EVALUATION OF TEACHER FACTOR ON STUDENTS ACHIEVEMENT IN SENIOR SECONDARY SCHOOL CERTIFICATE TECHNICAL DRAWING EXAMINATION IN OYO STATE

BY

ADEGOKE Abiola James

2016/1/63786TI

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION

FEDERAL UNIVERSITY OF TECHNOOGY, MINNA

April, 2023

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION, SCHOOL OF TECHNOLOGY EDUCATION, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA, NIGER STATE, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF TECHNOLOGY (B. TECH) DEGREE IN INDUSTRIAL AND TECHNOLOGY EDUCATION.

April, 2023

DECLARATION

I, **ADEGOKE Abiola James** , with matriculation number **2016/1/63786TI**, an undergraduate student of the department of Industrial and Technology Education, certify that the work embodied in this project is original and has not been submitted in part or full for any other diploma or degree of this or any other University.

ADEGOKE Abiola James

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Sign and Date

2016/1/63786TI

CERTIFICATION

This project has been read and approved as meeting the requirement for the award of B. Tech degree in Industrial and Technology Education, School of Technology Education, Federal University of Technology, Minna.

Dr. Benjamin Ekhalia
Project Supervisor

_____
Signature and Date

Prof. I.Y Umar
Head of Department

_____
Signature and Date

_____
External Examiner

Signature and Date

DEDICATION

With profound joy and gratitude in my heart, I dedicate this project to God Almighty for His Unshakable and Unbreakable Faithfulness. His Divine and constant guidance in my life has made this project a reality today and to my parent Late Mr M.O Adegoke and Mrs M.O Adegoke and my glorious siblings and the family of Mr Adetoro for their support and prayers. Thank God.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude and appreciation to God almighty who contributed to the successful completion of this research project. All glory be to God. Firstly, I extend my deepest thanks to my supervisor Mr Benjamin Ekhalia for his invaluable guidance, support, and encouragement throughout this journey. His expertise and insights were instrumental in shaping the direction of the project and ensuring its successful execution. I would also like to extend my heartfelt thanks to my colleagues who generously shared their time and knowledge with me, providing valuable feedback and suggestions that greatly improved the quality of the research. I would also like to thank my family, especially my late dad (late Mr M.O Adegoke) and also my mum in person of Mrs M.O Adegoke who was praying for me and supporting me all through, not forgetting my lovely brother and sisters (Boluwatife, Adeshola, Oluwatobiloba) and the family of Adetoro, I love you all. I also appreciate my friends for their unwavering support, encouragement, and understanding during the research process. Once again, I express my sincere appreciation and gratitude to everyone who played a part in this research project's success. Special appreciation also goes to the Head of Department, Educational Technology Dr. Saba and lecturers of the Department. Prof B. Atsumbe., Prof I.Y Umar., Dr. Abdulkadir M., Dr. A .B. Kagara., Mr. I.K. Kalat., Dr. G. A. Usman., Dr. B.M. Moh' d., Dr. A.M. Hassan., Dr. C.O. Igwe., Dr. W. B. Kareem., Dr. R. Rufai., Dr. S. A. Owodunni., Mr. Benjamin Ekhalia J. and Mr Stephen Y. N. may God bless and reward you all greatly, amen.

ABSTRACT

This study evaluate the teacher factor on students' achievement in senior secondary school certificate technical drawing examination in Oyo state. Four research questions were developed to guide the study and one null hypothesis as test at 0.05 level of significance. The study employed a survey research design. The study used a four-point scale questionnaire, which contains a total of 32-items, as instrument. The total population of the study was 90 respondents comprising 10 principals and 80 technical teachers. The findings of the study reveal the Students understand better when the teaching methods are used, Secondary schools should create funds to purchase technical drawing workshop tools and equipment, Government should provide funds to train and re-train the technical drawing Teacher for effective teaching and learning of the subject.. The study recommended among other things, Government should expose technical teachers to a variety of programs for the training, re-training/refresher of technical teachers such as conferences, seminars, and workshops that will assist them to broaden their potentials, help update technical teachers on innovative ways of teaching technical drawing.

TABLE OF CONTENTS

Tables **LIST OF TABLES** **Pages**

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Education is acknowledged as a vital instrument for achieving national development. It is through education that ignorance is eliminated and skills for productivity acquired. Imogie (2014) affirmed that no nation can develop to its fullest without effective and efficient educational system. The value and functionality of any educational system lie in its ability to actualize the goals of education. Federal Republic of Nigeria (FRN), (2014) stated that one of the aims and objectives of education in Nigeria is to help the child acquire appropriate skills, abilities and competencies both mental and physical as equipment for the individual to live in and contribute to the development of the society. Such knowledge, skills and abilities are acquired through the training provided in the school.

Education is the greatest device man has created for his own continued improvement to train his head, hand and heart and has placed him in the position of leadership on earth. Education gives man understanding and enlightenment, improve his intellect, knowledge and skill as well as attitude to his environment. Today, education in Nigeria is accepted as an " Instrument per excellence" for individual and national development and as the only fundamental and indispensable tool for promoting economic growth (FRN, 2014). Education is at various levels which include primary, secondary and tertiary education

Education at secondary school level is the bedrock and the foundation towards higher knowledge in tertiary institutions (Unanma, et al. 2013). Education has been considered as an indispensable

instrument for bringing positive change in the social, political, economic and cultural life of people (Nassira, 2016). Part of the subject offered in secondary school is technical drawing. Technical drawing is offered in Nigerian senior secondary schools, technical colleges, and tertiary institutions that offer courses in the areas of technical education, architecture, urban and regional planning, and engineering.

Technical drawing is the language of technology. It is the most popular technical subject in any technical education program be it at the universities, polytechnics, colleges of education (Technical), technical colleges, or secondary schools. Technical drawing is a skill-oriented subject or course that covers work done by architects, engineers, interior designers and electricians, technical drafters, craftsmen, and technical teacher educators and students. The technical drawing is essentially the universal and graphic language used by architects, technicians, engineers, technologists, designers, craftsmen, operators, manufacturers, and industrialists to communicate ideas by means of pictures, drawings, graphics, and symbols.

The objectives of technical drawing are as follows:

2 To provide an understanding of the theoretical and applied concepts relating to the use of information and communication technology to facilitate visual communication of ideas in the construction and production industries.

3 Provide introduction to modern drawing studio practice.

4 Lay the foundation for technological development and further studies in building and engineering.

5 Stimulate, develop, and enhance entrepreneurship skills in the diverse areas of drawing studio practice

The objective of technical drawing cannot be achieved at various levels of education without effective teaching and learning.

Effective teaching and learning is the ultimate requirement of any educational programme. Effective teaching according to defined by Zeer *et al.* (2019), as the type of teaching characterized by the exhibition of intellectual, social and emotional stability, love for children and positive disposition towards the teaching profession and ability to inspire good qualities in students. The major aim of teaching and learning to transfer knowledge from the teachers to the learners. Teaching effectiveness is a measure of the extent of realization of the instructional objectives. Teacher is the major role player in teaching of technical drawing.

Bakare, (2021) described a teacher as person who attempts to help someone acquire or change some knowledge, skills, attitude, idea or appreciation. According to Ola, (2017) a teacher is a person who imparts knowledge, skills and attitude to someone in a school. Hebebci, et al (2020) said that teacher provides schooling for others. A technical teacher according to Charles and Akpomi, (2021) is an individual who is trained in pedagogy and technical area of a particular subject to impart knowledge, skill and attitudes to students in an institution. An effective teacher is one who is intellectually challenging and motivates students to learn. The four levels to determine if a teacher is effective are Instructional effectiveness, Uses of assessment for student learning, Positive learning environment and Personal quality of the teacher.

Teachers are expected to be competent and professional in their related fields and subject-matter (Maba, *et al.*, 2018).The teaching qualification is an end product of professional development which encompasses all types of learning embarked on by teachers outside the point of their earlier preparation in school before becoming a teacher. According to Oviawe (2020), teachers'

qualification is a particular type of experience or knowledge someone possesses to make him/her suitable to teach. Oviawe (2020) Asserted that a teacher must possess instructional/intervention skills to maximize the learner' s outcomes. A teacher' s qualification refers to all the requisite skills a teacher needs to effectively teach. These skills include formal education, experience, subject matter knowledge, pedagogy studies, duration of training, certificate/ licensing, and professional development. Teacher' s qualification depends on the professional growth, which is noticeable by the change in teachers' knowledge, beliefs, and instructional strategies. It is against this background the study seek to evaluate the teacher factor on students achievement in senior secondary school certificate technical drawing examination in Oyo state.

1.2 Statement of the Problem

In spite of the efforts of the government to improve educational program, majority of students in secondary schools still perform low in technical drawing classes and examinations. There are numerous problems associated with drawing that are quite common to secondary schools. So, students are facing numerous challenges in drawing class and examinations. Engineering and technology cannot have base in any nation without technical drawing and if students continue to perform poorly in the subject, our engineering and technology base will probably be unable to attain the lead found in other nations of the world. Part of the problems identified was in adequate effective teaching and learning processes, some teachers were found not qualified for the job of teaching technical drawing while some are poor in instructional delivery (Rapanta, *et al*., 2020)

This implies that technical drawing knowledge and skills are fundamental to all careers in technology education, but as may be observed technical teachers are constraints to teach these

knowledge and skills to the students as teachers and students still employ obsolete tools, equipment and activities in the teaching learning process (Nguyen & Yukawa, 2019). For effective teaching and learning of technical drawing in secondary school there is need to evaluate the teacher factor on students achievement in senior secondary school certificate technical drawing examination in Oyo state.

1.3 Purpose of the Study

The main purpose of this study is to evaluate the teacher factor on students' achievement in senior secondary school certificate technical drawing examination in Oyo state. Specifically the study will evaluate the following:

1. Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state
2. Teaching Methodology factors on students achievement in senior secondary school certificate technical drawing examination in Oyo state
3. Teaching Evaluation factors on students achievement in senior secondary school certificate technical drawing examination in Oyo state
4. Strategies for improving teaching and learning of technical drawing students' achievements in senior secondary school certificate technical drawing examination in Oyo state

1.4 Significance of the Study

This research work will be of immense benefit to the following ministry of education, teachers, school administrators, government etc.

The government will know the alternative instructional materials that would help raise the quality of teaching and learning in the schools. The government and principal will get to know how to help their teachers teach more effectively.

If the suggestions and recommendations proffered by the end of this research are adopted, teachers and learners would greatly and positively benefit. This could be possible when students' need, capabilities, special interests, motivation and the style of teaching/learning conditions are taken into account.

The recommendation would also hopefully modify teachers attitude to teaching and would provide them with the enthusiasm to make the best use of the available materials by themselves so as to fulfill their roles as expert communicators

The findings of the study will be of benefit to the school administrators as it will be an eye opener for them on the gaps in the teaching and learning of technical drawing and also school administrators will be able to take positive and progressive measures on the teaching and learning of the technical drawing.

The findings of the will be of benefit to the ministry of education as it will enable them to look into the subject structure and make positive improvement to the curriculum of technical drawing in the school system.

1.5 Scope of the Study

The study seek to evaluate the teacher factor on students' achievement in senior secondary school certificate technical drawing examination in Oyo state. The will cover the instructional planning factors, teaching methodology, teaching evaluation as well as Strategies for improving

teaching and learning of technical drawing students' achievements in senior secondary school certificate technical drawing examination in Oyo state. Due to time constrains teacher' s qualifications and teachers experience will not be covered in the study.

1.6 Research Question

1 What are the Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state?

2 What are the Teaching Methodology factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state?

3 What are the Teaching Evaluation factors on students achievement in senior secondary school certificate technical drawing examination in Oyo state?

4 What are the Strategies for improving teaching and learning of technical drawing students' achievements in senior secondary school certificate technical drawing examination in Oyo state?

1.7 Hypotheses

The following null hypotheses will be tested in the study:

H_{01}: There is no significant difference in the mean response of principals and technical drawing teachers on Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The review of related literature of this study is organized under the following subheadings:

2.1 Conceptual Framework

2.1.1 Concept of technical drawing

2. 1.2 Teaching and learning of technical drawing

2. 1.3 Methods of Teaching Technical Drawing in Senior Secondary School

2. 1.4 The Need for Change in Method of Instruction

2.2 Theoretical framework

2.2.1 Theory of Vocational Education

2.3 Related Empirical Studies

2.4 Summary of Literature Reviewed

2.1 Conceptual Framework

2.1.1 Concept of technical drawing

Technical Drawing is a universal language for effective communications in the manufacturing industry and is therefore an important subject in the TVET program at the Senior High Technical School.

The subject has been outlined to offer pre-requisite knowledge and skills for a number of the technical and Vocational area of work. The subject helps students to develop spatial intelligence, imaginative and drawing skills so that they would become creative and help them to solve the many problems that need designs before production. [Teaching Syllabus for Technical Drawing 2009].

The subject aims at helping students to achieve the following by the end of the four years.

i. The requisite knowledge, skills and attitudes for further Technical Education and training.

ii. Develop a positive attitude towards the safe and economics use of drawing equipments and materials.

iii. Develop imaginative thinking skills for solving social, economic and technological problems.

iv. Develop positive attitudes and requisite competence in the application of a technical drawing for productive work.

Definition and types of Technical Drawing

Agrawal (2022) defines Technical Drawing as a formal and precise way of communicating information about the shape, size, feature and precision of physical objects. Technical Drawing is drawing or plan, rendered to scale, used to communicate direction and specifies to a group of people creating something. Engineers, contractors, plumbers, electricians, landscape architects, inventors and other use of Technical drawing to create a master or blue print. The blueprint or plan communicates the necessary details among the workers to build the object detailed in the plan. Drafters are men and women trained in the art of Technical drawing necessary.

According to Chakrabarty (2022), Technical drawing, also known as drafting or draughting, is the academic discipline of creating standardized technical Drawings to architects, interior designers, drafters, design engineers, and related professional.

Standards and conventions for layout, line thickness, text size, symbols, view projections, descriptive geometry, dimensioning and notations are used to create drawings that are ideally interpreted in only one way. Wikipedia also asserts that, a technical drawing differs from a common drawing by how it is interpreted.

A common drawing can hold many purposes and meanings, while a technical drawing is intended to concisely and clearly communicate all needed specifications to transform an idea into physical form.

Origin

The origins of the discipline according to Divakaran and Divakaran, (2018) can be traced as far back as the 3rd millennium BC to Babylon, where archeological digs exhumed rudimentary drawing implements and designs. The process became formalized during the Italian Renaissance Fillipo Brunelleschi completed sketches of famous Florentine landmarks drawn perfectively to scale. Since the 18th Century specific disciplines of Technical drawing have developed, and during the 29th Century, these became aided by the use of computers.

Types of Technical Drawing

Technical Drawing can be divided into four main discipline or types: construction, cutaway, exploded view and patent.

Constructions drawings serve as the framework for blue prints used in designing some types of structure.

Patent drawings represents the internal make-up of a newly developed invention is used to obtain a patent.

A cutaway drawing is used to show the internal working parts of a complicated device or machine.

An exploded view drawing is used to instruct the viewer on the relationship or assembly of a machine or piece of equipment so that its setup can be replicated.

Fields: technical drawings are utilized in a number of fields, including architecture, engineering, interior designing, landscaping and graphic designing.

Production: Technical drawings that are produced by hand are considered manually ‘ drafted’ . The process of producing technical drawings with the use of specially designed software is called “ computer aided drafting” . Both types of technical drawing require a high level of skill and usually involve the attainment of a certification or degree from a trade school, college or university.

Technical and learning Resources for Technical Drawing

Frerejean *et al.* (2019) defines teaching and learning resources as printed or media intended to convey event of instruction to facilitate learning and teaching. Teaching and learning of Technical Drawing require visualization and practicality for effective achievement of goals and objectives.

In Senior High Technical School, the most significant and effective teaching and learning resource are charts, models and real objects. Other teaching aids are computers, LCD, and relia.

Adom *et al.* (2016) is of the view that teaching and learning materials are important ingredient for easy understanding of some concepts. They explain teaching and learning resources as items or things that can be seen touched and are used to make teaching and learning more understanding and learning resources. They gave the following as the reasons for the use of teaching and learning resources.

1. Teaching and learning resources arouse the interest of students.
2. It makes the lesson more practical
3. It makes teaching very real in the minds of learners.
4. It makes teaching more interesting to learners

According to Frerejean *et al.* (2019), these instructional media (teaching resources) stimulate previous learning, provide learning/ teaching objectives, encourage appropriate practice and activate the students' response.

2. 1.2 Methods of Teaching Technical Drawing in Senior Secondary School

According to Akanbi *et al.* (2018), many teachers handling the technical subjects in most of our secondary schools specialized in technology (i.e. building technology, mechanical engineering, electrical/electronics, civil engineering, architectural science among others), but not in technical education. Hence, these facilitate lacked of appropriate instructional strategies for teaching and often used lecture method by teachers. Technical drawing in Nigerian schools is faced with many challenges, where out-of – field teaching is one of such challenges. This is when a teacher has not got adequate training and qualification in one field and he or she is assigned to teach the subjects (Kola and Sunday, 2015). These categories of teachers need a change of teaching method as most of them teach by the lecture based method and this method has been criticized for lack of effective interactive approach and caused poor academic performance in technical drawing.

Wentzensen *et al.* (2017). stated that the demonstration methods and the traditional tools limit extensive and variable practices, waste time, non-flexible and boring as students cannot work at their own speed. Supporting the above assertion McCarthy *et al.* (2018) noted that with the traditional tools, it is difficult to solve complex and complicated drawing problem easily. In Wang *et al.* (2021) findings, it revealed that traditional tools lack accuracy and consistency both in appearance and in performance. The abstract nature of presentation of Technical Drawing seems could not encourage the class to progress without a great deal of the teacher' s

intervention. Problem solving and thinking skills can only be developed when a learner can construct his/ her own knowledge which is part of constructivist approach to learning. The skillful teacher' s choice of method include those listed below, or combination of methods, with strategies that most effectively assist him/her in achieving the lesson objectives.

Traditional Lecture Method: In traditional teaching, the teacher is the authority and the students are passive learners (Kocatürk, 2018). Traditional method is more accurately described as face-to-faces or perhaps fact-to-face and it is characterized by habit and ritual. The lecture method is a process whereby the lecture notes of the instructor get transferred to the notebooks of the students without passing through the brains of either (Şahbaz, 2022). Traditional approach to education is characterized by a talking teacher standing in front of the students; the pupils are with exercise books and other writing materials with the use of chalk and chalkboard for writing. The lecture method involves a formal discourse or exposition in a subject matter to attain stated instructional objectives, the teacher does the talking while the learners listen and occasionally take notes (Godwin *et al.,* 2021).

By nature lecture method tends itself to the teaching of facts while placing little emphasis on the problem solving, decision making, analytical thinking or transfer of learning. Ogonnia (2016) explained that lecture method is a teaching method whereby the teacher transmits information (subject matter, content) verbally to the students. As could be observed, traditional lecture method of teaching could not generate enough creativity and problem solving abilities but possesses repetition of the teacher' s knowledge and ability (Igweh, 2016). Okoye and Arimonu (2016) noted that the lecture method has only limited use in vocational and technical education. Adding that teachers should resist the temptation to give lengthening lecture since such lecture are usually dull and are incapable of stimulating and sustaining the interest of students.

Demonstration Method: According to Zhang *et al.* (2020), demonstration method is one of the very effective methods applied by teachers in achieving objective of learning in real-life situations. Demonstration method of teaching is one of the many teaching learning style under the investigation or activity based. Demonstration method involves showing by reason or proof, explaining or making clear by use of examples or experiments. It is a method which is capable of improving learning through its diversity effect activity.

Okoro and Bassey (2018) asserted that for demonstration to be effective, the teachers should plan for the demonstration; Prepare students for the demonstration; carry out the demonstration properly; and review demonstration processes and restate the important points connected. Demonstrations are indispensable in technical drawing because students have to be taught the correct method for handling drawing instruments and materials. However, the disadvantage of demonstration is that they are time consuming.

Questioning Method: Discussion teaching method is one of the most widely used methods; it required thinking together by both the teacher and the learners, or a type of " co-operation in learning" . It is highly recommended by some educators as a good method of teaching economics in secondary schools. This method is organized on the principle that the knowledge and ideas of several people pooled together have merit than those of a single person. During discussion session student, participate in the learning process by contributing problem, analyzing the factors associated with the problem, developing possible solutions to problems, placing the solution into action, and evaluating the results of the solution. As stated by Caglar *et al.* (2015), the professional success of a technologist is directly related to an ability to transfer knowledge gained in the academic environment to real-world situation.

Project Method: The project method is also one of the methods which are predominantly used in teaching in technical drawing. This method at the same time is one of the standard teaching methods in subjects involving practical especially in technical education subjects like technical drawing. Project method of teaching is suitable for large group, small group and instruction (Maigida, 2016).

The construction of a project requires the students to apply the knowledge and skill he has learnt in the course. The teacher guides the students and provides them with assistance whenever it is required. In building drawing, mechanical drawing and electrical drawing all requires the association of the students with machines parts, building components and electrical appliances.

2. 1.3 Teaching methods and Students Academic Achievement in Technical Drawing

Students' achievement connotes performance in school subject as symbolized by a score or mark on an achievement test. According to Bakare and Orji (2019) achievement is quantified by a measure of the student' s academic standing in relation to those of other students of his age. Dey and Bandyopadhyay (2019) contended that students' achievement is dependent upon several factors among which are instructional methods and learning environment.

Teachers with a demanding but good teaching method challenge students to work at higher intellectual level. Presently, demonstration using drawing instruments on chalk board is predominantly used to teach engineering graphics to the National Diploma students in the polytechnics. Demonstration is any planned performance by a vocational/technical teacher on an occupational skill/information aimed at explaining the steps/facts of an operation (Usoro, 2018).

The method is executed by example and activities by the teacher while the learners observe and listen (Adeoye and Igbinedion, 2018). Besides the use of good teaching method in the classroom, another important role of the teacher is to order and structure the learning environment. Included in this role are all the decision and action required of the teacher to maintain order in the classroom such as laying down rules and procedures for learning and use of motivational techniques to secure and sustain the attention and interest of the learner (Rowe *et al.,* 2015). Interest is a persisting tendency to pay attention and enjoy some activities. Interest has been viewed as emotionally oriented behavioral trait which determines a student' s vim and vigor in tackling educational programmes or other activities (Owodunni & Saka-Alikinla, 2021). Students' interest and achievement in any learning activity is sustained by the active involvement of the learner in all aspect of the learning process. Peter *et al.* (2020) emphasized that unless the teacher stimulates students' interest in learning, students' achievement will be minimal. Hence, it is essential that technical Drawing teachers use teaching method which ensures students' active involvement in learning and provide suitable learning environment to improve achievement and stimulate interest of students in technical drawing.

Students' achievement is dependent upon several factors, among which are teachers' qualifications (teachers' experience and education), instructional methods and learning environment. Teacher quality is a very important determinant of the quality of education. According to Azam and Kingdon (2015) measurable characteristics of teachers such as teacher experience, and education, explain variation in teacher effectiveness. Hassan (2017) opined that solid content knowledge, sound pedagogy, outstanding interpersonal skills, understanding of cognitive development and the different learning stages of students, are well-established characteristics of effective teachers that produce greater students' achievement.

Over the past decades, educational research has focused on the question of what influences academic achievement or, more generally, what influences learning. Most studies support theories that focus on the interaction between the student and the learning environment. The interaction approach, assumes that academic achievement or learning is a result of the complex interaction between the students and the learning environment. Interaction is a more important facilitator of learning. Educational technologists have, of course, always understood that a student must interact with an environment for learning to occur (Hu-Au and Lee, 2017). Similarly, Mulders *et al.* (2020) noted that interaction is a critical component to students' knowledge construction. According to UNESCO (2002) computer technology provides powerful tools to support the shift to student-centered learning and is capable of creating a more interactive and engaging learning environment for teachers and learners. Computer enhances how students learn by supporting four fundamental characteristics of learning: Active engagement, participation in groups, connections to real-world contexts, frequent interaction and feedback (Basham, 2007). Strong and Smith (2001) stated that human/computer interface has a direct relationship to stress on the user' s cognitive ability. When designing instructional materials for computer use as well as subject matter mastery, stress is reduced if a user can easily make use of the interface, comprehend the functions, and use the tool to solve problems. Students must be able to easily navigate in a computer environment in order to focus on the topic. According to Cotton (2001) the use of computer based learning produces achievement effects superior to those obtained with traditional instruction. Cotton explained further that student learning rate is faster with computer based learning than with conventional instruction. For instance, cotton noted that in some research studies, the students learned the same amount of material in less time than the traditionally instructed students, besides; students receiving

computer-based learning learn better, faster and have more positive attitudes towards learning than students receiving conventional. Other benefits of the computer based learning include: Locus of control, Attendance, Motivation/time-on-task, and Cooperation/collaboration.

Therefore, it is a generally acclaimed nowadays that the process of learning will improve when learners are given computer-based learning that allow for interactive access tuned to the specific needs of each individual learner. Therefore, both interactive and articulated should be the Computer artifacts for learning. Interactive learning environments can be seen as engines for education that facilitate learning by having learners interact with a simulation of the subject matter.

2. 1.4 The Need for Change in Method of Instruction

The modern Teaching and learning processes is more of teacher centered, basically it should directly based on student centered, because one way to bring about a change of emphasis from the teacher to a facilitated approach is to change the method of instruction (Rogers-Shaw *et al.* 2018). Accoding to Jacob and Ahaotu (2021), Nigeria is saddled with educational problems of great magnitude, which is traditional methods of teaching and learning alone cannot solve.

There is need for change in teachers method majorly adopted in school learning to more fascinating strategy that could enhance good academic performance of student because, with the recent in the world today, students are required to be well equipped to acquire the skills and knowledge needed to carry out operations in their specialized area.

According to Anderson (2016), the challenges to equip students for present day work life therefore necessitate a shift from the behavioural learning theories to those rooted in cognitive psychological learning theories. The cognitive theories view learning as an internal mental

phenomenon inferred from what learners say and do and focuses on how to engage learners' cognitive process during learning (Leighton, 2019). Theses cognitive theories emphasize making knowledge meaningful and taking into account learners' perceptions of themselves and their learning environment. Rana *et al.* (2017) noted that traditional ' ' chalk-talk method' ' where the teacher does all the classroom talking, doing and even thinking is no longer in vogue. Anderson (2016) opined that instructional techniques that are rooted in cognitive psychological learning theories should be adopted some of which are computer based.

2.2 Theoretical framework

2.2.1 Theory of Vocational Education

Prosser (1949) propounded sixteen theories of Vocational Education. The theories are popularly known as " Prosser sixteen theories of Vocational Education, the first theory which emphases on the working environment is mostly relevance to this study. Therefore, this study will be drives by the Environmental habit theory of Vocational Education. This theorem stated that " Skill training will be efficient in proportion as the environment in which the learner is trained is a replica of the real environment in which he/she must subsequently work" .

School environment is a place where training of the learner is being carried out. Classroom or drawing room is the main environment for teaching or tutoring Technical drawing students. This assertion is in line with the theory enumerates, which states that computer software packages and other computer facilities which are used in training the Technical drawing learners should be the same type as those facilities that exist where they will work after graduation or training. For example, it will be deceitful to training students using manual drawing tools only, while the actual job required the use of modern tools such as CAD. Also, Training in building drawing

using obsolete tools will certainly produce graduates who will not be relevant on the job unless given a new training to meet the desire of their employers. In order to make technical drawing students to acquire relevant skills in the subject, they must be trained with modern computer packages as those that are used in the industry.

The true reflection of the level of the knowledge and skills acquired in the course of training of technical students is determined by their academic performance in a test. Such knowledge and skills determine to a large extent, how effective they will be in the industries where they will be engage after graduation. Most industries nowadays conduct aptitude test for measuring the abilities in theory and practical for their prospective employees.

Therefore, this theory encourages the learners to be inquisitive, explorative, initiative, and innovative and to encourage self discovery in the process of learning.

2.3 Related Empirical Studies

Kudabo (2012) carried out on strategies for improving the performance of technical college students in technical drawing in Kwara State. To achieve these purpose three null hypotheses were tested at 0.05 probability level of significance using t-test. The areas of coverage were five Governmental Technical Colleges in Kwara state. The reliability coefficient of the instrument for the study was 0.92 using cronbach alpha reliability tests. The result of the research reveals that there is significant difference in the opinions of technical teachers working experience on the appropriateness of the teaching methods used by Technical drawing teachers, on the adequacy of tools equipment and materials; and on the measures to be used to enhance teaching and learning

of technical drawing in technical colleges in Kwara state. The paper also highlighted strategies to improve performance of technical college students in technical drawing such as Training, retraining and provision of adequate equipment for training.

Uddin (2019) carried out a study to investigate the influence of teachers' qualification in the teaching of technical drawing in technical colleges in Edo and Delta States of Nigeria. One hypothesis was formulated to guide the study: there is no significant difference in teachers' effectiveness between teachers with B. Sc. (Ed) qualification and NCE (Tech.) qualification in the teaching of technical drawing in technical colleges. The study adopted a quantitative descriptive cross-sectional survey research design. Data analysed in this study were the responses of thirty-five (35) technical drawing teachers across ten (10) technical colleges. The selection was done using total sampling technique. T-test was the statistical tool employed to test the hypothesis at 0.05 level of significance. The result of the analysis revealed that teachers with B.Sc. (Ed) qualification have more influence on the students' academic performance when compared with their counterparts who possess NCE (Tech.) qualifications.

Moses (2020) carried out a study on effect of computer assisted instruction (CAI) AutoCAD learning package in teaching technical drawing among Senior Secondary Schools students in Ogun State. This study adopted a quasi-experimental design, specifically, the pre-test, post-test , non-equivalent control group design, 186 students of technical drawing I (SSS 1) were selected through multi stage sampling from four Senior secondary schools in Yewa South Local Government Area in Ogun State. Two of the schools with 93 students were used as control group while the remaining two schools with 93 students were used as experimental group. A validated Technical Drawing Achievement Test (TDAT) was used for data collection. A reliability coefficient of 0.87 was obtained using test-retest reliability technique and Pearson Product

Moment Correlation. Three research questions guided the study and three hypotheses were tested; Data collected were analyzed using mean ($\bar{x}$) for the research questions and Analysis of Covariance for the hypotheses at 0.05 level of significance. The research findings revealed an improved difference in the performance of students after being exposed to the use of Computer Assisted Instruction (CAI) (Mean Deviation = 8.55; df = 92; t=43.832; $p < .05$) in teaching of Technical drawing. Also, the findings revealed a significant mean differences between the pretest-posttest mean score of students in control group taught technical drawing with conventional teaching method and the experimental group taught technical drawing with computer assisted instruction (CAI) ($F = 20.653$; $p < .05$) which is an indication that the effect of computer assisted instruction (CAI) on students' academic performance is higher than the effect of the conventional teaching method. In the same vein, the findings in the study revealed a slight but not significantly different mean performance between male and female students in the experimental group (M = 8.89& 8.46; df = 91; t= .038; $p > .05$). Based on the findings, it was recommended among other things that the use of computer assisted instruction (CAI) for instructional facilitation should be employed by teachers and administrators to facilitate meaningful learning in technical drawing. Also, computer assisted materials should be developed on topics that may need some extra support to teach.

Jane (2020) carried out a study to investigate the influence of teacher quality and professional development on students' academic performance in technical drawing in Edo State technical colleges, Nigeria, using correlational survey research design. The sample size for the study comprised 20 technical teachers and 150 technical drawing students selected through simple randomly balloting technique. Two instruments developed by the researcher were used for data collection: Teacher quality and professional development questionnaire (TQPDQ) and Technical

Drawing Achievement Test (TDAT). The instruments were validated by three experts. TQPDQ had a reliability coefficient of 0.86, while TDAT had a reliability value of 0.76 obtained using the test-retest technique. Data collected were analyzed using multiple regression. The findings of the study revealed that despite low percent variation in students' academic performance in technical drawing that can be attributed to teacher quality; there exists a significant positive relationship between students' academic performance in technical drawing and teacher quality. Furthermore, it was observed that there was no significant relationship between students' academic performance in technical drawing and technical drawing teachers' professional development as a result of poor attendants of teachers' to professional development programs. The findings of this study imply that teacher quality and professional development are major factors in the academic performance of students' in technical drawing. Based on the findings of this study, it was recommended among others that the government should organize and expose technical teachers to diverse opportunities that will facilitate them to develop professionally.

2.4 Summary of Literature Reviewed

The literature review is discussed under the following subheading: Concept of technical drawing, Teaching and learning of technical drawing, Methods of Teaching Technical Drawing in Senior Secondary School, Teaching methods and Students Academic Achievement in Technical Drawing, The Need for Change in Method of Instruction. It was deduced from the study that There is need for change in teachers method majorly adopted in school learning to more fascinating strategy that could enhance good academic performance of student because, with the recent in the world today, students are required to be well equipped to acquire the skills and knowledge needed to carry out operations in their specialized area. Relevant and adequate literatures were reviewed in the study.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Design of the Study

The study adopt the descriptive survey research design used to evaluate the teacher factor on students' achievement in senior secondary school certificate technical drawing examination in Oyo state. Survey design aimed at collecting data on and describing in a systematic manner, the characteristics features or facts about a given population.

3.2 Area of the study

The study will be carried out in all technical colleges in Oyo state.

3.3 Population for the Study

The population for the study consists of 90 respondents comprising 10 principals and 80 technical teachers.

3.4 Sample and Sampling Technique

There will be no sampling since the population was small and manageable.

3.5 Instrument for Data Collection

The researcher designed a structured questionnaire as an instrument that was used in collecting data for the study. The questionnaire was made up of four sections (A, B, C, D and E). Section ' A' contains items on personal information of the respondents. Section ' B' seeks the Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state. Section ' C' find out the Teaching Methodology factors on students achievement in senior secondary school certificate technical drawing examination in Oyo state. Section ' D' find out Teaching Evaluation factors on students achievement in senior secondary school certificate technical drawing examination in Oyo state. While Section ' E' Strategies for improving teaching and learning of technical drawing students' achievements in senior secondary school certificate technical drawing examination in Oyo state. The questionnaire items were based on four points scale types. Items for section 'B', 'C' and 'D' contain four responses category each. The response categories for section 'B', 'C' and 'D' are strongly Agree (SA), Agree (A), and Disagree (D) and strongly disagree (SD). These

response categories will be assign numerical values of 4, 3, 2 and 1 respectively. Respondents were require checking (√) against the response category that best satisfies their opinion.

3.6 Validation of instrument

The instrument was validated by three lecturers in the department of Industrial and Technology Education, Federal University of Technology, Minna and contributions on the appropriateness of the instrument will be considered in the production of the final copy of the research instrument.

3.7 Reliability of instrument

In order to determine the reliability of the research instrument, a pilot test was conducted using fifteen in other locations. During the test, the questionnaires were distributed by the researcher. The questionnaire was filled by the respondents and then returned to the researcher. The data collected will be analyzed using Crombach Alpha

3.8 Administration of instrument

The instrument that was used for the data collection was administered to the respondents by the researcher and three research assistant in the study area.

3.9 Method of data analysis

Data collected was analyzed using mean and standard deviation for the research questions while t-test was used to test the hypothesis at the 0.05 level of significant. A four (4) point rating scale was to analyze the data as shown below.

Strongly Agree (SA) = 4points (3.5 – 4.0)

Agree	(A)	=	3points (2.5 - 3.49)
Disagree	(D)	=	2points (1.5 – 2.49)
Strongly Disagree	(SD)	=	1point (1.0 – 1.49)

Therefore, the mean value of the 4 point scale is:

$$\bar{X} = \frac{4+3+2+1}{4} = \frac{10}{4} = 2.5$$

3.10 Decision Rule

The cutoff point of the mean score of 2.50 will be chosen as the agreed or disagreed point. This will be interpreted relatively according to the rating point scale adopt for this study. Therefore, an item with response below 2.49 and below was regard or consider as disagreed while an item with response at 2.5 and above was regarded or considered as agreed.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

4.1 Research Question 1

What are the Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state?

Table 4.1: Mean responses of the principals and technical drawing teachers on the Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state.

N_1= 10 N_2=80

S/N	ITEMS	$\bar{X}$	SD	Remark
1	Stating the behavioral objectives	3.77	.564	Agreed
2	Stating the previous knowledge	3.62	.566	Agreed
3	Determining instructional materials	2.96	1.286	Agreed
4	Organizing instructional materials	3.10	.803	Agreed
5	Introduce the lesson through the use of any appropriate teaching methods	3.78	.544	Agreed
6	Organizing sequentially the instructional material	2.99	1.050	Agreed
7	Use of relevant teaching aids	3.49	.754	Agreed
8	Reinforcing learning activities	3.64	.560	Agreed
9	Directing classroom instruction	3.65	.720	Agreed
10	Employing varieties of teaching method	3.36	.712	Agreed
11	Involving ICT in teaching basic technology	3.72	.548	Agreed

N=90

$\bar{X}$= mean of the respondents

N_1 = No. of principals

N_2= No. of technical drawing teachers

SD = standard deviation of the respondents

Table 4.1 showed that both the principals and technical drawing teachers agreed on all items from 1 to 11. This is because none of the mean response was below 2.50 which was the beach mark of agreed on the 4-points response options. The standard deviation score ranged between 0.544 and 1.286. This showed that the responses of the principals and technical drawing teachers on the items were not divergent.

4.2 Research Question 2

What are the Teaching Methodology factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state?

Table 4.2: mean response of the principals and technical drawing teachers on the Teaching Methodology factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state.

N_1= 10 N_2=80

S/N	ITEMS	$\bar{X}$	SD	Remark
1	Group the students in a large class for demonstration process	3.45	.741	Agreed
2	Present information with projector	3.60	.780	Agreed
3	Present concepts and skills before demonstration commence	3.55	.608	Agreed
4	Involve the students in all activities during learning process	3.76	.609	Agreed
5	Use appropriate teaching methods as demonstration method	3.69	.703	Agreed
6	Perform the learning process during demonstration before the students	3.58	.753	Agreed
7	Employ team teaching during demonstration	3.25	.740	Agreed
8	Visit students while performing their tasks	3.60	.580	Agreed
9	Make demonstration work and activities to be meaningful to the learners	3.73	.546	Agreed

N=90

$\bar{X}$= mean of the respondents

N_1 = No. of principals

N_2= No. of technical drawing teachers

SD = standard deviation of the respondents

Table 4.2 showed that both the principals and technical drawing teachers agreed on all items. This was because none of the mean response was below 2.50 which was the bench mark of agreed on the 4-point response options. The standard deviation score ranged between 0.546 and 0.780. This showed that the responses of the principals and technical drawing teachers on the items were not divergent.

4.3 Research Question 3

What are the Teaching Evaluation factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state?

Table 4.3: mean responses of the principals and technical drawing teachers on the Teaching Evaluation factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state.

		N_1= 10		**N_2=80**
S/N	ITEMS	$\bar{X}$	**SD**	Remark
1	Evaluate students affective domain	2.98	.938	Agreed
2	Assess students psychomotor performance	3.51	.626	Agreed
3	Construct reliable test to evaluate students Progress	3.62	.691	Agreed
4	Assess the effectiveness of the teaching strategy	3.56	.546	Agreed
5	Make record about students academic ability	3.68	.615	Agreed
6	Provide records about students moral character and personality	3.71	.661	Agreed
7	Make use of information procedure like observation for collection of information about students	3.73	.631	Agreed

8	Use varieties of evaluation techniques and procedures such as test, assessment and project	3.73	.654	Agreed

N=90

$\bar{X}$**=** mean of the respondents

N_1 = no. of principals

N_2= No. of technical drawing teachers

SD = standard deviation of the respondents

Table 4.3 showed that both the principals and technical drawing teachers agreed on all items from 1 to 9. This was because none of the mean response was below 2.50 which was the bench mark of agreed on the 4-point response options. The standard deviation score ranged between 0.546 and 0.938. This showed that the responses of the industrial supervisors and the technical teachers on the items were not divergent.

4.4 Research Question 4

What are the Strategies for improving teaching and learning of technical drawing students' achievements in senior secondary school certificate technical drawing examination in Oyo state?

Table 4.3: mean responses of the principals and technical drawing teachers on the Strategies for improving teaching and learning of technical drawing students' achievements in senior secondary school certificate technical drawing examination in Oyo state.

		N_1= 10		**N_2=80**
S/N	ITEMS	$\bar{X}$	**SD**	Remark
1	Students understand better when the teaching methods are used.	3.81	.504	Agreed
2	Secondary schools should create funds to purchase technical drawing workshop tools and equipment.	3.56	.586	Agreed
3	Government should provide funds to train and re-train the technical drawing Teacher for effective teaching and learning of the subject.	2.98	.938	Agreed

4	Technical drawing students should be motivated through scholarships.	3.56	.693	Agreed
5	Secondary School teacher' s salary should paid regularly to improve effective teaching and learning of technical drawings	3.57	.753	Agreed

N=90

$\bar{X}$**=** mean of the respondents

N_1 = no. of principals

N_2= No. of technical drawing teachers

SD = standard deviation of the respondents

Table 4.3 showed that both the principals and technical drawing teachers agreed on all items from 1 to 5. This was because none of the mean response was below 2.50 which was the bench mark of agreed on the 4-point response options. The standard deviation score ranged between 0.504 and 0.938. This showed that the responses of the industrial supervisors and the technical teachers on the items were not divergent.

4.5 Hypothesis 1

There is no significant difference in the mean response of principals and technical drawing teachers on Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state.

Table 4.5 T-test on Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state.

N_1 = 10 AND N_2 = 80

Respondents	N	X	SD	Df	Tcal	P-value	Remark
Principals	10	3.40	.618	88	2.467	0.027	NS
Technical drawing teachers	80	3.67	.618				

N=90

$\bar{X}_1$= mean of principals

$\bar{X}_2$ = mean of technical drawing teachers

N_1 = No. of principals

N_2= Managers

SD_1 = standard deviation of principals

SD_2 = standard deviation of managers

NS=Not Significant

Table 4.5 showed that there was no significant difference in the responses of principals and technical drawing teachers on all the items as Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state; therefore the null hypothesis of no significant difference was upheld at 0.05 level of significance.

4.6 Findings of the study

The following are the main findings of the study; they are prepared based on the research questions and hypothesis tested.

What are the Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state?

- Stating the behavioral objectives
- Stating the previous knowledge
- Determining instructional materials
- Organizing instructional materials
- Introduce the lesson through the use of any appropriate teaching methods
- Organizing sequentially the instructional material
- Use of relevant teaching aids
- Reinforcing learning activities

- Directing classroom instruction
- Employing varieties of teaching method
- Involving ICT in teaching basic technology

What are the Teaching Methodology factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state?

- Group the students in a large class for demonstration process
- Present information with projector
- Present concepts and skills before demonstration commence
- Involve the students in all activities during learning process
- Use appropriate teaching methods as demonstration method
- Perform the learning process during demonstration before the students
- Employ team teaching during demonstration
- Visit students while performing their tasks
- Make demonstration work and activities to be meaningful to the learners

What are the Teaching Evaluation factors on students achievement in senior secondary school certificate technical drawing examination in Oyo state?

- Evaluate students affective domain
- Assess students psychomotor performance
- Construct reliable test to evaluate students Progress
- Assess the effectiveness of the teaching strategy
- Make record about students academic ability
- Provide records about students moral character and personality

- Make use of information procedure like observation for collection of information about students
- Use varieties of evaluation techniques and procedures such as test, assessment and project

What are the Strategies for improving teaching and learning of technical drawing students' achievements in senior secondary school certificate technical drawing examination in Oyo state?

- Students understand better when the teaching methods are used.
- Secondary schools should create funds to purchase technical drawing workshop tools and equipment.
- Government should provide funds to train and re-train the technical drawing Teacher for effective teaching and learning of the subject.
- Technical drawing students should be motivated through scholarships.
- Secondary School teacher' s salary should paid regularly to improve effective teaching and learning of technical drawings

Discussion of findings.

The result from table 4.1 shows the findings on the Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state. The findings of the study revealed that Stating the behavioral objectives, Stating the previous knowledge, Determining instructional materials, Organizing instructional materials, Introduce the lesson through the use of any appropriate teaching methods, Organizing sequentially the instructional material, Use of relevant teaching aids, Reinforcing learning activities, Directing classroom instruction, Employing varieties of teaching method, Involving ICT in

teaching basic technology. The findings of the study is inline with Ogbuanya and Bakare (2017) that appropriate and achievable behavioral objectives must be stated for a particular lesson

The result of the hypothesis on the Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state shows that there was no significant difference in the responses of principals and technical drawing teachers on Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state.

Table 4.2 shows the result of the findings on the Teaching Methodology factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state. The findings of the study revealed that Grouping the students in a large class for demonstration process, Present information with projector, Present concepts and skills before demonstration commence, Involve the students in all activities during learning process, Use appropriate teaching methods as demonstration method, Perform the learning process during demonstration before the students, Employ team teaching during demonstration, Visit students while performing their tasks, Make demonstration work and activities to be meaningful to the learners. The findings of the study is inline with Aina and Langenhoven (2015) that presentation of concepts and skills before demonstration commence is a good steps to be taken

The result from table 4.3 reveal the findings on Teaching Evaluation factors on students achievement in senior secondary school certificate technical drawing examination in Oyo state. The findings of the study revealed that Evaluate students affective domain, Assess students psychomotor performance, Construct reliable test to evaluate students' Progress, Assess the effectiveness of the teaching strategy, Make record about students' academic ability,

Provide records about students' moral character and personality, make use of information procedure like observation for collection of information about students, and Use varieties of evaluation techniques and procedures such as test, assessment and project. The findings of the study is inline with Wanner and Palmer (2015) who found that assessment of the effectiveness of the teaching strategy ensures the achievement of the objectives

The result from table 4.4 reveal the findings Strategies for improving teaching and learning of technical drawing students' achievements in senior secondary school certificate technical drawing examination in Oyo state. The findings of the study revealed that Students understand better when the teaching methods are used, Secondary schools should create funds to purchase technical drawing workshop tools and equipment, Government should provide funds to train and re-train the technical drawing Teacher for effective teaching and learning of the subject, Technical drawing students should be motivated through scholarships, Secondary School teacher' s salary should paid regularly to improve effective teaching and learning of technical drawings. Ibe *et al.* (2016) stated that teachers required professional knowledge and professional teaching skills, as well as a broad base of general knowledge to promote teachers' job effectiveness and learners' achievement to support the findings of this study

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Study

The main focus of this research study was to evaluate the teacher factor on students' achievement in senior secondary school certificate technical drawing examination in Oyo state.

Chapter 1 of the study discussed the background of the study, the statement of problem, purpose, significance, scope and the research questions were all stated and discussed for the conduct of this research.

The review of related literature looked into Concept of technical drawing, Teaching and learning of technical drawing, Methods of Teaching Technical Drawing in Senior Secondary School, Teaching methods and Students Academic Achievement in Technical Drawing, The Need for Change in Method of Instruction. Various views of different authors concerning the topic were harmonized in a comprehensive literature review and empirical studies.

A survey approach was used to developed instrument for the study; the respondents identified as the population of the study were the principals and technical drawing teachers. The entire respondents were used. A number of 100 questionnaires were administered. The instrument used was analysed using frequency count, and mean scores. The research questions were discussed base on the findings from the responses and results of the instrument used.

Implication of the study and conclusions were also drawn from the findings discussed. Recommendations and suggestions for further study were formulated and stated according to the findings of the study.

5.2 Implication of the Study

The findings of the study had implications for government, technical drawing teachers and principals. From the outcome of the study, it implies that If the identified areas where put in place it will give technical drawing teachers more privilege to improve their teaching skills and thereby enhancing the performance of students in the subject .

5.3 Conclusion

Based on the findings of the study, the following conclusions were drawn: the findings of the study shows that teacher quality is an influential factor in the academic performance of students in technical drawing. However, no significant relationship was found between students' academic performance in technical drawing and technical teachers' professional development. This could be due to the fact that poor or none attendance of technical teachers' to professional development programs.

5.4 Recommendations

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

1. Government should expose technical teachers to a variety of programs for the training, re-training/refresher of technical teachers such as conferences, seminars, and workshops that will assist them to broaden their potentials, help update technical teachers on innovative ways of teaching technical drawing
2. More qualified technical teachers should be engaged to handle the instructional delivery of technical drawings
3. Technical teachers should be engaged in various professional development programs to develop professionally. This can be achieved through self-sponsorship if the school authorities or government do not avail them of the opportunities.

5.5 Suggestion for Further Study

The following are suggested for further studies:

1. evaluate the teacher factor on students' achievement in senior secondary school certificate technical drawing examination in other location.
2. Examination of the human resource management practices of the state to find out their implications on the compliance to the recommended teaching methods and evaluation techniques.

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Appendix

QUESTIONNAIRE

FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE

SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION

A QUESTIONNAIRE ON EVALUATION OF TEACHER FACTOR ON STUDENTS' ACHIEVEMENT IN SENIOR SECONDARY SCHOOL CERTIFICATE TECHNICAL DRAWING EXAMINATION IN OYO STATE.

INTRODUCTION: Please kindly complete this questionnaire by ticking the column that best present your perception about the topic. The questionnaire is for research purpose and your view will be confidentially and strictly treated in response to the purpose of the research work.

SECTION A

PERSONAL DATA

Principals: ☐

Technical drawing teacher: ☐

Note: A four (4) point scale is used to indicate your opinion, tick the options which best describe your agreement as shown below:

Strongly Agree	(SA)	=	4points
Agree	(A)	=	3points
Disagree	(D)	=	2points
Strongly Disagree	(SD)	=	1points

Section B: What are the Instructional planning factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state?

S/N	Items	Scales			
		SA	A	D	SD
1	Stating the behavioral objectives				
2	Stating the previous knowledge				
3	Determining instructional materials				
4	Organizing instructional materials				
5	Introduce the lesson through the use of any appropriate teaching methods				
6	Organizing sequentially the instructional material				
7	Use of relevant teaching aids				
8	Reinforcing learning activities				
9	Directing classroom instruction				
10	Employing varieties of teaching method				
11	Involving ICT in teaching basic technology				

Section C: What are the Teaching Methodology factors on students' achievement in senior secondary school certificate technical drawing examination in Oyo state?

S/N	Items	Scales			
		SA	A	D	SD
1	Group the students in a large class for demonstration process				
2	Present information with projector				
3	Present concepts and skills before demonstration commence				
4	Involve the students in all activities during learning process				

5	Use appropriate teaching methods as demonstration method				
6	Perform the learning process during demonstration before the students				
7	Employ team teaching during demonstration				
8	Visit students while performing their tasks				
9	Make demonstration work and activities to be meaningful to the learners				

Section D: What are the Teaching Evaluation factors on students achievement in senior secondary school certificate technical drawing examination in Oyo state?

S/N	**Skill Items**	**Scale**			
		SA	**A**	**D**	**SD**
1	Evaluate students affective domain				
2	Assess students psychomotor performance				
3	Construct reliable test to evaluate students Progress				
4	Assess the effectiveness of the teaching strategy				
5	Make record about students academic ability				
6	Provide records about students moral character and personality				
7	Make use of information procedure like observation for collection of information about students				
8	Use varieties of evaluation techniques and procedures such as test, assessment and project				

Section E: What are the Strategies for improving teaching and learning of technical drawing students' achievements in senior secondary school certificate technical drawing examination in Oyo state?

S/N	Skill Items	Scale			
		SA	**A**	**D**	**SD**
1	Students understand better when the teaching methods are used.				
2	Secondary schools should create funds to purchase technical drawing workshop tools and equipment.				
3	Government should provide funds to train and re-train the technical drawing Teacher for effective teaching and learning of the subject.				
4	Technical drawing students should be motivated through scholarships.				
5	Secondary School teacher' s salary should paid regularly to improve effective teaching and learning of technical drawings				