents a teaching context that allows a student-centred teaching approach can be used (Ndubisi, 2007).

The study findings on research question three and hypothesis three indicated **a mean score of 64.73 and standard deviation of 11.297 of students taught Economics using** tutorial teaching method**, and a mean score of 62.76 and a standard deviation of 12.898 for students taught using guided-discovery method. This further indicated a mean difference of 1.97 showing that** tutorial teaching method **had more effect on students' performance in Economics over the guided-discovery method. Therefore, it shows that** tutorial teaching method **is more effective in teaching Economics in college of education Zaria over other methods used in the study. The findings on hypothesis revealed that** the t-values (37.377 and 44.012) with a p-value of 0.000 which was lower than α at 0.05 significant level. According to Gow&Kember, (2003) tutorial teaching method utilizes a learning approach with an emphasis on the development of an individual understanding of the course materials. This is of great significance because students with a deep learning approach are apt to obtain better results in terms of learning outcomes than those students with a surface learning approach with other methods (Ndubisi, 2007). In line with the oxford tutorial teaching technique, (Palfreyman, 2001) stressed that tutorial teaching is a unique aspect of an educational experience that Oxford offers its students in spite of a wide variety of teachers' approaches.

The study findings on research question four and hypothesis four revealed that mean difference of 0.80 showing that male students performed better when Economics using tutorial teaching method over the guided-

discovery method taught. Therefore, it shows that tutorial teaching method **is more effective in teaching Economics for male students in college of education Zaria. Furthermore, the result of hypothesis testing show that** the t-value (36.120 and 42.571) with a p-value of 0.000 which was lower than α at 0.05 significant level. Other study findings show that male students achieve better than female students in certain settings, while female students outperform male students in the other settings (Aguele and Agwugah, 2007; Stone *et al.,* 2008; Abdullahi, 2011). Deepak *et al.* (2011) and Hedjazi and Omidi (2008) reported that while male performed better in some studies, in other studies female students performed higher than their male counterparts. However, male students' dominance in enrolment proportion could be an added factor. However, Ward (1996) and Newman-Ford *et al.* (2009) mentioned that such variation is only minor, suggesting that female students are not intellectually backward.

The study results on research question five and hypothesis five showed **a mean score of** 63.33**and a standard deviation of** 13.969**for students taught using** tutorial teaching method**. This indicated a mean difference of 2.40 showing that male students performed better when taught Economics using** tutorial teaching method **over the guided-discovery method. Therefore, it shows that** tutorial teaching method **is more effective in teaching Economics for female students in college of education Zaria. While in the test of hypothesis it revealed that** the t-value (22.030 and 24.833) with a p-value of 0.000 which was lower than α at 0.05 significant level. Study findings show that male students achieve better than female students in certain settings, while female students outperform male students in the

other settings (Aguele and Agwugah, 2007; Stone *et al.*, 2008; Abdullahi, 2011). Deepak *et al.* (2011) and Hedjazi and Omidi (2008) reported that other studies did not show any significant difference between same sex. However, male students' dominance in enrolment proportion has been an added factor. However, Ward (1996) and Newman-Ford *et al.* (2009) mentioned that such variation is only minor, suggesting that female students are not intellectually backward.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter was presented under the following sub-headings;-

5.1 Summary

5.2 Contributions to Knowledge

5.3 Conclusion

5.4 Recommendations

5.5 Suggestions for Further Study

5.1 Summary

This study on effects of guided-discovery and tutorial teaching methods on performance of Business education students in Economics in Federal College of Education Zaria, Kaduna State, Nigeria. The study had five specific objectives, five research questions, and five null hypotheses. The researcher adopted quasi-experimental research design with pre-test, post-test and control group. The population of the study comprises of five hundred and eighty one (581) NCE I, NCE II and NCE III Business Education Students from Federal College of Education Zaria in 2016/2017 academic sessions. Purposive sampling technique was used to select (180) NCE II business education students. Two instruments titled “Economic Achievement Tests (EAT)”were used for data collection during the pre-test and the post-test. The tests were marked using a drawn marking scheme (Appendix viii). Mean score and standard deviation were used to answer the research questions. In the test of Null hypotheses, PPMC and t-test were used to test null hypotheses 1, 2 and 3,

4 and 5 respectively. All null the hypotheses were tested at 0.05 levels of significance.

The study established that:

1. Research question one and hypothesis one revealed that, guided-discovery teaching method **is more effective in teaching** Economics **than lecture method**. Since the r-calculated of 0.638 was greater than the r-critical of 0.195 and the calculated p-value of 0.000 is less than the alpha value of 0.05, hence, the null hypothesis was rejected.
2. Research question two and hypothesis two showed **that,** tutorial teaching method **had more effect on students' performance in Economics over the Lecture method, at** the significant α value of 0.000 was obtained. Since the r-calculated of 0.521was greater than the r-critical of 0.195 and the calculated p-value of 0.000 was less than the alpha value of 0.05, the null hypothesis was rejected.
3. Research question three and hypothesis three indicated that, tutorial teaching method was more effective in teaching Economics in Federal College of Education Zaria, Nigeria than Guided-discovery teaching method in mean difference **1.97. The findings on hypothesis revealed that,** the t-values (37.377 and 44.012) with a p-value of 0.000 which was lower than α at 0.05 significant level were obtained. Hence, the null hypothesis was rejected.
4. **Research question four and hypothesis four revealed that male students performed better when taught Economics using tutorial teaching method over those taught using guided-discovery method. Furthermore, the**

result of hypothesis testing showed that, the t-value (36.120 and 42.571) with a p-value of 0.000 was lower than α at 0.05 significant level. Hence, the null hypothesis was rejected.

5. Research question five and hypothesis five showed **that, female students performed better when taught Economics using tutorial teaching method over those taught using guided-discovery method. While in the test of the hypothesis, it revealed that,** the t-value (22.030 and 24.833) with a p-value of 0.000 was lower than α at 0.05 significant level. Hence, the null hypothesis was rejected.

5.2 Contribution to Knowledge

The section provided contribution to knowledge for the study:-

1. Guided-discovery teaching method **had significant effect on performance of business education students in Economics (p=0.000).**
2. Tutorial teaching method **had significant effect on performance of business education students in Economics (p=0.000).**
3. Tutorial teaching method **had significant effect in teaching Economics compared to guided-discovery method with a mean difference of** performance **and p-value (Mean = 1.97 and p = 0.000).**
4. **Male students performed better when taught Economics using tutorial teaching method over the guided-discovery method with a mean difference of performance and p-value** (**0.80 and p = 0.000).**

5. **Female students performed better when taught Economics using tutorial teaching method over the guided-discovery method with a mean difference of performance and p-value (2.40 and p = 0.000).**

5.3 Conclusion

Based on the findings of the study, the researcher concluded that the two methods (Guided-discovery and Tutorial) had positive effect on students' performance in Economics in Federal College of Education Zaria, Nigeria. This implies that students' performance will improve when they are taught using Guided-discovery and Tutorial teaching method.

5.4 Recommendations

Based on the findings of this study the following recommendations are hereby put forward:

1. Guided discovery teaching method should be used in teaching economics to business education student in Colleges of Education.
2. Tutorial teaching method should be used in teaching economics to business education students in college of education.
3. In order to promote the use of tutorial method of teaching in colleges of education, the federal ministry of education through the National Commission for Colleges of Education should ensure that lecturers employ the use of tutorial method in their teaching and learning process.
4. Tutorial teaching method should be used by the lecturers in teaching economics in Colleges of Education in order to improve the performance male and female students.

4.5 Suggestions for Further Studies

The study of this nature cannot cover all educational sectors hence, there is need for further studies, and the following are suggested by the researcher.

1. The extension of this study to cover the N.C.E III level of Nigeria Certificate in Education in Southern or Eastern parts of Nigerian Federal College of Education is suggested.
2. A study to cover the effects of guided discovery and tutorial teaching methods on students' performance in Economics at Universities in North-West Geo-Political Zone, Nigeria.

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Appendix I: Letter of Introduction

DEPARTMENT OF VOCATIONAL & TECHNICAL EDUCATION
AHMADU BELLO UNIVERSITY, ZARIA - NIGERIA

Telephone 069-51755, 50692

VICE CHANCELLOR: Professor Ibrahim Garba, *B.Sc (Hons) Geology, M.Sc (Mineral Exploration) ABU, Ph.D Geology (London), D.I.C., FNMGS*
INTERIM HEAD OF DEPARTMENT: Dr. Sani Ibrahim, *B.B.Ed, M.Ed, Ph.D (ABU)*

6th November, 2017

Your Ref: P13EDVE8033 *Date:*

Our Ref:

LETTER OF IDENTIFICATION
IBRAHIM MOHAMMED – P13EDVE8033

This is to certify that the above mentioned person is a Postgraduate student (M.Ed Business Education) in the Department. He is carrying out a research on **Effects of Guided-Discovery and Tutorial Teaching Methods on Performance of Business Education Students in Economics in Federal College of Education, Zaria Nigeria.**

kindly give him every assistance he may require .

Dr. Sani Ibrahim
Interim Head of Department

Appendix II: Pre-test Question

School: FCE, Zaria **Teaching Group:** GDTM [ ] TTM [ ] LTM [ ]

Gender: Male [ ] Female [ ] **Student Name:**

_____

Please indicate by ticking [✔] true or false against each statement.

SN	Statement	True	False
1	A table is an orderly arrangement of information showing the relationship between variables.		
2	Tables, graphs and diagrams are not visual aids to quick understanding of information.		
3	A table reveals at a glance, the information that is being conveyed.		
4	Data is used in a table to forecast the future.		
5	Tables help in quick decisions based on data presented.		
6	Tables help in minimizing space and materials.		
7	Charts, diagraphs and graphs are graphic presentations of variable.		
8	A graph is a pictorial presentation of the relationship between variables.		
9	A bar chart is a series of rectangles whose heights are drawn proportionally to the values that are being represented.		
10	Multiple bar charts are charts in which the components parts are represented separately to show the total values.		
11	A pie chart is not pictograph drawn in a circle to represent relative changes in total values.		
12	A graph is a visual presentation of the relationship between variables that change their values.		
13	A measure of central tendency is an average over a graph.		
14	Arithmetic mean is the average of a series of the figures or value.		
15	Arithmetic mean is obtained by dividing the sum of figures by the total number of the figures of values.		
16	Median is an average which is the top value when figures are arranged in order of magnitude.		
17	Mode is an average that occurs most frequently in a series of figures or values.		
18	Mean deviation measures the dispersion around the standard deviation.		
19	Standard deviation is the degree of scatting of a frequency distribution about its arithmetic mean.		
20	A histogram is a graphical representation of frequency distribution.		

Appendix III: Pre-test Marking Scheme

1. True
2. False
3. True
4. True
5. True
6. False
7. True
8. True
9. True
10. True
11. False
12. True
13. False
14. True
15. True
16. False
17. True
18. False
19. True
20. True

Appendix IV: Lesson Plan on Guided Discovery Teaching Method

Week One

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Use of Tables, Charts, and Graphs in Economics

Method of Teaching: Guided Discovery Teaching Method

Duration: 2 Hours

General Objective: To teach students use of tables, charts and graphs in economic.

Behavioural Objectives: At the end of the lesson, students should be able to:

a. define tables and state its importance
b. define charts
c. construct bar and pie charts

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught meaning and basic concepts of economics

Introduction: Teacher introduces the lesson by relating basic concepts of economics to basic tools for economics analysis

Presentation: Teacher presents the lesson in the following steps:

Step 1 – Definition and importance of table in economics

Step 2 – The teacher allow students to discover facts covering chart before introducing the students to what chart is.

Step 3 – How to construct bar and pie charts

Step 4 – The teacher allows students to explore more facts about chart, by going around the class and observing where students could not explore.

Total	Students	Subject		
		Maths	English	Gen. Know.
180	A	60	40	80
200	B	60	80	60
180	C	40	80	60
190	D	50	60	80
750	**Total**	**210**	**260**	**280**

Step 5 – Teacher works round and check groups' activities

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. What is a table?
b. What are the importance of tables?
c. What is a chart?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by asking students to go and read about measures of central tendency.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Week Two

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Measures of Central Tendency

Method of Teaching: Guided Discovery Teaching Method

Duration: 2 Hours

General Objective: To teach students measures of central tendency

Behavioural Objectives: At the end of the lesson, students should be able to:

a. define measure of central tendency
b. calculate arithmetic mean, median and averages

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught use of tables, charts, and graphs in economics.

Introduction: Teacher introduces the lesson by relating use of tables, charts, and graphs in economics to measures of central tendency

Presentation: Teacher presents the lesson in the following steps:

Step 1 – Definition of measures of central tendency

Step 2 – Calculation of arithmetic mean

Step 3 – Calculation of median

Step 4 – The teacher allows students to explore on how calculate median, calculation of average

Step 5 – Teacher asks students to calculate the arithmetic mean, median and average of the data below:

a. find the arithmetic mean of 60, 50, 45, 30, 80, 85, 65, 50, 55, 40
b. find the median of 60, 40, 45, 30, 80, 85, 65, 50, 55
c. find the average of 70, 50, 55, 20, 10, 25, 62, 70, 30

Step 6 – Teacher works round and check groups' activities

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. What is measure of central tendency?

b. What is arithmetic mean, median and average?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by asking students to go and read about measures of dispersion.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Week Three

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Measures of Dispersion

Method of Teaching: Guided Discovery Teaching Method

Duration: 2 Hours

General Objective: To teach students range, mean, and standard deviation

Behavioural Objectives: At the end of the lesson, students should be able to:

a. determine range of figures
b. calculate mean deviation of numbers
c. calculate standard deviation of numbers

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught use of measures of central tendency.

Introduction: Teacher introduces the lesson by relating measures of central tendency to measures of dispersion.

Presentation: Teacher presents the lesson in the following steps:

Step 1 – Definition of measures of central tendency

Step 2 – Calculation of mean deviation

Step 3 – Calculation of standard deviation

Step 4 – Teacher asks students to calculate the mean and standard deviation of the data below:

Find the mean and standard deviation of 30, 60, 60, 85, and 90

Step 5 – Teacher works round and check groups' activities

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. What is measure of dispersion?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by asking students to go and read about measures of dispersion.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Week Four

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Interpretation and Use of Standard Deviation

Method of Teaching: Guided Discovery Teaching Method

Duration: 2 Hours

General Objective: To teach students how to interpret and use standard deviation

Behavioural Objectives: At the end of the lesson, students should be able to:

a. Interpret standard deviation
b. Use standard deviation

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught use of standard deviation.

Introduction: Teacher introduces the lesson by relating standard deviation to interpretation and use of standard deviation.

Presentation: Teacher presents the lesson in the following steps:

Step 1 – How to interpret standard deviation

Step 2 – Use of standard deviation

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. How do we interpret standard deviation?
b. What are the uses of standard deviation?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by giving the students post-test.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Appendix V: Lesson Plan on Tutorial Teaching Method

Week One

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Use of Tables, Charts and Graphs in Economics

Method of Teaching: Tutorial Teaching Method

Duration: 2 Hours

General Objective: To teach students use of tables, charts and graphs in economic.

Behavioural Objectives: At the end of the lesson, students should be able to:

a. define tables and state its importance
b. define charts
c. construct bar and pie charts

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught meaning and basic concepts of economics

Introduction: Teacher introduces the lesson by relating basic concepts of economics to basic tools for economics analysis

Presentation: Teacher presents the lesson in the following steps:

Step 1 – Definition and importance of table in economics

Step 2 – Definition of charts

Step 3 – How to construct bar and pie charts

Step 4 – Teacher asks students to use the data below and construct simple bar and pie chart in their tutorial groups:

Students	Subject			Total
	Maths	English	Gen. Know.	
A	60	40	80	180
B	60	80	60	200
C	40	80	60	180
D	50	60	80	190

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. What is a table?
b. What are the importance of tables?
c. What is a chart?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by asking students to go and read about measures of central tendency.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Week Two

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Measures of Central Tendency

Method of Teaching: Tutorial Teaching Method

Duration: 2 Hours

General Objective: To teach students measures of central tendency

Behavioural Objectives: At the end of the lesson, students should be able to:

a. define measure of central tendency
b. calculate arithmetic mean, median and averages

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught use of tables, charts, and graphs in economics.

Introduction: Teacher introduces the lesson by relating use of tables, charts, and graphs in economics to measures of central tendency

Presentation: Teacher presents the lesson in the following steps:

Step 1 – Definition of measures of central tendency

Step 2 – Calculation of arithmetic mean

Step 3 – Calculation of median

Step 4 – Calculation of averages

Step 5 – Teacher asks students to their tutorial groups and calculates the arithmetic mean, median, and average of the data below:

a. find the arithmetic mean of 60, 50, 45, 30, 80, 85, 65, 50, 55, 40
b. find the median of 60, 40, 45, 30, 80, 85, 65, 50, 55
c. find the average of 70, 50, 55, 20, 10, 25, 62, 70, 30

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. What is measure of central tendency?

b. What is arithmetic mean, median and average?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by asking students to go and read about measures of dispersion.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Week Three

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Measures of Dispersion

Method of Teaching: Tutorial Teaching Method

Duration: 2 Hours

General Objective: To teach students range, mean, and standard deviation

Behavioural Objectives: At the end of the lesson, students should be able to:

a. determine range of figures
b. calculate mean deviation of numbers
c. calculate standard deviation of numbers

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught use of measures of central tendency.

Introduction: Teacher introduces the lesson by relating measures of central tendency to measures of dispersion.

Presentation: Teacher presents the lesson in the following steps:

Step 1 – Definition of measures of central tendency

Step 2 – Calculation of mean deviation

Step 3 – Calculation of standard deviation

Step 4 – Teacher asks students to use their tutorial groups and calculate the mean and standard deviation of 30, 60, 60, 85, and 90

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. What is measure of dispersion?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by asking students to go and read about measures of dispersion.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Week Four

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Interpretation and Use of Standard Deviation

Method of Teaching: Tutorial Teaching Method

Duration: 2 Hours

General Objective: To teach students how to interpret and use standard deviation

Behavioural Objectives: At the end of the lesson, students should be able to:

a. Interpret standard deviation
b. Use standard deviation

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught use of standard deviation.

Introduction: Teacher introduces the lesson by relating standard deviation to interpretation and use of standard deviation.

Presentation: Teacher presents the lesson in the following steps:

Step 1 – How to interpret standard deviation

Step 2 – Use of standard deviation

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. How do we interpret standard deviation?
b. What are the uses of standard deviation?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by giving the students post-test.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Appendix VI: Lesson Plan on Lecture Teaching Method

Week One

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Use of Tables, Charts and Graphs in Economics

Method of Teaching: Lecture Teaching Method

Duration: 2 Hours

General Objective: To teach students use of tables, charts and graphs in economic.

Behavioural Objectives: At the end of the lesson, students should be able to:

a. define tables and state its importance
b. define charts
c. construct bar and pie charts

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught meaning and basic concepts of economics

Introduction: Teacher introduces the lesson by relating basic concepts of economics to basic tools for economics analysis

Presentation: Teacher presents the lesson in the following steps:

Step 1 – Definition and importance of table in economics

Step 2 – Definition of charts

Step 3 – How to construct bar and pie charts

Step 4 – Teacher asks students to use the data below and construct simple bar and pie chart:

Students	Subject			Total
	Maths	English	Gen. Know.	
A	60	40	80	180
B	60	80	60	200
C	40	80	60	180
D	50	60	80	190

Step 5 – Teacher works round and check groups' activities

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. What is a table?
b. What are the importance's of tables?
c. What is a chart?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by asking students to go and read about measures of central tendency.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Week Two

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Measures of Central Tendency

Method of Teaching: Lecture Teaching Method

Duration: 2 Hours

General Objective: To teach students measures of central tendency

Behavioural Objectives: At the end of the lesson, students should be able to:

a. define measure of central tendency
b. calculate arithmetic mean, median and averages

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught use of tables, charts, and graphs in economics.

Introduction: Teacher introduces the lesson by relating use of tables, charts, and graphs in economics to measures of central tendency

Presentation: Teacher presents the lesson in the following steps:

Step 1 – Definition of measures of central tendency

Step 2 – Calculation of arithmetic mean

Step 3 – Calculation of median

Step 4 – Calculation of averages

Step 5 – Teacher asks students to calculate the arithmetic mean, median and average of the data below:

a. find the arithmetic mean of 60, 50, 45, 30, 80, 85, 65, 50, 55, 40
b. find the median of 60, 40, 45, 30, 80, 85, 65, 50, 55
c. find the average of 70, 50, 55, 20, 10, 25, 62, 70, 30

Step 6 – Teacher works round and check groups' activities

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. What is measure of central tendency?

b. What is arithmetic mean, median and average?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by asking students to go and read about measures of dispersion.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Week Three

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE 1

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Measures of Dispersion

Method of Teaching: Lecture Teaching Method

Duration: 2 Hours

General Objective: To teach students range, mean, and standard deviation

Behavioural Objectives: At the end of the lesson, students should be able to:

a. determine range of figures
b. calculate mean deviation of numbers
c. calculate standard deviation of numbers

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught use of measures of central tendency.

Introduction: Teacher introduces the lesson by relating measures of central tendency to measures of dispersion.

Presentation: Teacher presents the lesson in the following steps:

Step 1 – Definition of measures of central tendency
Step 2 – Calculation of mean deviation
Step 3 – Calculation of standard deviation
Step 4 – Teacher asks students to calculate the mean and standard deviation of the data below:

Find the mean and standard deviation of 30, 60, 60, 85, and 90

Step 5 – Teacher works round and check groups' activities

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. What is measure of dispersion?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by asking students to go and read about measures of dispersion.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Week Four

Name of Teacher: Ibrahim Mohammed – P13EDVE8033

School(s): Federal College of Education, Zaria

Level: NCE II

Subject: Economics

Topic: Basic Tools for Economic Analysis

Sub-Topic: Interpretation and Use of Standard Deviation

Method of Teaching: Lecturer Teaching Method

Duration: 2 Hours

General Objective: To teach students how to interpret and use standard deviation

Behavioural Objectives: At the end of the lesson, students should be able to:

a. Interpret standard deviation
b. Use standard deviation

Instructional Materials: Calculator, economics textbook and chalkboard

Previous Knowledge: Students have been taught use of standard deviation.

Introduction: Teacher introduces the lesson by relating standard deviation to interpretation and use of standard deviation.

Presentation: Teacher presents the lesson in the following steps:

Step 1 – How to interpret standard deviation

Step 2 – Use of standard deviation

Evaluation: Teacher asks the students the following questions to test their level of understanding:

a. How do we interpret standard deviation?
b. What are the uses of standard deviation?

Summary: The teacher briefly goes over the lesson stressing out the important point from the topic taught.

Conclusion: The teacher concludes the lesson by giving the students post-test.

Reference Book: Ewa, U. and Agu, G.A. (2001). *New System Economics: A Senior Secondary Course*. Anambra: Rex Charles and Patrick Limited.

Appendix VII: Post-test Question

School: FCE, Zaria **Teaching Group:** GDTM [ ] TTM [ ] LTM [ ]

Gender: Male [ ] Female [ ] **Student Name:**

_____

1. Use the data below and present them in a table format for students, subject and total marks: (20 marks)

   Students – A, B, C, D.

Subjects:	Math's	– 60, 60, 40, 50	Total mark 210
	English	– 40, 80, 80, 60	Total mark 260
	Gen. Know.	– 80, 60, 60, 80	Total mark 280
Total mark – 180, 200, 180, 190			Total mark 750

2. Use the data below and construct a bar and pie chart. (20 marks)

Student	**Score**
A	15
B	10
C	20
D	30

3. Twelve members of a gym class, some in good physical condition and some in not-so-good physical condition, see how many sit-ups they can complete in a minute. Here are their scores. 2 3 6 10 12 12 14 15 15 15 24 25

   What is the median number of sit-ups?

3b. the table below gives data on the heights, in cm, of 51 children.

   Class Interval Frequency

   $140 \leq h < 150$ 6

$150 \leq h < 160$ 16

$160 \leq h < 170$ 21

$170 \leq h < 180$ 8

(a) Estimate the mean, (b) estimate the median and (c) find the modal class. (20 marks)

4. Find the mean deviation of 30, 60, 60, 85 and 90. (20 marks)

5. Below gives data on the heights, in cm, of 51 children.

Class Interval					Frequency
140	≤	h	<	150	6
150	≤	h	<	160	16
160	≤	h	<	170	21
170	≤	h	<	180	8

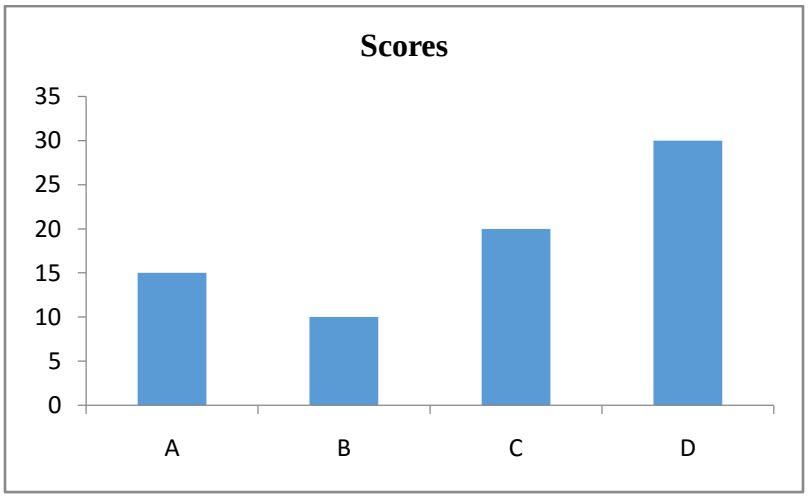
(a) Estimate the mean, (b) estimate the median and (c) find the modal class. (20 marks)

Appendix VIII: Post-test Marking Scheme

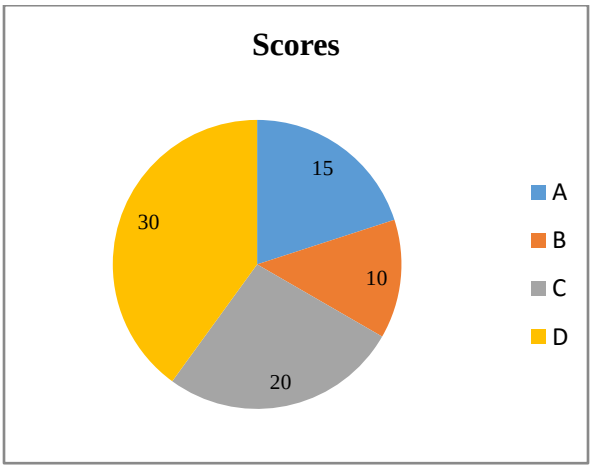
1. Table representing students, subjects and total mark

Students	Subject			Total Mark
	Math's	English	Gen. Know.	
A	60	40	80	180
B	60	80	60	200
C	40	80	60	180
D	50	60	80	190
Total	**210**	**260**	**280**	**750**

2. A bar chart showing students' scores



A Pie chart showing Students' scores



3. The median is 13, because there are six scores below 13 and six scores above 13. Note that the median does not necessarily have to be an existing score.

3b. **(i)** to estimate the mean, the mid-point of each interval should be used

Class Interval Mid-point Frequency Mid-point × Frequency

$140 \leq h < 150$ 145 6 145 × 6 = 870

$150 \leq h < 160$ 155 16 155 × 16 = 2480

$160 \leq h < 170$ 165 21 165 × 21 = 3465

$170 \leq h < 180$ 175 8 175 × 8 = 1400

Totals 51 8215 Mean = x = 8215 51 = 161 (to the nearest cm)

(ii) The median is the 26th value. In this case it lies in the $160 \leq h < 170$ class interval. The 4th value in the interval is needed. It is estimated as 160 + 4 21 × 10 = 162 (to the nearest cm).

(iii) The modal class is $160 \leq h < 170$ as it contains the most values.

4. Mean Deviation

M.D. = $\frac{1}{n}\sum|x - \bar{x}|$

Mean = $\frac{30+60+60+85+90}{5} = \frac{325}{5} = 65$

Marks X	(minus) -	Mean $\bar{x}$	= =	Absolute Value $\left\|x-\bar{x}\right\|$
30	-	65	=	|-35| =35
60	-	65	=	|-5| =5
60	-	65	=	|-5| =5
85	-	65	=	|+20| =20
90	-	65	=	|-25| =25

$\sum\left(x-\bar{x}\right) = \sum|90| = 90$

M.D. = $\frac{1}{n}\sum\left|x-\bar{x}\right|$

= $\frac{1}{5}x|90|$

= $\frac{1}{5}x90$

= 18

The average deviation from the mean, 65 marks, is 18.

5. (A) to estimate the mean, the mid-point of each interval should be used Class Interval Mid-point Frequency Mid-point × Frequency

140	≤	*h*	<	150	145	6	145 × 6 = 870
150	≤	*h*	<	160	155	16	155 × 16 = 2480
160	≤	*h*	<	170	165	21	165 × 21 = 3465
170	≤	*h*	<	180	175	8	175 × 8 = 1400

Totals 51 8215

(b)The median is the 26th value. In this case it lies in the $160 \leq h < 170$ class interval. The 4th value in the interval is needed. It is estimated as $160 + 4\ 21 \times 10 = 162$ (to the nearest cm).

(c)The modal class is $160 \leq h < 170$ as it contains the most values.

Appendix IX: Pre-test and Post-tests Results

DEPARTMENT OF BUSINESS EDUCATION
SCHOOL OF VOCATIONAL AND TECHNICAL EDUCATION
FEDERAL COLLEGE OF EDUCATION, ZARIA

GUIDED DISCOVERY

S/N	REG. NUMBER		Pretest	Posttest
1	EZ15BEDM001		21	46
2	EZ15BEDM002		13	57
3	EZ15BEDM004		17	48
4	EZ15BEDM006		25	56
5	EZ15BEDM008		18	55
6	EZ15BEDM009		14	59
7	EZ15BEDM012		15	67
8	EZ15BEDM013		23	57
9	EZ15BEDM016		31	67
10	EZ15BEDM017		23	56
11	EZ15BEDM018		24	57
12	EZ15BEDM020		21	59
13	EZ15BEDM021		14	68
14	EZ15BEDM025		31	67
15	EZ15BEDM026		22	59
16	EZ15BEDM027		21	74
18	EZ15BEDM028		34	78
19	EZ15BEDM029		32	77
20	EZ15BEDM031		23	67
21	EZ15BEDM032		24	56
22	EZ15BEDM033		34	79
23	EZ15BEDM022		23	67
24	EZ15BEDM023		22	78
25	EZ15BEDM035		25	79
26	EZ15BEDM036		31	78
27	EZ15BEDM037		12	70
28	EZ15BEDM039		34	71
29	EZ15BEDM042		23	65
30	EZ15BEDM043		24	67
31	EZ15BEDM044		22	66
32	EZ15BEDM045		24	77
33	EZ15BEDM048		23	78
34	EZ15BEDM050		34	89
35	EZ15BEDM052		22	55

36	EZ15BEDM053		22	67
37	EZ15BEDM054		24	56
38	EZ15BEDM055		21	45
39	EZ15BEDM056		22	56
40	EZ15BEDM057		14	57
41	EZ15BEDM059		16	56
42	EZ15BEDM061		14	67
43	EZ15BEDM062		16	78
44	EZ15BEDM064		17	66
45	EZ15BEDM069		21	67
46	EZ15BEDM071		34	77
47	EZ15BEDM072		33	87
48	EZ15BEDM075		31	89
49	EZ15BEDM077		22	66
50	EZ15BEDM078		12	45
51	EZ15BEDM079		13	56
52	EZ15BEDM081		14	67
53	EZ15BEDM083		23	45
54	EZ15BEDM085		12	45
55	EZ15BEDM087		10	45
56	EZ15BEDM089		18	56
57	EZ15BEDM090		12	46
58	EZ15BEDM092		16	34
59	EZ15BEDM093		08	35
60	EZ15BEDM097		12	56

Appendix X: Pre-test and Post-tests Results

DEPARTMENT OF BUSINESS EDUCATION
SCHOOL OF VOCATIONAL AND TECHNICAL EDUCATION
FEDERAL COLLEGE OF EDUCATION, ZARI
TUTORIAL TEACHING METHOD

S/N	REG NUMBER		Pretest	posttest
61	EZ15BEDM098		17	56
62	EZ15BEDM100		13	57
63	EZ15BEDM101		16	49
64	EZ15BEDM102		12	60
65	EZ15BEDM103		18	55
66	EZ15BEDM105		14	59
67	EZ15BEDM110		15	67
68	EZ15BEDM114		23	57
69	EZ15BEDM115		31	67
70	EZ15BEDM070		23	56
71	EZ15BEDM116		24	57
72	EZ15BEDM120		21	59
73	EZ15BEDM123		14	68
74	EZ15BEDM137		31	67
75	EZ15BEDM141		22	59
76	EZ15BEDM148		21	74
77	EZ15BEDM154		14	76
78	EZ15BEDM159		32	77
79	EZ15BEDM160		23	77
80	EZ15BEDM131		24	56
81	EZ15BEDM132		24	79
82	EZ15BEDM138		23	67
83	EZ15BEDM168		22	78
84	EZ15BEDM171		23	78
85	EZ15BEDM172		18	70
86	EZ15BEDM179		12	70
87	EZ15BEDM178		34	71
88	EZ15BEDM177		23	65
89	EZ15BEDM082		24	67
90	EZ15BEDM182		22	66
91	EZ15BEDM084		21	77
92	EZ15BEDM181		12	76
93	EZ15BEDM183		34	89
94	EZ15BEDM184		22	55
95	EZ15BEDM180		22	67
96	EZ15BEDM133		18	57
97	EZ15BEDM130		21	45
98	EZ15BEDM173		22	56
99	EZ15BEDM174		14	57
100	EZ15BEDM185		16	56
101	EZ15BEDM136		14	67
102	EZ15BEDM170		16	78
103	EZ15BEDM144		17	66
104	EZ15BEDM169		21	67
105	EZ15BEDM139		34	77

106	EZ15BEDM157		33	87
107	EZ15BEDM146		31	89
108	EZ15BEDM118		22	66
109	EZ15BEDM119		12	45
110	EZ15BEDM128		23	67
111	EZ15BEDM091		14	69
112	EZ15BEDM014		13	45
113	EZ15BEDM112		12	45
114	EZ15BEDM140		10	45
115	EZ15BEDM047		18	56
116	EZ15BEDM135		12	46
117	EZ15BEDM163		16	74
118	EZ15BEDM147		34	75
119	EZ15BEDM038		12	56
120	EZ15BEDM152		13	35

Appendix XI: Pre-test and Post-tests Result

DEPARTMENT OF BUSINESS EDUCATION

SCHOOL OF VOCATIONAL AND TECHNICAL EDUCATION

FEDERAL COLLEGE OF EDUCATION, ZARI

LECTURE TEACHING METHOD

S/N	REG NUMBER	NAMES	pretest	Posttest
121	EZ15BEDM108		21	46
123	EZ15BEDM095		13	47
124	EZ15BEDM007		17	48
125	EZ15BEDM145		25	36
126	EZ15BEDM125		18	45
127	EZ15BEDM019		14	49
128	EZ15BEDM134		15	37
129	EZ15BEDM121		23	27
130	EZ15BEDM165		31	47
131	EZ15BEDM106		23	36
132	EZ15BEDM005		24	57
133	EZ15BEDM068		21	59
134	EZ15BEDM074		14	48
135	EZ15BEDM104		31	47
136	EZ15BEDM073		22	49
137	EZ15BEDM058		21	44
138	EZ15BEDM066		34	38
139	EZ15BEDM111		32	37
140	EZ15BEDM086		23	37
141	EZ15BEDM051		24	66
142	EZ15BEDM034		34	79
143	EZ15BEDM142		23	37
144	EZ15BEDM099		22	78
145	EZ15BEDM175		25	39
146	EZ15BEDM010		31	58
147	EZ15BEDM003		12	50
148	EZ15BEDM166		34	41
149	EZ15BEDM151		23	55
150	EZ15BEDM067		24	57
151	EZ15BEDM155		22	66
152	EZ15BEDM107		24	57
153	EZ15BEDM088		23	78
154	EZ15BEDM167		34	39
155	EZ15BEDM076		22	25
156	EZ15BEDM049		22	37
157	EZ15BEDM156		24	46
158	EZ15BEDM127		21	15
159	EZ15BEDM143		21	46
160	EZ15BEDM164		17	57
161	EZ15BEDM162		16	46
162	EZ15BEDM161		14	77
163	EZ15BEDM015		16	58
164	EZ15BEDM080		17	16
165	EZ15BEDM113		21	47
166	EZ15BEDM011		34	57

167	EZ15BEDM065		43	47
168	EZ15BEDM063		11	39
169	EZ15BEDM129		12	46
170	EZ15BEDM149		12	35
171	EZ15BEDM046		13	36
172	EZ15BEDM122		14	47
173	EZ15BEDM030		23	35
174	EZ15BEDM158		12	45
175	EZ15BEDM024		10	25
176	EZ15BEDM150		18	56
177	EZ15BEDM176		12	46
178	EZ15BEDM094		26	44
179	EZ15BEDM096		18	55
180	EZ15BEDM109		12	56