COMPETENCY SKILL IMPROVEMENTS OF WOODWORK TECHNOLOGY TEACHERS IN TECHNICAL COLLEGES IN NIGER STATE

BY

OLADEWA, Babatunde Samson
2018/3/74377TI

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION

SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

FEDERAL UNIVERSITY OF TECHNOLOGY

APRIL, 2023

DECLARATION

I hereby declare that his project is my original work. **"Competency Skill Improvements in Woodwork Technology Teachers in Technical Colleges in Niger State"** is a collection of my original research work and it has not been presented in any other institution for other qualification anywhere. All the information from the published and unpublished work of other sources has been duly acknowledge.

OLADEWA, Babatunde Samson **DATE**
2018/3/74377TI

CERTIFICATION

The project titled **"Competency Skill Improvements in Woodwork Technology Teachers in Technical Colleges in Niger State"** by OLADEWA, Babatunde Samson (B.TECH/SSTE. 2018/3/74377TI) meets the regulation governing the Award of B.Tech in Education, in the Department of Industrial and Technology Education, Federal University of Technology, Minna, and it is approved for its contribution on scientific knowledge and literacy presentation.

Dr. A. M Hassan Project Supervisor	DATE
Dr. T. M Saba Head of Department	DATE
External Examiner	DATE

DEDICATION

This research work is dedicated to Almighty God for his grace, mercy and help upon my life and also to my beloved parents Mr. and Mrs. Comfort Oladewa Oyeniran.

ACKNOWLEDGEMENT

My continuous gratitude goes to God Almighty who has made it possible for me to be able to successfully write this research project and who has shown me mercy and made me who I am today and for what He will still yet do in my life for this is just the beginning, may His name alone be glorified both now and forever (Amen).

My profound gratitude goes to my devoted supervisor Dr. A. M Hassan for his kindness, devotion, moral discipline, meaningful advice and patient contribution and also despite his tight schedules took time to read through the manuscripts for correction so as to ensure that the research project is in order. I pray that God Almighty continue to uplift you in your career and endeavors.

I also want to use this medium to appreciate the outstanding, reliable, efficient Educational Technology lecturers that have taught me throughout my program especially; Prof. R. O. Okwori, Dr. M. Bala, Mrs. N. Franca and also all workshop technicians. Thanks a lot, May God honour and bless you all.

I am highly and in no small measure very grateful to my beloved late parent, Mr. and Mrs. Comfort Oladewa Oyeniron for their heavenly prayers, may you all rest well in bosom of the lord. Amen.

I also want to thank all my wonderful friends and family in likes of Isaac, Olalekan, Omolara, Folashade, Olushola, Victory, Victor, Daniel, Dora, Ella's, and so many others for their prayers and encouragement, God bless you all.

ABSTRACT

The study was motivated by a great concern about the future and continuity of woodwork practical projects in all tiers of society and our education system particularly in Technical Colleges. The concern stemmed from poor performance, low and declining skill practice in performance. Pertinent questions and doubts were raised on the strategies employed by teachers currently teaching woodwork in Technical Colleges. The study therefore focused on the in-service training, motivation, instructional materials and teaching technique in woodwork practical project as a frame of reference. Four research questions guided the study and two hypotheses formulated were tested at 0.05 level of significance. The study adopted a survey research design. The area of the study was the seven technical colleges in Niger state. The population and sample for the study was made up of 15 woodwork teachers and 28 instructors in the seven Colleges of Education (Technical). A questionnaire titled "Strategies for improving practical projects in woodwork in Colleges of Education (Technical) in Northwestern states of Nigeria" consisting of 70 items was structured, based on the woodwork practical projects, administered to 43 teachers. Data collected were analyzed using means and test statistics. From the findings, the study introduce new materials used in woodwork to teachers/instructors, training on modern equipment to update their skills in selection and application wood hand tools, construction and finishing skills, and to enhance staff development continuing education in building/architectural drawing. The study recommended re-training, motivation and in-service training for woodwork teachers not once but on regular basis through workshops and seminars.

TABLE OF CONTENTS

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Technical Colleges are one of the principal technical and vocational institutions saddled with the responsibility for training craftsmen in Nigeria. These institutions play vital roles in Technological development in Nigeria. They are designed to offer theoretical and practical education for the acquisition of skills as well as basic scientific knowledge at the secondary school level (National Board for Technical Education, 2001). Technical Colleges are established to train craftsmen for industry as well as making individuals to be self-employed and create jobs in the struggle towards technological advancement.

The curricula of Technical Colleges are centred on craft/engineering trades and agriculture which includes Agric- Mechanisation, Motor-mechanics, Building Construction, Electrical Installation, Metalwork, Plumbing, and Woodwork among others. Following the Boko haram insurgency in Northern Nigeria, there is increased demand of Training the unemployed youth with Vocational and Technical skills for self-employment which led to the establishment of more Technical Colleges where woodwork trade is taught.

Woodwork trade is referred to as activity that involved skills for the production and servicing of wooden articles. According to Hornby (2000), woodwork is also seen as the activity or skill of making objects from wood by woodwork craftsmen. It is an integral part of Technical Vocational Education and Training (TVET) programme. It is one of the vocational trades offered in Technical Colleges of Niger State. Okwori, Adamu and Odo, (2013) stated that, training students in wood trade should be geared towards achieving the aims and objectives of the programme which include:

1. To secure employment at the end of the programme as craftsman.
2. Set up their own businesses and become self-employed and able to employ others.
3. Pursue further education in advanced craft technical programme or in tertiary technical institutions.

Federal Republic of Nigeria (2004) identified areas of woodwork as follows: carpentry and Joinery, furniture making and Upholstery**.** The emphasis of government on skills acquisition led to the establishment of institutions that emphasise skills acquisition at all levels of educational system (Ogbu, 2007). Among these institutions are the Technical Colleges that are expected to have workshops for various trades offered and must be well equipped as to enable the transfer of practical skills to the learners for construction of wooden projects.

Workshop is a work area with fixed or portable metal or wood-working machineries where the primary function is to fabricate or machine materials. According to Jibril (2011), a workshop is an area, room or building where machines, equipment, hand tools, work benches and materials are used in the manufacturing or repairing of things. A wood workshop is a building where tools, machines and wood materials are used in the production of wooden articles under the guidance of woodwork teacher.

To improve the teachers abilities, workshops are expected to be well equipped and coordinated to enable woodwork teachers teach woodwork skills effectively. Abba (2008) expressed that woodwork technology by its nature, requires the establishment of uniformity of working conditions, operation and motion sequences, materials, workshop arrangement, tools and equipment for teachers to carry out their duties effectively. Nwokolo (2006) opined that teacher's activities in wood workshops include: the effective use of hand tools; operation of machines; supervision of student's

activities; demonstration and maintenance of tools and equipment. Teachers' and students' activities in wood workshops are solely on skill transfer that make individual acquire manipulative techniques for selfreliance.

is the capability of accomplishing a job with precision of certainty, practical knowledge in combination with ability, cleverness and expertness (Abdullahi, 2010). This shows that skill is applicable in every field of human activities. Acquisition of skills is therefore necessary especially in teaching woodwork trade that involves instructive and manipulative skills. To increase the chances for self-reliance and employability, woodwork teachers must help students to acquire skills that are flexible and relevant to the demands of the present day. If such diverse expectations are to be met, substantial improvements are required. Woodwork trade teachers responsible for preparing the skilled personnel should possess the necessary skills for the construction of wooden projects in terms of preparation of timber to size, marking-out and cutting of wood joints. Other skills needed in the production of woodwork project involves application of adhesive and assembling, finishing techniques and maintenance of tools and equipment, which are the foundation of skills development in woodwork practice.

A woodwork project refers to an article made from wooden materials by a woodworker that required being prepared to specification to give the desired size, shape and colour for a specific purpose. The part members are needed to be prepared by planing of faces and edges and cutting off ends. Planing is the smoothing of surfaces and edges of rough sawn timber by taking off shavings with planes or machines (Walton 1976). It is the removing of imperfections on the piece of rough sawn wood to make it smooth and attractive. Cutting also describes the action of a saw which separates wood fibres in the process of cutting wood, (John, 1994). This is necessary for a perfect joint to be made.

Joints in woodwork are devices for holding parts of wooden structures together firmly (Sackey, 1999). It involved cutting of members to fit into each other according to the type and method of assembling. When joints are, they are collected together to make a whole using bonding substances. To make the body more attractive, decorating and protecting the surface has to take place by a process called finishing with brush, spray or roller. Choosing a particular finish is influenced by the function of the project. The continuous use of woodwork tools render them inefficient to perform optimally, as such maintenance is required. It is carried out as a supporting service on any device to prolong its serviceable life (Parrish, 1973). It involves the systematic supply of necessary materials for the continuous operation of given equipment which includes; Lubricants, grease, fluid and water. Therefore, it is important for a woodworker to possess these skills to enable him pass same to the learners for effective learning in wood workshop.

These skills seems to be lacking in the woodwork teachers of Technical Colleges in Yobe state judging by the poor performance of craftsmen in practical aspect of the trade. Although the state government has done much to improve the quality of training given to wood craft practice students by establishing new Technical Colleges and procuring tools and equipment. Ogundeji (2002), opined that the problem facing technical institution in Nigeria is that of production of unskilled technical personnel who cannot function effectively in the society. Ogundeji further stressed that, the above situation is attributed to lack of skills on the part of technical teachers or they are weak in teaching practical skills in their school wood workshops. It is on the basis of these inadequacies that the researcher seeks to determine competency skill improvements needs of woodwork technology teachers in technical colleges in Niger state

1.2 Statement of the Problem

Today's world of technology depends largely on high skilled manpower for productivity. Technical Education have major role to play in the production of this competent manpower for wood industries. It is expected that graduates should posses skills which will enable them perform in their areas of discipline. Osuala (2001) observed that the skilled job opportunities in industries are not filled up. Oranu (2001) stated that Technical colleges products are weak in practice of their trades.

Many Technical Colleges graduates especially those in woodwork are jobless. They are jobless not because of the absence of the job opportunities but because they are not skilled enough to take up the available teaching and industrial jobs (Osuala, 2001). In extension, this means the graduates of Colleges of Education are not competent to take up available employment. UNEVOC (2007) expressed that majority of graduate of woodwork in developing countries are not self-reliant due to incompetence reason not far away from poor practical project orientation.

Unfortunately, despite all effort by government to ensure qualitative education at the Technical colleges and bring about high competent products both in academic and employability, there have been persistent reports of high failure rate among students (FGN, 2013). Abdullahi (2010) attributed students' lack of practical skills necessary to develop and manage their career lives to the growing gap that exist between students school experiences and the real world of work. The problem of this study therefore is to determine competency skill improvements needs of woodwork technology teachers in technical colleges in Niger state.

1.3 Purpose of the Study

The major purpose of the study therefore is to determine competency skill improvements needs of woodwork technology teachers in technical colleges in Niger state. Specifically, the study will determine:

1. In-service training needs for improving practical projects
2. The need motivation of teachers as means for improving practical projects
3. Instructional materials for improving practical projects
4. Teaching techniques for improving the use of hand and machine tools

1.4 Significance of the Study

The findings of the study will be beneficial to the ministry of education and researcher, wood industries, curriculum planners, technical education teachers, student and the society at large. The findings of this study will be beneficial to the Ministry of Education. They can use the result of the study to organize training workshop and seminar for woodwork teachers in order to update their skills and knowledge in woodwork. The ministries will also use the findings of the study to employ teachers, for instance using the woodwork teacher for Technical Colleges.

The findings of the study will be beneficial to wood industries where Technical colleges graduates seek for employment upon graduation. Woodwork graduates will be better equipped with practical skills to perform more effectively in tier various jobs and assignment in the industries. This will also help the industries minimize the huge financial expenditure on retraining of Technical College graduates upon employment.

The findings of the study will provide suitable information that will aid at objective planning and successful curriculum, beneficial to curriculum planners and training institutions. In that this institution will be able to incorporate the aspect of teacher

competency required, as identified practical project skill in the curriculum. The findings will help the curriculum planner aimed at persuading woodwork teachers, technicians to improve practical project practice as well as develop practical skills, knowledge and attitude favorable to change in woodwork today.

The findings will be beneficial to technical education teacher; it will improve the quality of skills needed in practical education providing employment to vocational programme.

The findings of the study will be beneficial to woodwork teachers because if the quality required of these teachers are upgraded through in-service training with the findings of this study, the teachers will use the new knowledge to teach practical better to students.

This invariably will motivate the students to learn and also give the teacher's job satisfaction. The findings of the study will be beneficial to students because when the woodwork teachers are well equipped with the practical knowledge required, students will be instilled in the proper knowledge. The students will therefore learn better and be able to work more effectively due to improved skill acquisition. If this is achieved, parents will also be happy because they will see value in their efforts.

The society will also benefit from the findings of the study because when students graduate with expected skills, they will reduce the problem of quack woodwork technical teachers, thereby, offering good services to the society. This will go a long way in achieving the much-needed technological development in Nigeria.

1.5 Scope of the Study

The study is delimited to competency skill in work through in-service training, motivation, instructional materials and use of hand and machine tools in woodwork. It is

delimited to woodwork teachers and instructors in Niger State technical colleges for improving other aspect of woodwork like theoretical are not covered by the study.

1.6 Research Questions

This study is guided by the following research questions:

1. What are the in-service training needs of teachers needed for improving practical projects in woodwork?
2. How can motivation of teacher improve practical projects in woodwork?
3. How can instructional materials improve practical projects in woodwork?
4. What are the teaching techniques that will improve the use of hand and machine?

1.7 Hypotheses

The following null hypotheses formulated to guide this study and is tested at 0.5 level of significance.

Ho_1: There is no significant difference in the mean responses of instructors and teachers on the need teacher for in-service training to improve practical projects.

Ho_2: There is no significant difference in the mean responses of instructors and teachers on the teaching techniques for tools handling to improve practical project.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Theory of Performance (ToP)

The theory of performance (TOP) develops and relates six foundational *concepts* to form a framework that can be used to explain performance as well as performance improvement. To perform is to produce valued result. A performer can be an individual or a group of people engaging in a collaborative effort. Developing performance is a journey, and level of performance describes location in the journey. Current level of performance depends holistically on six components: context, level of knowledge, level of skills, level of identity, personal factor and fixed factors. Three axioms are proposed for effective performance improvements. These involve a performance's mindset, immersion in an enriching environment and engagement reflective practice.

2.1.2 Rationale for a Theory of Performance (ToP)

Wonderful accomplishments also occur in day-to-day practice in higher education. An advisor inspires student to follow their dream. A teacher magically connects with student, and a researcher continually asks the quintessential question that lead to revolution in thinking, a dean inspires an entire college to collaborate and attain wonderful outcomes. A theory of performance (TOP) is useful in many learning contexts.

Traditional Context: A ToP informs learning in classroom; workshops and other venues that are traditionally associated with learning.

Non Traditional Context: A ToP informs learning in contexts that are not traditionally conceptualized as learning environments. Examples of these contexts include academic advising self professional research groups and colleagues.

Organization Learning: A ToP informs learning by organization through the idea of examining the "level of performance" of the organization.

Performance: To perform is to take a complex series of actions that integrate skills and knowledge to produce a valuable result. In some instances, the performer is an individual. The performer is a collection of people who are collaborating, such as an academic department, research team, committee, student team or a university.

2.1.3 Social Cognitive Career Theory (SCT)

Social cognitive theory is the one of the most influential new approaches in career development. The theory according to Miller and Dorland (1941) posits that people learn by watching what others do and that human thought processes are central to understanding personality. SCT offers a useful perspective from which to understand and support the strategy for improving practical project in woodwork in colleges of education.

Lent, Hackett and Brown (1999) demonstrated that SCT view strategy for improving practical project in woodwork as a gradual process, which could being in the elementary school year with developmentally appropriate intervention that should continue throughout the school years and beyond a student's entry into workplace, rather than be concentrated just at the end of the high school. Mary and Peter (20000) outlined three key variable underlying SCT as: self-efficiency, outcome expectation and goals. Self-efficiency according to Mary and Peter refer to expectation about one's performance, capabilities that most powerful source of which is the consequences performance effort. Mary and Peter further demonstrated that the third variable, goal appear important in achieving longer-term outcomes such as finishing technical college or higher education or getting particular job.

Self-efficiency according to Lent (1996) posited that students with low self-efficiency and lack of skills can benefit from skill building efforts or form consideration of an alternative occupational pursuit more in line with their current capabilities. Other efficiency enhancing interventions include promoting personal mastery experiences that include challenging school or job related task; reviewing previous successful performances, and modifying faulty self-efficiency perception by interpreting both past and present success and promoting perceived competence rather than discounting perceived competence.

Perceived competence in the words of Lent and Brown (1996) pined that by selecting certain goals, adolescent are guided their won educational and vocational behaviors. SCT place great emphasis on personal goals by viewing them as the key to motivating behaviour. However, goals will only be followed through if they are clear and specific and held with strong commitment. They also need to be stated publicly. Brown and Lent further demonstrated that the process of vocational interest translated into goals and goals into actions, in influenced by the nstudent's perception of support by significant other and barriers such as lack of funds. Interventions based on SCT would specifically address the barriers and support that student believe effect the strategy for improving woodwork practical project in colleges of education. For example, barrier coping strategies preset ways to identify and manage the barriers ads they occur. SCT recommends that students should be encouraged to recognize opportunities and resources to find a job and to cultivate support systems such as family, neighbour and peer network in order to support their vocational goals.

In summary, intervention strategies flowing from SCT with respect to strategy for improving practical woodwork in colleges of education include:

1. Strategies to recognized opportunities and resources.
2. Strategies to cultivate support systems.
3. Promotion of skill building.
4. Assistance to cultivate a range of alternative occupations.
5. Promotion of personal mastery experience.
6. Review of previous successful performances

2.1.4 Theory of Skill Development (TSD)

Theory of Skill Development was propounded by Hubert and Stuart Dreyfus in 1980. In the fields of education and operations research, the Dreyfus model of skill acquisition is a model of how students acquire skills through formal instruction and practicing. One of the major aspects of traditional epistemology, and its manifestation in artificial intelligence research and the philosophy of mind is its emphasis on the formal system of deduction and premises and propositional knowledge. Hubert and Stuart Dreyfus argue that this formal system of deduction is one of the problems with traditional epistemology, since much of our sense of judgment and the process which we go through to form beliefs is not a matter of starting with premises and by plugging them into a formula in order to deduct conclusions. But rather it is a gradual process that involves being embodied in different ways and developing skills that would make it possible for us to deal with the world. By explaining the five stages that an individual goes through in order to become an expert, Dreyfus and Dreyfus justify their point of view on the topic of learning process and skill development.

The main idea behind Dreyfus and Dreyfus's skill development theories is the distinction they make between "knowing that" and "knowing how." They argue that many skills, such as riding a bike or playing chess, could not simply be reduced to "knowing that."

The reason that many of us are not conscious of our "knowing how" is possibly because we take our knowing-how for granted. In traditional epistemology, the knowing-how and knowing-that is considered one concept, which is acquired through a formal system of deduction. However, Dreyfus and Dreyfus argue that there are five clear stages that an agent goes through in order to evolve from knowing-that, novice, to knowing-how, expert. These five stages are novice, advanced beginner, competence, proficiency, and expertise.

They also emphasize on the fact that practice is required for the agent to maintain the knowing-how. Without practice, the agent will gradually lose his expertise and is most likely to regress as far back as the competence stage. However as it appears in the areas of knowledge that an agent is to learn how to perform a task, Hubert and Stuart Dreyfus have introduced a new idea to the traditional epistemology. As Hubert and Stuart Dreyfus argue, in reality, there does seem to be stages that a novice goes through in order to change form a slow and new learner of basic ideas to a fast intuitive thinker of complex situations.

2.2 Conceptual Framework

2.1.1 Technical Colleges in Nigeria

Technical college is a vocational institution where students learn skills in various occupations. Technical colleges are established by government to equip individuals with skills, knowledge and attitudes in different occupations in which Carpentry and Joinery is inclusive. The technical colleges in Nigeria, in the light of the essence of their establishment are charged with the responsibility of producing competent craftsmen for the nations' industrial economy and technological development. Technical colleges equip individuals in different occupations for national development. Bakare, Ochepo and Miller (2011) explained that technical colleges are post primary institutions where individuals

acquire skills in various trades or occupations such as woodwork, metalwork, electrical installation and maintenance, electrical/electronic, automobile, building construction, painting and decorating, radio and television work, fabrication and welding, and Carpentry and Joinery. There are 132 technical colleges made up of 19 Federal Technical Colleges, 110 State Technical Colleges and three private Technical Colleges (Exced.net, 2015). Technical colleges in Nigeria are overseen by the National Board for Technical Education (NBTE).

The National Board for Technical Education (NBTE) is a principal organ of Federal Ministry of Education specifically created to handle all aspects of Technical and Vocational Education falling outside university education (Toscany, 2013). The Federal Government of Nigeria had established the NBTE by Act 9 of January 1977, in response to the acute shortage of technical manpower which was a major constraint towards the execution of then Third National Development Plan on education in 1975 – 80 (Study & Scholarships, 2013). In addition to providing standardized minimum guide curricula for technical and vocational education and training (TVET), the Board supervises and regulates, through an accreditation process, the programmes offered by technical institutions at secondary and postsecondary levels (Toscany, 2013). The NBTE is also saddled with the responsibility of overseeing the training of individuals in the various academic programmes in all the Technical and Vocational Education (TVE) institutions. These institutions were to train craftsmen, technicians and other middle level technical manpower and provide practical training in all courses offered in the institutions involved with technical colleges inclusive.

2.2.2 Practical Projects in Woodwork in Technical Colleges

Practical project method is a process which enables learners acquire wholehearted purposes and to pursue them to a satisfactory end. Onwuka in Omeje (2004) stressed that

practical project makes school work real, uses students experiences, motivates natural interest, carries the students forward in clearly defined terms, minimized the chances of waste of time, and emphasizes creativeness. The construction of a project requires the students to apply the knowledge and skills he has learnt in the course (Okoro, 1999). Practical project always begin from a theory or another empirical study and look for a way of personalizing it (Barnyard and Grayson, 2000). Practical project offers students the opportunity to choose what problems to tackle and brings practical orientation to student, evokes or stimulate their creative potentials and thus improve the teaching-learning process (Omeje, 2004).

Practical project is an excellent means of fostering cooperation among learners since they engage themselves in the process of problem solving and rational thinking. Practical projects allow students to acquire learning experience. Learning experiences are the problems to be solved by students and the work of the teacher is to guide and advice the students (Uzoagulu, 1998). Nwachukwu (2001) highlighted four steps in the teaching of practical projects. These include purpose, planning, execution and evaluation.

Before introducing practical projects to technical students, the following areas should be discussed and learnt: safety precautions, new technical terms, care of tools and machines, quality requirements with respect to the finish, limitation, and time available and expected competencies after the practical project (Omeje, 2004). Hence, according to Nwachukwu (2001), practical projects should be selected based on the following criteria:

- Instructional objectives, which may be cognitive, affective and psychomotor
- Age, interest, level and background of learners
- Availability of the selected teaching aids
- Teacher’s capability

- Cost and maintenance
- Technical quality
- Government support
- Infrastructural amenities such as electricity gas and pipe borne water

2.2.3 In-service Training as Strategy for Improving Practical Projects in Woodwork

There is severe shortage of suitably qualified technical educators in both the participating institutions and other institutions that have been marked for involvement in the program in the future (Ali, 1998). Moreover, some of the existing technical educators or teachers were either trained on obsolete equipment or have worked with such equipment for so long that their skills need to be updated. The training and re-training of technical educators is therefore a paramount importance in the success of the domesticated old TTTP. Human capital development in technology education is vital to national development, hand tools, machines, instructional materials and infrastructural facilities may be available in abundance but without the trained manpower that will manage these facilities, learning cannot take place in the school. According to the Federal Republic of Nigeria (FRN, 2004) no educational system may rise above the quality of its teachers, therefore, human capital development in technology education is paramount to sustainable. Human capital development according to Usoro and Ogbuanya (2009) is a process of improvement that embraces all these activities that are geared towards the growth and movement of skills, knowledge and attitude of personnel. A teacher who is not currently in tone with modern trend is dangerous to the system.

Staff development in terms of continuing education appears rather very poor, haphazard, politicized and lack continuity. Ndirangu (2011) asserted that teachers need to be retrained two to six times in lifetime to keep abreast with changes in their profession. The

initial attempt by the federal government of Nigeria to retrain technical teachers was a failure because such teachers under Technical Teachers Training Programme (TTTP) never came back for addition training and even those that came back settled on greener pasture.

Training given to individuals in any formal organization is very important. Training will help the individual to be equipped with the capacity to organize, plan or set goals and execute the necessary programmes in the society and to achieve the desired results. The future of educational and technological development of Nigeria depends on the quality of teachers, because they teach the students who are expected to be productive workers and leaders of tomorrow (Tayo, Ajibade and Ojedokun, 2009). These technological education teachers need to be effective and efficient in order to teach students well. Stressing the importance of training, Fafunwa (1995) remarked that the qualities of all other professions are influenced by the caliber of teachers because adequate training cannot take place without competent teachers. Muhammed (1991) stated that technological education teachers may need in-service training in some aspects of technical education curriculum because of the dynamic nature of technological education. This requires that teachers be exposed to new methodologies and curriculum, innovation in their area of specialization during the course of their in-service training programmed.

In-service training will enable the teachers to overcome the areas of inadequacies in terms of curriculum changes and innovation. Retraining means receiving in-service education, it implies subjective or exposing an individual to further teaching and practice after the initial training, it may also be taken as improving the teacher. The avenues for retraining woodwork technology education teachers according to Ekunke (2008) include: Attending and participating actively in seminars, conference and workshops; belonging to some professional associations where the teachers can meet with experienced colleagues to

exchange ideas and talk about new happening and development (innovation) in teaching and professional teachers' education. This main purpose of retraining of technology teachers is to improve their qualities, expertise, competence, efficiency and effectiveness.

2.2.4 Instructional Material for Improving Practical Projects in Woodwork

The aids which teacher uses in order to teach a lesson could be referred to as instructional materials. Also, Larson (2007) emphasized that the school building could be referred to as physical facility because of its function of housing and protecting other physical workshop building and effectiveness in technical instruction cannot be fully effective when adequate provision is not made for another facilities contained in the building. Wring, Wang (2003) submitted that the physical facilities are instructional materials like charts, chalkboards, sample objects and specimen, tools, equipments and machines which are used in making teaching meaningful. He added that physical facilities help the teacher convey intended messages effectively so that the learner receive, understand, retains, and applied experience gained to reach overall educational goals. In listing of physical facilities, Okoro (2004) have the following essential tools and equipment of the school workshop, work bench, engineers' vice, hacksaw fames, and blades various grades of hand files, drill bits, engineer's pliers, jack planes, smooth planes, chisel, try square, centre punches, scribers, scrapers, metric tape, stack and dies, screwdrivers and more. These tools and equipment help actualize instructions of technical education curriculum. According to Olaitan (2002) arrangement of the workshop, good safety precautionary measures and nice aesthetic outlook are principles that could aid the technical department in planning, organizing and managing facility and equipment. FGN (2004) listed six factors that should be put into consideration while constructing a workshop for technical education and for remodeling old ones. They are:

1. Consideration for aims and objectives of the course to be taught must be useful to the locality and have a relevant philosophical base.
2. The use of units makes the content of course to be offered as a guide for providing hand tools and other equipment.
3. Method and approach should govern the placement of equipment; also the limited general shop shall call for a different arrangement to that used for multipurpose type.
4. The number of students that will be scheduled in the shop at any given time must be considered.
5. Age and mental capacity of students will affect the size of the workshop and equipment.
6. The resources available must be considered. The type of equipment and the expenditure for it must coincide with the money available for the programme.

These recommendations support the idea that the construction of a new workshop or remodeling of an existing one will involve a thorough analysis of the course, the students need for the programme and ways of reaching reasonable competence in manipulative skills. Acquiring competence in skill training is one of the most essential activities of the school workshop. Equipping a workshop with adequate activities remained paramount in the contribution, this provision could be accomplished through compliance to various recommendations by organization that create standard (Boyi, 2008). The National Commission of Education (NCCE, 2009) recommended a specified number of each of the tools, equipment and machinery for a specified number of student intended for admission in an academic year for engineering and industrial technical education programme in Technical Colleges. This recommendation by the NCCE means that such facilities should be given consideration in the initial planning of the course programme. The NCCE also emphasized that a provision of these facilities less than the number

specified in any of the colleges (technical), Nigeria would be classified as inadequate. Oranu (2006) recommended proper planning which will give early consideration to the provision of tools and equipment. This provide mean s that the entire process of planning a course programme will be include at what stages, who and when these facilities are going to be employed.

Non-use of adequate planning and physical facilities in the technical education workshop could be comparable to the informal type of trade and skill training. Considering this call for the use of adequate and functional physical facilities, Prosser and Quigley in Okoro (2003) presented a number of principles which they developed that had substantial influence on the administration of vocational and technical education. These principles which Okoro said are still useful till date to any specified that there are minimum.

2.2.5 Teaching Techniques for improving Handling Woodwork Hand and Machine Tools

Professional education in teacher education curricula consist of two main components, first content for the teaching specialty (what to teach) component, and second pedagogical courses (How to teach) component. One part of the pedagogical course is general and special teaching method courses. The focus of this short note is to discuss the content of the special teaching method course for technical vocational education and training (TVET) teacher education as a subject specific pedagogy which is called vocational pedagogy. Teaching strategies are strategies used by teachers to address the diverse needs of students in their classrooms. Teaching and learning are the two sides of a coin. The most accepted criterion for measuring good teaching is the amount of student learning that occurs (Sajjad, 2010).

The delivery system for vocational subjects should not be the same as teaching for academics subject. Vocational educational subjects consist of manipulative skills and vocational related knowledge which the final objectives of the lessons are the application of those subject in the world of work. The application of skills and knowledge learned should be the focus of teaching and learning activities in vocational education. Vocational education is education for work. In order to reach this aim, instruction strategies used should be directed to all requirement needed in the work place. The students should learn the knowledge, skills, attitudes and values which are important in doing a certain job in such a way as they apply them in the real work setting.

This instructional strategy actually is the implement of two out of four key principle of vocational pedagogy in special teaching method course, or what kind of learning experiences in the vocational teacher education programme that will contribute to students pedagogical and professional competencies. Furthermore, how to integrate the concept and principles of vocational pedagogy into instructional design and implementations of teaching and learning process for vocational subject (Okoro, 2006).

Woodwork student's vocational pedagogy is subject specific pedagogy for vocational course. In the curriculum of TVET teacher education, it is called special teaching method course. This course consists of two main parts, first part dealing with instructional design and the second one is teaching practice. The instructional design covers the development of vocational education curriculum which some of the students learning activities are formulated, competencies standards and sub-competencies, develop syllabuses, develop lesson plans, prepare teaching materials, prepare teaching aids, and design student evaluation. The second part of the course is teaching practice, which consists of microteaching and minilesson. The purpose of microteaching is to train student teaching in eight basic teaching skills and mini-lesson one is teaching practice to integrate the basic

teaching in full teaching. If the students do both teaching practices successfully, they will be readily to do student teaching in vocational schools. Mayes (2007) emphasized that the objective of the special teaching method course is preparing student to master pedagogical competencies of a vocational teacher, which are:

(i) Develop vocational education curriculum

(ii) Develop syllabuses and lesson plans

(iii) Prepare and use instructional media and teaching aids

(iv) Use ICT effectively

(v) Organize teaching materials

(vi) Identify student characteristics

(vii) Apply new instructional paradigm

(viii) Evaluate student achievement

(ix) Carryout education research to enhance the quality of the instruction

The implementations of vocational pedagogy in vocational teacher education programme based on the instructional strategy which will produce vocational teachers that can teach vocational subject in simulated and realistic work settings. Ndirangu (2011) elucidated that vocational and technical education learning environment make provision for student development of knowledge manipulative skills, attitudes and values as well as the integration of these areas and their application to simulated and realistic work stetting. This instructional strategy, by some people is called “teaching industry”, “teaching factory”, and “teaching business”.

2.2.6 Instructional Design

The objective of the course special teaching method course is a compulsory course to take by student of the vocational and technical teacher-training programme in Indonesia. The

aim of the course is to prepare student to teach certain courses in shier subject area of the vocation and technical education curriculum. The special teaching method is the application of general teaching method to a specific field of study, for instance, special teaching method for woodwork under building construction department. The course consists of two main parts: first, the instructional design for vocation education subjects and second, teaching practice which is called micro teaching and mini lesson. The instructional design for vocational education subject covers some topics such as instructional analysis syllabus, lesson plan, skill analysis, job sheet and student evaluation. The general objective of this part of the course is "the student will be able to prepare a lesson that he/she is going to teach". In order to master this objective, the students have to do exercise to practice each topic of the instructional design. A brief description of the course content will be presented here. If might be useful to be discussed with any counter part(s). The special teaching method course should be delivered in a certain way which is stated by short explanation of concepts and principles of the topic being studied follow by some examples and students exercises. Students should have to do a lot of what student have done. So, the delivery system of this course is a kind of a work shop which his done by student, motivation is educational technology have produce a lot of new teaching strategies and methods which school teachers should master and use in teaching (Miller and Miller, 1999).

Teaching strategies such as student centered instruction, student active learning, learning how to learn and contextual teaching and learning (CTL) and methods of teaching such as individualized instruction e-learning/web based learning, cooperative learning, collaborative learning multimedia instruction, problem based instruction and quantum teaching and quantum learning are necessary to be studied by students of technical teacher training institutions. It is important for prospective teachers to acquire concepts,

principles and procedures of each of the strategies and or the methods and use them in teaching practice. How the students can be taught about these knowledge and skills if the lecturer does not master those materials? It is a very big challenge for lecturer of technical teacher institutions. The new teaching strategy in this context embraces teaching methods such as audio visual techniques as a method of communication. teaching materials such as films, transparencies, television programmes and teaching equipment such as projectors, television sets, computer and its different accessories. often items, either the teaching method or teaching materials or the teaching equipment are criticized by parents, government, teachers and learns, especially when the goals and objectives of the technical education system are not achieved. The achievement of the technical education systems objectives is determined by the employability of the products of such systems (Aturu, 2011). The new roles have been added to the teachers' roles and that have increased the teacher's responsibilities.

2.2.7 Handling Hand and Machine Tools

Many of today's on-the-job injuries result from the improper use of hand tools. Workers have lost their eyesight and had their vision impaired, tendons severed, bones broken, and arms, legs and fingers infected through puncture wounds, all because of unsafe practices with hand tools or use of tools poorly designed for the specific job. There is no set of established codes concerning the proper use of hand tools. Because guards are not built into hand tools like they are on power hand tools, workers must be especially aware of safety precautions to prevent injuries. It is necessary for training instructors to stress the seriousness of using hand tools.

2.2.8 The right tool is the safe tool

An accident-free shop begins when workers adhere to the rule of using the proper tools for jobs. When used properly, the right tool is the safe tool. Safety must be an integral

part of every trade training activity. Students learn why safety is so important through clear instructions and by performing tasks that require certain skills and knowledge. No matter how mechanized an industry becomes, plant operations will still depend on hand tools. It is extremely important that workers who use hand tools are properly trained. Do not assume workers automatically know how to use them correctly. They must know how to use tools safely and understand why certain procedures are safer than others.

2.2.9 The safe use of hand tools

All department heads should be familiar with the talent and skill of the workers and enforce the rules regarding safe handling of hand tools. Department heads should also provide special instruction and guidance for the worker if necessary. Such training will increase the safety of workers who use hand tools. There is only one safe way to use hand tools, although there are special tools for almost every craft. Keep in mind that there are many ergonomically designed tools available today. The following list consists of tools most commonly used in metalworking and woodworking industries. These tools also can be the most harmful if improperly used.

Chisels

In most cases, you can determine the safety of a hand tool by the condition of its cutting and striking ends, particularly in the case of edges and pointed tools, such as cold chisels. A cold chisel with a mushroomed head (rounded over into sharp, thin edges by the repeated pounding of a hammer) is a common cause of injury to the worker. When a mushroomed head is pounded, chips may be knocked off the damaged head and fly into the eyes of the worker. Redress mushroomed heads on all hand tools. Grind down the damaged end and then reform it with the use of an abrasive wheel. In the redressing process, a beveled edge will enable it to stand up under more pounding.

Cold chisels

An inadequate cold chisel will buckle or spring if the proper size and strength are not used for the metal being cut. Hold the chisel lightly in the hollow of the hand with palm up, supported by the thumb and first two fingers. If the hammer glances, it will strike the soft palm rather than the knuckles. When using larger chisels that require a fist hold, use a cushion for hand protection. When shearing with a cold chisel, hold the tool at an angle, which permits one bevel of the cutting edge to ride flat against the shearing plane. Wear safety glasses when chipping or shearing with a cold chisel. Protect people in the immediate area with a shield or screen.

Wood chisels

Always drive a wood chisel by hand in an outward direction, away from the body. Before using a wood chisel, remove nails and metal (such as corrugated fastener) from the piece of work, or drive them into the material. Otherwise, chips will fly off the imbedded metal or off the chisel itself. Avoid any type of prying or wedging with a chisel because it can cause the steel to snap. Protect the sharp edges of chisels and store them in a rack, workbench or slotted section of a tool box. Safety hazards result if workers leave chisels on shelves or bench tops where they can roll off.

Crowbars

Use the correct size crowbar for each job. Do not use makeshift tools (cheaters) such as pipe lengths, iron bars or extensions for leverage. To prevent slips, place a block of wood under the head of the crowbar.

Cutters

Use heavy duty cutters when cutting heavy wire or reinforcing wire, bolts or strapping. It is unsafe to overload a light tool. Apply force at a right angle to the cutting edge, not at a slant. Never use cutters near live electrical circuits. When using cutters, always wear

safety glasses. Never use claw hammers, crowbars or other pry tools to snap metal bands; use cutters and keep a gloved hand over the end that is likely to fly. When using cutters on bolts or reinforcing rods, hold the portion to be cut in one hand or cover it with a glove to keep it from flying. Never tamper with the adjustment on the cutter jaws. Make adjustments only at the tool crib or let the manufacturer make them. In the hands of the untrained, alterations in the operation of cutters may result in improper clearance, which can cause the tool to bind, crack or break its jaws. Serious injury to the user is also possible.

Files

When using a file, have secure footing before applying pressure. Grasp the file with one hand and guide the point of the file with the thumb and forefinger of the other hand. Use a vice to secure the material you are filing, and position the work piece to avoid awkward filing postures. Use an offset handle if it is available. Clean files require less force. The proper way to clean a file is with a file card; never strike it against another piece of metal because steel particles can fly off. Use the file in an approved handle.

Hacksaws

Apply pressure on the downward stroke only. After the forward pressure stroke, slightly lift the saw and lightly pull it back in the cut to protect the teeth. Twisting the blade or applying too much pressure may break the blade and result in hard or arm injuries. Cutting too fast with a hacksaw will heat up the blade, untemper it and cause it to snap. Light machine oil or lubricants protect the blade against mishaps and help the hacksaw cut more efficiently.

Hammers

Take special care in selecting the correct type of hammer handle when replacements are made; each type of hammer head has a specific type of handle. Wedge the handle securely

in the head and make sure it is free of splinters and cracks. Never strike hardened steel surfaces with a steel hammer. Use a soft metal hammer or one with a plastic, wood or rawhide head. Always wear safety glasses to protect the eyes from flying chips, nail heads or scale. Carefully inspect sledge hammers at regular intervals for split handles and loose or chipped heads. Selecting the right hammer for the job is important. Use riveting hammers for sheet steel, carpenter or claw hammers for driving and drawing nails, and ball-peen hammers for metal work.

Hatchets

When working with a hatchet, strike the wood lightly with the blade and then force the blade through by striking the wood against a solid object. Do not strike hard metal surfaces with the hammer end of the hatchet because the hardened head may chip or split. To avoid injuries to others, allow a sufficient amount of space to swing the hatchet.

Planes

Store all planes in a rack designed to protect the cutting edges from damage and workers from injuries. Always keep the cutting edge sharp. Hold material being planed securely in a vise, clamp or other holding device.

Hand-tool storage

Periodic safety inspections of infrequently used hand tools are necessary. Mark such tools with the company's seal or name. Store them in the tool cribs of the departments where they are used or other proper places. Set up records to cover tool repairing, replacement, checking and inventory. Inspect them at specific times on a continuous basis. Neglected tools can cause serious injury. Provide tool bins and racks at the tool crib for each kind of hand tool owned by the company. Train the person who is responsible for the tool crib in safe and proper tool placement. Protection against possible accidental contact with sharp-edged tools is important. Check the condition of the tool storage area regularly.

Make sure that tools are stored properly. Hand tools that are not stored properly often cause tripping or jabbing injuries. They can topple from an overhead storage shelf and strike a worker. Many companies use a color-coding system to maintain better hand-tool control. Specific tools are color-coded to match the color of the machine or equipment on which they are used. This system reduces the chance of these special tools being carried into other departments of the plant, where mishandling might occur. Never place a tool box on the end of a bench where a person can knock onto a worker's feet. Also, it does not belong in an aisleway where another person may trip. If you must place a tool box on a workbench, use a rail to protect it against its being pushed off. Inspect tool belts regularly for the condition of material, supporting strength for the tools carried, and ability to protect tools from damage. Make sure the belt is with the necessary pouches of sufficient depth to hold the tools firmly. The tools, however, should protrude enough at the top to allow the worker to get a firm grip before removing them for use. Wear tool belts so that the tools hang at the side, hip-high. If the worker should fall, this provides protection against severe back and spine injures.

Hand-tool maintenance

A provision for a tool maintenance procedure is one of the most essential factors in any hand tool safety program. Extensively used hand tools require careful and frequent inspection to maintain their safe use. When hand tools are not sharpened and dressed properly, injuries are often caused through inefficient cutting and glancing off the material being worked. Straighten bent shafts, replace broken handles, and discard tools that you cannot repair. A tool's handle is often the cause of a worker's inefficiency and unsafe practices. If the handle is splintered, too short, loose-fitting or otherwise poorly affixed to the tool, the worker who uses it is exposed to possible injury. The worker should know how to tighten loose handles by rewedging the end of the handle that sticks through the

head of the tool. Remove any hand tool with a defective handle from service immediately. Use a file rather than an abrasive wheel when dressing the tips of screwdrivers. The file will draw less temper from the screwdriver tip. Loss of temper in a screwdriver soon results in a damaged tool and possible injury to the worker using it. A hand tool that is not properly dressed and reconditioned can be hazardous. Set up definite procedures in the safe maintenance of hand tools and establish wear, frequency of use and inspection guide limits. An efficient tool safety program requires periodic inspections of all operations involving hand tools. Inspect the tool supply room at specific times and keep an inventory. Enforce all planned procedures and rules involving hand tool safety to reduce injuries.

2.2.10 Hand Tool Skills

In this golden age of electric-powered machinery, knowing the basics of handsaws, planes, chisels, and measuring and marking tools is an essential skill set that can add quality and personality to your work. However, using hand tools takes practice and patience, and there are a number of tips and techniques to help you through the learning process.

Using chisels

The chisel is a versatile tool that can be quickly remove big chunks of wood or delicately pare away thin shavings. Chisels are essential for cutting and fitting hand-cut joinery. They also come in handy for many other tasks in the shop, from removing excess glue to trimming pegs and pins. Chisels vary in type depending on the work you are doing. Some have long, thin blades (ideal for delicate paring), while others feature short, stout blades designed to hog out waste and survive a heavy mallet blow.

Using hand planes

For hundreds of years, woodworkers have used the hand plane to prepare stock and furniture parts, and it still excels at preparing a finished surface. A hand plane is essentially a reference edge (sole) that guides a blade (iron) across a surface or edge. The wide variety of plane types available illustrates the variety of surfaces and profiles that a plane will cut. For example, a shoulder plane will trim a fat tenon or cut a rabbet into the edge of a board; a compass plane will smooth a curved surface; and a bench plane can produce a flat surface on a 10-ft. piece of rough lumber. Knowing how to use a hand plane also means knowing how to sharpen it and tune it up.

Using handsaws

Handsaws range in size from the cylinder-handled gent's saw, up to the dovetail saw, the tenon saw, and the panel saw. In addition to size and handle variations, handsaws differ in how their teeth are set. Crosscut saws feature an alternating tooth pattern that scores the wood as it cuts, while ripsaws have all their teeth in a line. The Japanese saw, used for similar tasks as the aforementioned Western-style saws, cuts on the pull stroke rather than the push stroke. Cutting straight and with control is a skill that comes with practice; unless you've mastered the technique, practice on scrap wood before you cut into the real thing.

Marking and layout

Hand-cut joinery relies on proper measuring and marking tools. Guiding a saw by hand, for instance, requires that you first scribe a line to follow. In addition to guiding you through a procedure, scribe lines can reduce potential tearout by cutting the wood fibers at the surface and preventing a blade from wandering off course. This and other marking tasks can be accomplished with a basic set of measuring and marking tools: a tape

measure or rule, a square, a marking gauge, and a marking knife. There are scores of other tools to choose from as you expand your repertoire of techniques.

The right time for hand tools

Many of the tasks traditionally accomplished exclusively with hand tools can be completed much more efficiently and quickly with power tools. The router alone has shaved hours off tedious edging and trimming operations. However, hand-tool skills can be a great complement to modern technology. Sometimes there is no faster option than using a backsaw to trim a tenon or a chisel to remove a clogged mortise. Other times, using a hand tool to complete an operation is just more enjoyable than setting up power tools

2.3 Review of Related Empirical Studies

Ali (1998) conducted a study on mechanism for improving practical project in woodwork in polytechnic and Technical Colleges in North-East zone of Nigeria. It specifically determined the techniques employed by woodwork technology teacher in conducting woodwork practical project instruction. The extent of involvement of these teachers in student woodwork practical projects, the techniques used by woodwork students in carrying out woodwork practical precuts, the difficulties encountered by the students in these practical projects, the possible techniques which woodwork technology teachers would employ to effectively carryout woodwork practical projects. Instruction and possible techniques which students would use to effectively carryout woodwork practical projects. Two set of questionnaire were the instrument used for data collection, the population was made up of 85 respondents comprising 31 woodwork technology teachers and 54 students; the instrument were validated with six experts from the reliability used Cronbach Alpha (α) yielded a coefficient of 0.88 for the whole instrument 85

questionnaire, while the rate of return is 98.75 per cent. Data analysis using frequency, mean and t-test of independent mean. The findings were made among others; 13 techniques employed by woodwork technology teachers is difficulties encountered by students, 24 techniques to be used by teachers and student for effective and efficient woodwork practical project production. There were no significant differences in the mean responses of the teachers on 11 techniques employed by them in conducting practical project instructions. It was recommended that the identified possible techniques to be adopted by teachers and students. The study ended without sample and sampling technique.

Abimbola (2007) carried out a study on skill improvement needs of technical teachers for maintenance of woodworks equipment in secondary schools in Ogun state, four research questions and two hypotheses were addressed. All population were used no sampling for technical teachers currently engaged in the teaching woodwork subject registered with NECO, WAEC and NABTEB in Ogun state. A survey questionnaire using mean, standard deviation and t-test were used in analyzing the data. The result shows that technical teachers did not acquire the skills required for the maintenance of woodwork equipment during their re-service training, in addition lack of fund, lack of spare parts, lack of incentive to motivate technical teachers, lack of library facilities and poor maintenance culture. The inability of technical teachers in carrying out maintenance work in technical equipment in secondary schools, the result revealed work on technical teachers need skills, re-training on the maintenance of woodwork equipment. Hypotheses tested at 0.05 level showed the ineffective performance in secondary school level is not influenced by the number of years of experience and the certificate they possessed. Recommendations were made base on the findings of the study, workshops or in-service

training on the maintenance of the equipment for serving technical fund to buy spare parts and materials for maintenance of woodwork equipment.

Fagbemi (2001) carried out a study on skill improvement need of woodwork teachers for maintenance of woodwork equipment in senior secondary school in Ekiti state. Three research questions, two hypotheses were used to address the study. The population was all woodwork teachers in the state, no sampling was used. A survey questionnaire was used for collection of information from respondents. Frequency distribution, mean and t-test were used in analyzing the data. Result of the data analysis shows that woodwork teacher in Ekiti state did not acquire the skill required for the maintenance of woodwork equipment during their pre-service training. In addition, lack of fund, lack of spare arts, lack of incentive to motivate teachers, poor maintenance culture, the inability of technical teachers in carrying out maintenance work in technical equipment in secondary school. The result also revealed that woodwork teachers need skill re-training on the maintenance of woodwork equipment. Result of the hypotheses tested at 0.05 level showed that effective performance at the senior secondary schools was not influenced by experience. Recommendations were made based on the findings of the study. These include: organizing re-training programme, in the form of seminars, workshops or in-service training on the maintenance of equipment for serving woodwork teacher in senior secondary schools and adequate provision of fund to buy spare parts and materials for maintenance of woodwork equipment.

Besmart-Digbori (2009) examines the adequacy of Technical Education Teachers and machinery for the teaching and learning of woodworking trades in technical colleges with a focus on Sapele Technical College, Sapele, Nigeria. The study was guided by two research questions. A 21-item structured questionnaire was used for data collection. The

reliability of the questionnaire was ascertained by the test-retest method with a coefficient of 0.78. Data collected were analysed using mean and standard Deviation. The results revealed that qualified teachers to teach safety and technical drawing are adequate. NCE and B.Sc. (Ed) teachers are adequate. Teachers to teach woodworking trades are inadequate, while teachers who are ICT literate are inadequate. Holders of B. Ed. Tech certificates are inadequate. Based on the findings, it was recommended that teachers in technical colleges should be computer (ICT) literate, ICT facilities should be made available in all technical colleges in Nigeria and Government and the private sector should provide equipment in existing technical colleges in Nigeria to improve instruction.

Olelewe (2010) focused on strategies for improving the teaching and learning of Qbasicprogramme for quality work skills required in contemporary Nigeria especially in teacher preparation in colleges of education in Anambra, Enugu and Ebonyi states. Data was collected with the use of structured questionnaire containing 43 items. Mean, standard deviation and t-test statistical tools were used for analyzing data no sample was taken. The population consisted of 295r respondents (35 instructors, 25 teachers, and 235 NCE final year computer students). The instrument was subjected to face validation by three experts, it was further pilot tested on 25 respondents who were used to establish the internal consistency of the instrument. The reliability coefficient was calculated to be 0.98, 0.99, 0.98, 0.98 and 0.99 respectively for each cluster of the instrument and 0.99 as the overall coefficient. Based on the data analyzed, it was found that the technical skills strategies can be used to improve the quality of teaching Qbasic programming. Also, teaching methodology strategies, instructional facilities utilization strategies among others can be employed by computer educators to improve the teaching and learning of Qbasicprogramme in colleges of education. The conclusion was that in order to make the art of programming responsive to the needs of the society, computer students should be

made to spend at least six months in computer firms during their industrial work experience to enable them acquire the relevant work skills required to excel in the world of work while school administrators should ensure that adequate instructional facilities are provided to every computer laboratory to enable students learn and master sound programming skills.

Audu (2010) design to determine the in-service training needs of technical college teachers. Specifically, the study was aimed at determining the in-service training needs of technical college teachers on practical skills with respect to general vehicle maintenance and auto-electrical work. A descriptive survey research design was adopted in carrying out the study. The total sample figure stands at 95 respondents, 47 motor vehicle mechanics teachers and 84 administrators. A structured questionnaire containing 35 items was used to collect the require data for the study. Data collected were analyzed using frequency count, mean, standard deviation and Z-test. Based on the findings, conclusion was drawn and recommendations made in order to provide in-service training to technical teachers colleges. Teachers in motor vehicle-mechanics who have deficiencies with respect to practical skills in general vehicle maintenance and auto-electric work.

2.4 Summary of Review of Related Literature

Teaching is a profession in educating young once through a define curricula that is specific to change a behavior of the learner. This change can't occur unless well planned and strategized with aid of instructional material, practical woodwork is leaned when certain process have been done by doing. This motivates students to what woodwork teachers does to boost the morale of the students for employability opportunities after graduation. The serious challenges facing most of Nigerian graduates will be self-

overcome by creating jobs for themselves in woodwork practices which is a daily need of the society. Teachers in woodwork practice are facing the challenge as students. The challenge of rapid technological changes and importation of foreign product, this leads to the facts that teachers are to be train not once or twice but on continuous base in in-service, pre-service, seminars, conferences and workshops to be able to live to expectation.

A teacher is expected to perform in his field of discipline that theory of performance (ToP) propounded and develop in six concepts namely; level of knowledge, skills, identify personal factor context, and fixed factor. When people learn, grow and be empowered in society. Social cognitive career theory is a new approach in career development. People learn by watching what other do, therefore, teacher and students should be encouraged to recognize opportunities and resources to find a job and cultivate support system for themselves.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

This chapter deals on methodology used in conducting the study. They include; Design of the Study, Area of the Study, Population of the Study, Instrument for Data Collection, Validation, and Reliability of the Instrument, Method of Data Collection, and Method for Data Analysis.

3.1 Design of the Study

A survey research design was adopted for the study. According to Gall, Gall and Borg (2007), a survey is a method of data collection using questionnaire or interviews to collect data from a sample that has been selected to represent a population to which the findings of the data analysis can be generalized. Nworgu (2006) describe descriptive survey research as a systematic means of data collection. This descriptive survey research design is considered suitable since this study will solicit for information from the woodwork teachers and woodwork instructors in Colleges of Education in North-West geo-political zone of Nigeria for the purpose of generalization.

3.2 Area of the Study

The study was conducted in Niger State that was created out of the defunct North western state. Niger State shares its borders with the republic of Benin (west) Zamfara state (North) Kebbi State (North-west) Kogi (South) Kwara (South-west) Kaduna (North-east) and the FCT (South-east). The state comprises of 25 local government areas grouped into seven educational zones namely; Minna, Suleja, Bida, Kutigi, New-Bussa, Rijau and Kotangora. The state is the largest state in Nigeria in terms of land mass. It covers about 86,000 sq km2 (8.6 million hectares) representing about 9.3% of

the land area of the country. Source, Niger State Development Action Plan (DAP) the study was limited to one educational zone (Minna).

3.3 Population for the Study

The population for this study comprised of 15 woodwork teachers and 28 instructors in the seven Technical Colleges that offer woodwork trade in Niger state.

3.4 Sample and Sampling Technique

The entire population of 43 respondents drawn out from the seven technical colleges was used for this study Since the population is small, no sampling was carried out.

3.5 Instrument for Data Collection

The instrument for data collection was developed by the researcher based on the review of related literature of woodwork. The instrument is made of five sections. Section: A was on respondent's personal data, while Section B sought for information on in-service training as scheme improve carpentry and joinery; Section C, requested for information on how motivation can be used as mean for improving upholstery; Section D, also south from the respondent's their opinion about how instructional materials can improve cabinetmaking in woodwork; and Section E, solicited for information on the teaching techniques for handling woodwork hand tools and machine tools. The questionnaire is based on a five point Likert scale with numerical value as follows:

Strongly Agree	5	4.50 – 5.00
Agree	4	3.50 – 4.49
Undecided	3	2.50 – 3.49
Disagree	2	1.50 – 2.49
Strongly Disagree	1	0.50 – 1.49

3.6 Validation of the Instrument

To ensure the validity of the instrument, the structured questionnaire with 100 items was given to two experts, two from the Department of Industrial and Technology Education, Federal University of Technology, Minna for face validity.

3.7 Reliability of the Instrument

The reliability of the instrument was established using Cronbach Alpha (α). The instrument was administered to eight woodwork teachers and instructors in Technical Colleges Kwara State. The data obtained from the respondent was computed on Cronbach Alpha to determine the reliability co-efficient at 0.87.

3.8 Method of Data Collection

The questionnaire was administered through personal contact. The respondents were allowed a period of a week to fill the instrument, after which the researcher and the two research assistants went round to collect the questionnaire for analysis.

3.9 Method of Data Analysis

Data collected from the respondents was analyzed using mean to answer the research questions. In taking decision, any item with mean of 3.50 and above was regarded as agree while item with mean less than 3.50 was regarded as disagree. All the four null hypotheses were tested using t-test at 0.05 level of significance. If the t-cal is more than the t-tab, the null hypothesis was rejected; but if the t-cal is less than the t-tab, the null hypothesis were accepted.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSIONS

In this chapter, the Data Collected and Analyzed is Presented and Discussed. The data is organized around the particular research question and hypothesis to which it provides answers.

4.1 Research Question 1

What are the in-service training needs of teachers needed for improving practical projects in woodwork?

Table 4.1: Mean and Standard Deviation of Respondents Responses on the In-Service Training Needs of Teachers Needed for Improving Practical Projects in Woodwork

S/N	The teachers of carpentry and joinery needs to be ;-	X	SD	REMARKS
1.	Introduce new materials used in carpentry and joinery to teachers/instructors	4.023	0.988	Agreed
2.	Training on modern equipment to update their skills in application joinery hand tools	4.209	0.861	Agreed
3.	Development in timber preparation	3.605	0.821	Agreed
4.	Make adjustments in an establishing estimate and cost in joinery project	3.767	0.782	Agreed
5.	Practical experience in prefabricated timber components	3.601	1.069	Agreed
6.	Expose to dynamic nature of technological education	3.791	0.989	Agreed
7.	Engage less-experienced ones to serve as their or mentors professional guides	3.351	1.395	Disgreed
8.	Development on principles of stair design	3.930	0.884	Agreed
9.	Growth and skills development knowledge and attitude	3.994	1.045	Agreed
10.	Update training on construction and finishing skills	4.116	0.851	Agreed
11.	To enhance staff development continuing in education building/architectural drawing	4.186	0.956	Agreed
12.	Retrained two to six times in a year to keep abreast with technological change in profession	3.558	0.854	Agreed
13.	Area of professional competence of each colleague benefits the other eventually leading to each	3.605	1.178	Agreed

	member of staff growing academically and professionally			
14.	oversee all curricular programmes associated with woodwork practical project	3.649	1.044	Agreed
15.	Embrace all activities that are geared towards the growth of skills and knowledge of erection of roof and ceilings	3.714	0905	Agreed
16.	Keep woodwork practical project teachers/instructors abreast with changes in their profession	3.454	0.928	Agreed
17.	Review the areas of inadequacies in curriculum and introduce innovation	3.791	0.878	Agreed
18.	Increase competence of practical skills possessed by the teachers in installing sliding and folding doors	3.698	0.860	Agreed

Data in Table 4.1 indicated that all the items area agreed upon by the respondents except item number seven (7) with a mean less than 3.50.Other17 Items have mean value of 3.50 and above.

4.2 Research Question 2

How can motivation of teacher improve practical projects in woodwork?

Table 4.2: Mean and Standard Deviation of Respondents Responses on How Motivation of Teacher Can Improve Practical Projects in Woodwork

S/N	Teachers need motivation in carpentry and joinery	X	SD	REMARKS
1.	Associating positive meaning to the good habit of wood practice in roof design	3.861	0.889	Agreed
2.	Occurrence intent to cause the behavior change to occur in designing facial board	3.651	0.788	Agreed
3.	Teachers receive personal reward immediately when any good skills in practical lessons	3.814	0.958	Agreed
4.	Repetitive action-reward to any students that acted correctly	3.884	0.953	Agreed
5.	Combination of skills can cause action to become habit in both teachers and students in drawing of complex joiner.	3.558	0.881	Agreed
6.	Oneself and people product motivate wood practical practice	3.837	1.022	Agreed

7.	Self actualization in practical project is intrinsic motivation to student in auto carpentry and joinery	3.698	0.860	Agreed
8.	Accomplishing a task in practical project is extrinsic motivation to teachers	4.139	1.082	Agreed
9.	Principles of teacher behavior differ from hypothetical construct of reward in wood practice	3.442	0.884	Agreed
10.	Cognitive approach in principles of carpentry and joinery	3.675	0.993	Agreed
11.	Positive reinforcement demonstrated by teachers increase in nature frequency or magnitude of a response in cut materials	3.581	0.794	Agreed
12.	Negative reinforcement involves stimulus change consisting of the removal of an aversive stimulus of poor safety practices in sew material	3.581	1.138	Agreed
13.	Stimulus changes consisting of the presentation in metallic material	3660	0.940	Agreed
14.	Magnification of an appetitive stimulus follow response from produced leather materials	3.488	0.855	Agreed
15.	Mediated environmental events should be taken care to aids learning design and construct carpentry and joinery	3.697	0.803	Agreed
16.	Relate practical project work to everyday life situation of student's life for fix sewn material	3.609	1.198	Agreed
17.	Identify problems in wood practice and solve them in time of complex carpentry and joinery items	4.177	1.719	Agreed
18.	Evaluate student project work promptly and give reward to best ones produce carpentry and joinery	3.837	1.233	Agreed
19.	Use information gathered during practical class to brainstorm instructional adaptations for appreciate surface finishing	3.604	1.073	Agreed
20.	Identify classroom environmental, curricular, and instructional demands	3.441	0.734	Agreed

Data in Table 4.2 indicated that all the items area agreed upon by the respondents with a mean greater than 3.50.

4.3 Research Questions 3

How can instructional materials improve practical projects?

Table 4.3: Mean and Standard Deviation of Respondents Responses on How Instructional Materials Can Improve Practical Projects

S/N	Instructional materials to improving practical project in carpentry and joinery:-	X	SD	REMARKS
1.	Apply certain principles and generalization to achieve possible goal on a given job	3.767	0.071	Agreed
2.	Develop students' ability in some cognitive skills in carpentry and joinery	3.767	0.868	Agreed
3.	Use of material provided to find out relationship to the end result of practical woodwork	3.605	0.929	Agreed
4.	Ability to evaluate material in woodwork practical carpentry and joinery	3.721	1.031	Agreed
5.	Application of previous task to solve problems with instructional aids	3.465	0.826	Agreed
6.	Use instructional material to stimulate students to listen to the teacher during woodwork practical project	3.762	0.868	Agreed
7.	Promote understanding in concept and principles in woodwork instructional materials	3.767	1.065	Agreed
8.	Machines work benches, equipment, tools and materials selection to form a major place and resources for practical project	3.767	1.065	Agreed
9.	Give more meaningful learning of woodwork practical project to students	3.744	1.000	Agreed
10.	Help focuses on the content pedagogy of woodwork practical project	3.744	1.051	Agreed
11.	Assist in advocating for highest quality of wood material and iron mongery in practical project in carpentry and joinery	3.883	0.956	Agreed
12.	Present carpentry practical project lessons clearly	3.744	1.026	Agreed
13.	Materials arrange in a logic and systematic way assist in understanding practical project	3.791	1.036	Agreed
14.	Knowledge, skills or abilities are developed in woodwork practical projects and veneering to cabinet finishing through instructional materials	3.791	1.036	Agreed
15.	Facilitate the decision of a person toward taking right action in production of joinery	3.837	0.974	Agreed

Data in Table 4.3 indicated that all the items are agreed upon by the respondents with mean greater than 3.50.

4.4 Research Questions 4

What are the teaching techniques that will improve the use of hand tools and machine tools?

Table 4.4: Mean and Standard Deviation of Respondents Responses on the Teaching Techniques that will Improve the Use of Hand Tools and Machine Tools

S/N	techniques for handling machine tools Teachers need carpentry and joinery to:	X in	SD	Remarks
1.	Giving enough time for teaching of carpentry and joinery in tools handling	4.116	1.073	Agreed
2.	Mastery of woodwork theory and application of tools specification	4.000	1.023	Agreed
3.	Give ample time for application of skills in pull over cross cutting machines	3.954	0.950	Agreed
4.	Development and utilization of appropriate skill in single tenons machine in woodwork	4.069	1.009	Agreed
5.	direct all requirements needed in woodwork practice in the place of work	3.932	0.862	Agreed
6.	learn the knowledge, skills, attitudes and values important in dimensional saw bench	3.837	1.045	Agreed
7.	apply skills in the real work setting of surface planning machine	4.000	0.817	Agreed
8.	Improve teaching skilled in pedagogy and practical projects	3.907	1.065	Agreed
9.	Integrate school-base and work-base learning in teaching	3.883	1.199	Agreed
10.	Improve vocational skills of discovering ways of learning for employable citizen	4.069	1.142	Agreed
11.	Improve in quality of practical project to stand the test of time for effectiveness and relevance in finishing	4.930	0.971	Agreed
12.	Use of pedagogical and professional competence in handling hand tools chisel and hammer	4.093	1.109	Agreed
13.	Use of instruction design and implementation of practical project	4.000	0.976	Agreed
14.	Use of developed practical project syllabus	4.232	1.065	Agreed
15.	Use of basic teaching skills	4.302	0.988	Agreed
16.	incorporate ICT in practical projects woodwork	4.116	0.931	Agreed
17.	Identify student with special characteristics then develop on that to facilitate learning	4.279	1.008	Agreed

Data in Table 4.4 indicated that all the items are agreed upon by the respondents with mean greater than 3.50.

4.5 Hypothesis One

There is no significant difference in the mean responses of instructors and teachers on in-service training to improve practical projects in woodwork.

Table 4.5: The t-test for Analyses of the Responses of Instructors and teachers on In-service Training to Improve Practical Projects in Woodwork

S/N	items;-	X_1	SD_1	X_2	SD_2	t-cal	Remarks
1.	Introduce new materials used in carpentry and joinery to teachers/instructors	4.0000	1.0000	4.0357	.9993	-112	NS
2.	Training on modern equipment to update their skills in application joinery hand tools	4.1333	.9154	4.2500	.8443	-419	NS
3.	Development in timber preparation	3.5333	.7432	3.6429	.8698	-413	NS
4.	Make adjustments in an establishing estimate and cost in joinery project	4.0000	.8451	3.6429	.7310	1.446	S
5.	Practical experience in prefabricated timber components	2.9333	1.0997	3.0357	1.0709	-296	NS
6.	Expose to dynamic nature of technological education	3.7333	1.1629	3.8214	.9048	-275	NS
7.	Engage less-experienced ones to serve as their mentors or professional guides	1.6000	1.2421	1.6786	1.4920	-174	NS
8.	Development on principles of stair design	3.9333	.9611	3.9286	.85758	0.017	S
9.	Growth and skills development knowledge and attitude	4.2667	1.0997	3.7857	.9946	1.457	S
10.	Update training on construction and finishing skills	4.2000	.9412.	4.0714	.8132	0.450	NS
11.	To enhance staff development continuing education in building/architectural drawing	4.2000	1.0823	4.1786	.9048	0.69	S
12.	Retrained two to six times in a year to keep abreast with technological change in profession	3.5333	.7432	3.5714	.9200	-138	NS
13.	Area of professional competence of each colleague benefits the other eventually leading to each member of staff growing academically and professionally	3.6667	1.3451	3.5714	1.103	0.250	NS

14.	Oversee all curricular programmes associated with woodwork practical project	3.4667	.9154	3.2857	1.1178	0.537	S
15.	Embrace all activities that are geared towards the growth of skills and knowledge of erection of roof and ceilings	3.9333	1.0320	3.7500	.8443	0.628	S
16.	Keep woodwork practical project teachers/instructors abreast with changes in their profession	3.9333	.8837	3.6429	.95116	0.988	S
17.	Review the areas of inadequacies in curriculum and introduce innovation	3.8667	.9904	3.7500	1.0044	0.345	NS
18.	Increase competence of practical skills possessed by the teachers in installing sliding and folding doors	3.8000	.9411	3.6429	.82614	0.566	NS

Note: NS = Not Significant; S = Significant

Data in Table 4.5 indicates that the t-test analysis of the instructors and teachers. The analysis shows that items number 4, 9, 11, 14, 16 and 18 are significant they have calculated t- values of less than the table t- value of 2.01 at 45 degrees of freedom at 0.05 levels of significant, on in-service training The null hypothesis of no significant difference between the mean rating of responses of instructors and teachers were therefore accepted in that items From the analysis, it can be inferred that teachers and instructors needs re training in practical projects in woodwork of Technical Colleges.

4.6 Hypotheses Two

There is no significant difference in the mean responses of instructors and teachers on teaching techniques for improving the use of hand and machine tools.

Table 4.6: The t-test for the Analysis of Responses of Instructors and Teachers, on Teaching Techniques Improve the Use of Hand and Machine Tools

S/N	Items	X_1	SD_1	X_2	SD_2	t-cal	Remarks
1.	Giving enough time for teaching of woodwork in tools handling	4.3333	1.11270	4.0000	1.0540	0.970	S
2.	Mastery of woodwork theory and application of tools specification	4.2667	1.09978	3.8571	.97046	1.259	S

3. Give ample time for application of skills in pull over cross cutting machines	4.0667	.96115	3.8929	.95604	0.567	S
4. Development and utilization of appropriate skill in single tenons machine in woodwork	4.0667	1.03280	4.0714	1.0157	-015	NS
5. direct all requirements needed in woodwork practice in the place of work	4.0667	.88372	3.8571	.84828	0.761	S
6. learn the knowledge, skills, attitudes and values important in dimensional saw bench	4.0667	1.16292	3.7143	.97590	1.052	S
7. apply skills in the real work setting of surface planning machine	4.0667	.88372	3.9643	.79266	0.386	S
8. Improve teaching skilled in pedagogy and practical projects	4.0667	1.09978	3.8214	1.0559	0.716	S
9. Integrate school-base and work-base learning in teaching	4.2667	1.09978	3.6786	1.2187	1.558	S
10. Improve vocational skills of discovering ways of learning for employable citizen	4.2667	1.03280	3.9643	1.2013	0.824	S
11. Improve in quality of practical project to stand the test of time for effectiveness and relevance in finishing	4.3333	.97590	3.9643	.96156	1.193	S
12. Use of pedagogical and professional competence in handling hand tools chisel and hammer	4.2667	1.09978	4.0000	1.1221	0.748	S
13. Use of instruction design and implementation of practical project	4.2667	.96115	3.8571	.97046	1.323	S
14. Use of developed practical project syllabus	4.1333	1.06010	4.2857	1.0837	-443	NS
15. Use of basic teaching skills	4.2667	1.09978	4.3214	.94491	-171	S
16. Incorporate ICT in practical projects woodwork	4.2000	.94112	4.0714	.94000	0.427	NS
17. Identify student with special characteristics then develop on that to facilitate learning	4.3333	.97590	4.2500	1.0408	0.256	NS

Note: NS = Not Significant; S = Significant

Data in Table indicates that the t-test analysis of the instructors and teachers. The analysis shows that items number 4, 14, 16 and 17 are not significant they have calculated t- values

of less than the table t- value of 2.01 at 45 degrees of freedom at 0.05 levels of significant, on teaching techniques The null hypothesis of no significant difference between the mean rating of responses of instructors and teachers were therefore accepted in that items. From the analysis, it can be inferred that teachers and instructors share identical opinions in Technical Colleges.

4.7 Discussion of the Findings

The skills improvement needs of woodwork teachers in College of education (Technical) were analyzed and ascertained as they were found relevant. This finding according to research question one are: introduce new materials used in woodwork to teachers/instructors, training on modern equipment to update their skills in selection and application wood hand tools, construction and finishing skills, and to enhance staff development continuing education in building/architectural drawing. Those skills are complementary for effective job for in-service training of staffs. This is in line with Oranu (1990) who stated that personality development can be described as a combination of a press and a need. Hence, the desire to satisfy or gratify these needs directs or indicates human behaviour. The above concepts of needs have implication, among other things, to teachers in general and woodwork teachers in particular. This is in agreement with Olaitan (1978), Onwu (1982) and Onwu (1985) which emphasized the fact that before any training programme is established, the felt needs of teachers who will participate in such a programme must be ascertained. This is to support Hughes and Doughery (1977) who suggested that the perceived needs of teachers must be considered, and also in-service education programme should be based on the identified needs of the teachers which should be structured to permit their active involvement.

The analysis of research question two presented in Table 4.2 provided such finding as indicated by the mean rating of teachers: Accomplishing a task in practical project is extrinsic motivation to teachers and Evaluate student project work promptly and give reward to best ones produce that improved needed by teachers motivation all agreed on by the respondents who believed it should be in both theoretical and more of practical for motivation performance and satisfaction of any worker This supports the opinion of Akubue (1981) and Anyakoha (1982) which states that needs for in-service training should be based on strategies for improvement in which the respondents found them deficient and so need re-training in an in-service education programme.

According to research question three as analyzed in Table 4.3, the finding of this table shows that there are some strategies that are needed in woodwork teachers which could be acquired through theoretical programme, which include: Assist in advocating for highest quality of wood material and iron mongary in practical project in woodwork. Facilitate the decision of a person toward taking right action in production of joinery. Though, all respondents agreed that acquisition of desired instructional materials will be more through practical training programme. Teachers of higher education level. Green explained that a competent woodwork teacher must be skilled in the selection of appropriate materials in guiding the students to carry out successful projects using the selected materials through a planned practical activity.

In the analysis of research question four, presented in Table 4.4, the findings revealed that the improvement needs in practical projects should be organized through practical training programme as indicated by the mean rating of the respondents' responses. These include: Giving enough time for teaching of woodwork in tools handling. Mastery of woodwork theory and application of tools specification. Development and utilization of

appropriate skill in single tenons machine in woodwork. apply skills in the real work setting of surface planning machine. Improve vocational skills of discovering ways of learning for employable citizen. Improve in quality of practical project to stand the test of time for effectiveness and relevance in finishing. Use of pedagogical and professional competence in handling hand tools chisel and hammer. Use of instruction design and implementation of practical project. Use of developed practical project syllabus. Use of basic teaching skills. incorporate ICT in practical projects woodwork. Identify student with special characteristics then develop on that to facilitate learning. The findings reviled that all of the items are except one in that is strongly disagreed in in-service training. This supports Ani (1989) proposal that teaching effectiveness is a function of what to teach, how to teach, to whom it will be taught and the condition under which it will be taught. In line with this, Cannon (1991) also focused on the personal and professional qualities of the teacher for effective teaching and learning. Respondents agreed that the acquisition of the desired strategies will be more through practical training programme. This agreed with Green (1954) who explained that professional teachers must be skilled in the selection of appropriate materials in guiding the students to carry successful projects Agwu (1988) supported by saying that quality education presupposes quality teaching which can only be achieved through mastery of the various skills in the teaching components.

The result of the null hypothesis shows that there is no significant difference in the strategies for improving practical projects in woodwork teachers and instructors in in-service training, motivation, instructional materials and teaching techniques for improving technical teachers this means that the strategies for improvement of teachers and instructors are the same. On these items, there is no significance in mean responses

of qualified teachers and less qualified teachers in all most all. Instructors and teachers differ significantly in the following items:

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

In the study, a survey research design was used for the study; the study covered all the woodwork teachers in Technical Colleges in Niger State. The population was made up 43 woodwork teachers in all the states mentioned above. A structured questionnaire with 70 items which consists of two sections was used. Section A consists of items on the personal data about the respondents. Section B consists of items based on the research questions. The response category was structured according to the five point Likert scale responses of Strongly Agreed SA, Agreed A Undecided UD Disagreed and Strongly Disagreed.

The following are the major findings of the study: There is need for in-service training programme for teachers of woodwork in Colleges of education. Introduce new material used in woodwork to teachers/instructors. Trained on modern equipment to update their skills in selection and application of woodwork hand tools. To enhance staff development continue education in building/architectural drawing. Accomplishing a task in practical project extrinsic motivation to teaches. Evaluate student project work promptly and give reward to best ones produce. Assist in advocating for highest quality of wood material and iron mongary in practical project in woodwork. Apply skills in the real work setting to surface planning machine. Incorporate ICT in practical projects woodwork. The findings revealed that all of the items except one that is strongly disagreed in in-service training of teacher of woodwork should be addressed to include both theoretical and practical strategies with more emphases on practical abilities in the improvement. The length of teaching experience has no relationship with the level of technical competency needs of woodwork teachers in Technical Colleges, The status of woodwork teachers has

no effect on the technical improvements needs for their job performance. The perceptions of both instructors and teachers of woodwork are similar on strategies required of woodwork ' for qualitative job performance.

5.2 Implication of the Study

The findings of the study have the following implications. The effects of using the appropriate strategies required in woodwork for psychomotor skill development is not well felt due to shortage of the needed strategies for improvement by teachers. This leads to one sided psychomotor skill development, leaving the area woodwork programmes where the strategies exist. The next implication of the findings of the study is that most Technical Colleges due to lack of competent teachers embark only on theoretical aspects of woodwork to the detriment of psychomotor skill development in the students. Expectedly, the resultant effect to this is the over production of academically sound but technically deficient woodwork graduates who are capable of reciting all the principles and theories

The study also proved that the teachers of woodwork desire for more practical competency in woodwork and only when they are assured of the in-service training opportunity to equip themselves with skills through workshop and site experiences could these needs be met. This accounts for the reason why students of woodwork do not take practical aspect of their studies more seriously since they believe that all their teachers are deficient in practical strategies.

The implication of the null hypotheses for the study as was observed after testing the hypothesis are: For null hypothesis one, the implication is that teachers of woodwork were not commonly competent in practical projects in Technical Colleges and so negatively affected psychomotor development of the students. For null hypothesis two, it

proved that different strategies improvements were needed for psychomotor skill development in woodwork by teachers. This led to inadequate development of students in skills. The third null hypothesis discovered that there were deficiencies in strategies possessed by woodwork teachers for teaching in college of education (technical)in the states under study hoping to improve on their competency level if given the pre-service and in-service training opportunity, the psychomotor skills of the students and teachers of woodwork were not fully and properly developed.

5.3 Conclusion

It is through effective technical teacher education programme that the nations technological development objective can best be achieved, since training is one of the conditions which can influence teachers effectiveness, The following conclusion were made base on the result of the study. The findings of this study has shown some salient points that needs to be revisited by the National Commission for Colleges of Education (NCCE) in assessing actually the competency improvement requirements of teachers of woodwork in Technical Colleges. From the findings, there is the Conclusion that there were shortages in the desired strategies woodwork teachers. As a result of this, the performance of teachers on woodwork was limited to a few strategies available.

Furthermore, the shortage of adequate strategies of teachers of woodwork in Colleges brings about poor psychomotor skill development in the students. As a result, the few practical strategies possessed by the teachers were utilized in teaching woodwork for psychomotor skill development in woodwork students. In summary therefore, it is understandable that the purpose of this study has been met. Discovering that strategies for improvement of woodwork teachers in Colleges of Education(Technical)were inadequate and glaring, that few strategies were adopted woodwork practical activities

based on the strategies possessed by teachers. that effects of the deficient strategy (theoretical and practical) by woodwork teachers equally felt in the area of teaching woodwork to students and effective performance on the part of teachers, and that many ways would be adopted for more acquisition of strategies for improvement in woodwork and effective utilization of teachers, confirm the fact that the purpose of the study has been effectively achieved.

5.4 Recommendations

The following recommendations are made from this study. Since there were inadequate competent teachers of woodwork in Technical Colleges, the Federal government should make effort to provide enough in-service training programmes for woodwork technology teachers. Such in-service technical training programme should be in form of workshops, post-graduate programmes, seminars, conferences and any other forms of training that will assist the teachers of woodwork in improving their strategies. Woodwork technology teachers in Colleges of Education(Technical) should be given in-service courses, workshop and seminars on practical aspects of practical projects this will enable them to adapt actively in woodwork workshop and relevant to students' psychomotor skill development. The identified strategies required needs improvement for teachers of woodwork should form the basis for the in-service training programme to be organized by the training institution. Curriculum planners can also use the identified strategies improvement needs in planning and developing the curriculum content of the in-service training programme. This study finds no deficiency in the curriculum so no evidence for review. The above recommendations if considered and implemented will go along way in improving the woodwork technology strategies Technical Colleges.

5.5 Suggestions for Further Research

This study which dealt with strategies for improving woodwork technology teachers in Technical Colleges

(1) Gain of in-service training, pre-service and post-training, programmes and on the job efficiency of woodwork teachers in colleges of education

(2) In-service training programmes for teachers of woodwork problems and prospects. Finally, a similar study could be carried out to identify the technical competency improvements in woodwork for teachers of Introductory Technology in sampled states to ascertain whether there is deficiency transfer from the teachers to the students at the level of learning in Government Technical Colleges.

(3) A study to be carried in the aspect woodwork technology that this study delimited

REFERENCES

Abdullahi, S. (2010) Electrical Installation Competencies Required by Electrical/Electronic Teachers of Technical Colleges of Bauchi and Gombe State Unpublished M.ed thesis University of Nigeria Nsukka.

Abimbola, A. O. (2007) Skill Improvement Needs of Technical Teachers for Maintenance of Woodwork equipment in secondary school in Ogun State. M.ed Thesis University of Nigeria Nsukka.

Aina, O. (2000). Relevance of secondary education business and Technical qualifications as admission requirements into tertiary institution. NABTEB Newsletter, July, 2, (f), (2). 4-6 and 8,h a , 8.(X) (1). *Federal government to accord priority 10 technical Vocational education*. Punch Newspaper, August, 25. 7.

Ali A. (2001) Introduction to advance research in Education Lecture presented to m ed students of University of Nigeria Nsukka.

Aturu, B. (2011). Vocational technical education: The state and citizenry in Nigeria. *Paper presented to the School of Vocational Education of the Federal College of Education (Technical) Akoka, Lagos.*

Audu, S.A. &Umoh, A.A (2010) Properties of Laterite brick stabilized with bitumen as required in building technology education. *Journal of Issues in Technical Teacher Education*. 2(2), pp. 10-19.

Banyard, P. & Grayson, A, (2000). *Introducing Psychological Research* (2nded) Basingstoke, Palgrave.

Beck, M. (1994). Strategies for Functional Community Based Instruction and Inclusion for Children with Mental Retardation Teaching Exceptional Children 26 (2) 44-48

Besmart-Digbori, E.D. (2009). *Adequacy of technical education teachers and machinery for the teaching and learning of woodwork: A case study of a south-southern Nigerian technical college.* Proceedings of the 1st International Technology, Education and Environment Conference. African Society for Scientific Research (ASSR)

Boone. R. S. (2006) Quality Drying of Hardwood Lumber–Guidebook-Checklist Available 53705-2398. USA.

Boyi, J. (2008). Improving vocational education. *Daily Trust* Oct. 2008

Bukar, B (1994).*Development of instructional for evaluating practical project in electronic*. Unpublished M.EdThesis, University of Nigeria, Nsukka.

Denig, J; Eugene M. Wengert, William T. S. (2000). "Drying hardwood lumber". U.S. Department of Agriculture, Forest Service, Forest Products Laboratory.

http://www.woodweb.com/knowledge_base/fpl_pdfs/fplgtr118.pdf
Denig, J; Eugene M. Wengert, William T. S. (2000). "Drying hardwood lumber". U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. http://www.woodweb.com/knowledge_base/fpl_pdfs/fplgtr118.pdf

Diaz, D.P. &Bontenbal, K.F. (2003). *Pedagogy-based technology training.*

Dickison, W. (2000). *Integrative plant anatomy*. New York, NY: Academic Press. 533 p. from the U. S Forest Products Laboratory, One Gifford Pinchot Drive, Madison, WICategoriesFurnitureArticles needing cleanup from June 2008All articles needing cleanup

Dreyfus, S. E.&Dreyfus, H. L. (1980). *A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition*. Washington, DC: Storming Media. Retrieved January 13, 2012 from http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA084551&Location =U2&doc= GetTRDoc.pdf..

Duginske, M. (2005).Introduction to Basic Cabinetmaking using Pocket-Screw Joinery Introduction to Basic Cabinetmaking. Huxley, KREG TOOL COMPANY

Egbita, U.A. (2006). *Strategies for enhancing school-to-work transition of Electrical/Electronics graduates of Polytechnics in Kogi and Nassarawa states.* Unpublished Master Thesis, Department of Vocational Teacher Education, University of Nigeria, Nsukka.

Ekunke, C.U. (2008). Strategies for improving manpower production in vocational technical education in Nigeria *Global Journal of Educational Research*, 7(1&2) 31-35

Fafunwa, B. A (1995). *History of Education in Nigeria*. Ibadan: University Press.

Federal Government of Nigeria (2004). *National Policy on Education.* Lagos: NERDC Press.

Federal Ministry of Education (2001). *National master plan for technical and vocational education.* Development in Nigeria in the 21st Decade. Abuja: Publishers.

Federal Republic of Nigeria (2004). *NationalPolicy on Education* (4th Ed) Lagos: FGN Nigerian Educational Research and Development Council (NERDC).

Federal Republic of Nigeria (FRN, 1998). *National Policy* on *Education* (Revised).Abuja: Ministry of Education.

Gall, M.D., Gall J.P., & Borg W.R. (2007). *Educational research: An introduction*. (8th edition). New York: Person Education, Inc.

Glaser, R. (2001). Education and thinking: The role of knowledge. In R. McCormick, P. Murphy, & M. Harrison (Eds.), *Teaching and Learning Technology* (pp. 91-111). Wokingham, England: Addison-Wesley in association with The Open University

Hamza, S. (2010). *Strategies for enhancing school to-work transition of building technologies graduates of tertiary institutions in Kaduna and Katsina states*. Unpublished Master Thesis, Department of Vocational Teacher Education, University of Nigeria, Nsukka.

Kenndy, J. F. (2002) An overview of building techniques, Natural building colloquium, Southwest, New Mexico.

Larson, P.R.; Kretschmann, D.E.; Clark, A., III; Isenbrands, J.G. (2001). Formation and properties of juvenile wood in southern pines: a synopsis. Gen. Tech. Rep. FPL– GTR–129. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory.

Lawson, W. (1991) Materials for Low-cost building in north-eastern Nigeria. Working paper No,35 Coventry, England; Development Technology Unit, University of Warwick.

Lent, R.W. (1996) Career Counselling Science Policy; Revitalizing our paradigui and role. The career Development quarterly, 45(2), 58-64

Lent, R.W.& Brown, S.D. (1996). A social cognitive framework for studying career choice and transition to work. *Journal of Vocational Education Research,* 21 (6), 3 – 31.

Lent, R.W.; Hackett, G.; & Brown, S.D. (1999). A social cognitive view of school-to-work transition. *The Career Development Quarterly,* 47 (1), 297-311.

Mamman ,Y A (2009) Workshop Practice management skill improvement needs of Electricity/Electronic teachers in technical colleges in Adamawa, Bauchi and Gombe states. Unpublished M.Ed, Thesis University of Nigeria Nsukka

Mary, J. & Peter, S. (2000) School-to-Work transition from theory to Practice ; *Journal of Career Development* 9 (3) 29-34.

Mayes, T. (2007). *The pedagogical principles*. Retrieved 20 January, 2011 from http://www2.napier.ac.uk/transform/TESEP_Pedagogical_Principles.pdf

Mbata, A. (2000). *Towards a More Effective Manpower, Training and Development in Technical Education. Journal of Technical Education Review,* 2 (2), 205.

Miller, N.E. & Dorland, J. (1941). *Social learning and limitation*. New Haven: Yale University Press

Miller, S. M., & Miller, K. L. (1999). Using instructional theory to facilitate communication in web-based courses. *Educational Technology & Society,* 2(3), 106-114.

Muhammed G.A. (1991, Jan-April) *Maintenance Culture: New or Late*. Ajakuta: News Ajakuta Steel Company.

NABTEB Newsletter, July, 2, (f) , (2). 4-6 and 8, ha, 8 (X) (2001). *Federal government to accord priority to technical-vocational education*. Punch Newspaper, August, 25.

National Board for Technical Education (NBTE), (2001).*NBTE Curriculum.* National Headquarters BidaRoad Kaduna.

National Board for Technical Education NBTE (2009). *Digest of statistics on Polytechnics in Nigeria*. 2000-2001, Kaduna.

National Commission for Colleges of Education [NCCE] (2009). *National Commission for Colleges of Education Minimum standard.* Abuja. Nigeria.

NCCE (2010) Chief Accreditation Community Report13th October 2010 News bulleting Abuja Nigeria

Ndirangu, C.W. (2011). *Teaching methodologies*. African Virtual University. Retrieved 20 January, 2011 from http://creativecommons.org/licenses/by/2.5/

NEEDS (2004).National Economic Empowerment and Development Strategy (NEEDS) Document Direct retrieve on May 25 2011

Nwachuwu, C. E. (2006). *Appropriate Methodology in Vocational Technical Education*. Onisha; Cape publishers.

Nworgu, B.G. (2006). Survey Research Method. In Olaitan, S.O. and Nwoke. (Eds) *Practical Research Methods in Education.* Onitsha: Summer Educational.

Offorma G. C. (2010).*Re-Thinking teacher Quality; international conference at Princess Alexandria Auditorium Opening Address* 27th August 2010 University of Nigeria Nsukka

Ogbuanya,T.C. (2005) Electrical Energy for Home Appliances , Enugu Nigeria. Cheston Agency

Okorie J.U and Ezeji,SCOA(2006) Elements of Guidance, Vocational and Career Education Onitsha Summer Education Publishers Nig Ltd.

Okoro, O.M. (1995). Industrial Communications. In Okwo, F.A. and Ike, B.A. (eds.) *Educational Technology: Basic Concepts and* Issues. Nsukka: University Trust Publishers.

Okoro, O.M. (2006). *Principles and Methods in Vocational Technical Education.*Nsukka: University Trust Publishers.

Olaitan, S. O. (2002). *Principles of school farm managemen*t. Owerri: Cape Publishers.

Olalekan, A. (1999). Effective facilities planning management and Maintenance. *Proceeding of Nigeria Association of Teachers of Technology, .6*, 9-16.

Omeje, H.E. (2004). *Effects of project method on Academic Achievement of low ability students in carpentry and joinery.* Unpublished M.Ed Thesis, University of Nigeria, Nsukka.

Oranu, R.N. (2001). Vocational and Technical Education in Nigeria. A paper presented at the International Bureau of Education (IBE). Sub regional Seminar and workshop on Strategies for Teachers Coping with the New curriculum on NQV.1 1 - 17'~A scan, Badagry.

Oranu. R.N. (2006). Vocational Education and Manpower Development. A paper *presented at the 6m Annual Conference of Nigerian Vocational Association, held at Federal* College of Education (Technical), Urnunze, Anambra State

Osuala, E. C. (2001). *Introduction to Research Methodology*, (3rd *edition*).Onitsha: Africana Fep Publishers Limited.

Rauner, F. (1999). *School-to-work transition: The example of Germany.* New Jersey: Hampton Press.

Rix, J.; S. Haas, and J. Teixeira, (2008). *Virtual Prototyping*. Springer. CategoriesFurnitureArticles needing cleanup from June 2008All articles needing cleanup

Rix, J.; S. Haas, and J. Teixeira, (2008). *Virtual Prototyping*. Springer.

Robbins, Stephen P.; Judge, Timothy A. (2007). *Essentials of Organizational Behavior* (9 ed.), Upper Saddle River, NJ: Prentice Hall.

Robert, H F. (2010).*Woodhand book wood as an engineering material general technical report.* FPL-GTR-190 Madison. W.E. U.S.

Ronald, C.W. (2006). A benefit analysis of vocational re-habilitation programme. *The Journal of Human Resources,*4(2), 22-29

Scottish Further Education Unit (2005).*Construction Crafts: Site Carpentry and Bench Joinery. Glasgow*: The Scottish Qualifications Authority Hanover House 24 Douglas Street.

Smith, S. J. (1999). *Vocational education and the world of work*. Boston: Allen and Baco Inc.

Sowande, K.G. (2001). *Technical Competency Improvement Needs of Metal Work Teachers in Nigeria Colleges of Education*. Unpublished Ph D. Thesis University of Nigeria, Nsukka.

Sowande, K.G. (2002).*Technical Competency improvement needs of metal work teachers in Nigeria colleges of education.* Unpublished M.Ed Thesis for Dept of Vocational Teacher Education, University of Nigeria.

Tayo, B., Ajibade, A., &Ojedokun, O. (2009). Uses of computer and its relevance to teaching and learning in Nigerian educational system. *Educational Research and Review, 4*
(10), 443-447

Thompson, N. (2001). Why ID? The benefits of Instructional Design Models in Upholstery . *Teaching with Technology Today.* Retrieved on July 9, 2007, from http://www.uwsa.edu/ttt/articles/ thompson.htm

Umar, R.T. (2010). Strategies towards rethinking of qualitative business education in Nigeria. *A paper presented at the International Conference held at the Faculty of Education*, University of Nigeria, Nsukka.

Usoro, A. D. and Ogbuanya, T. C. (2009) Improving Technical Vocational Education Instruction with Information and Communication Technology (ICT) at Technical Colleges in AkwaIbom State, *international Journal of Research in Education, PanAfrican Series 2* (3)65-74.

Uzoagulu, A.E. (1998). Project method of training technical workers. *Paper presented at the Training Workshop organized by the Enugu State Government and United Nations Development Programme* (April).

Walton, J.A (1981). *Woodwork in theory and practice*. Sydney: The Australian Publishing Company.

Wang, C. (1992). *The Boeing Company applied academics for high schools years, evaluation report*.

Whyte, Cassandra B. (2007). An Additional Look at Orientation Programs Nationally- (reprint of 1986 article in same journal). *National Orientation Directors Association Journal*, 15 (1), 71-77.