EVALUATION OF METALWORK TECHNOLOGY PROGRAMME IN NIGER STATE COLLAGE OF EDUCATION IN MINNA, NIGER STATE

BY

MOHAMMED FOKPO MOHAMMED

2007/1/27249BT

A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION SCHOOL OF SCIENCE AND SCIENCE EDUCATION, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS OF THE AWARD OF BARCHELOR OF TECHNOLOGY (B.TECH) DEGREE IN INDUSTRIAL AND TECHNOLOGY EDUCATION

OCTOBER, 2012

CERTIFICATION

I, MOHAMMED FOKPO MOHAMMED with the Matric Number 2007/1/27249BT an undergraduate student of the department of Industrial Technology Education, certify that the work embodied in this project is original and has not been submitted in part or full for any other Diploma or Degree of this or any other University.

_____   _____

Name   Signature and Date

APPROVAL PAGE

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

_____   _____

Supervisor   Sign/Date

_____   _____

Head of Department   Sign/Date

_____   _____

External Supervisor   Sign/Date

DEDICATION

This research work is dedicated to Almighty Allah and to my uncle, Alhaji .Ibrahim Lile Mohammed Sosa. You are the best.

.

ACKNOWLEDGEMENTS

ABSTRACT

The research was designed to evaluate metalwork technology programme in college of education Minna. Four research questionnaire and two hypotheses were formulated to guide the study. 56 items question was used to collect data for the study. The target population consists of metalwork technology programme personnel and metalwork technology student in Niger state college of education Minna, Data obtained were analyzed using frequency count, mean, standard deviation and t-test. Two null hypotheses were tested at 0 .05 level of significance. The findings of the   Signifies that lecturers in metalwork technology programme, in Niger State College of Education are B.tch and M .tech degree holder respectively. That curriculum content is suitable and adequate for the programme. Base on the foundings of the study. It was recommended that lecturers qualification are not best enough in contributing to the effective teaching and learning of the metalwork technology programme. Government at all level most gives emphasis to training and retraining of personnels, to enhance technical education.

LIST OF TABLES   **pages**

TABLE OF CONTENT pages

CHAPTER ONE

INTRODUCTION

CHAPTER TWO

REVIEW OF RELATED LITERATURE

CHAPTER THREE

METHODOLOGY

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

CHAPTER I

INTRODUCTION

Background of the study

Education is the define as field of study that is concerned with the pedagogy of teaching and learning (Oxford Advance Learners Dictionary) Education in Nigeria has witnessed active participation by non governmental agencies, communities and individuals as well as government intervention, no nation can be regarded as develop without having educated citizens since the level of her development is reflected by the level of her educated citizenry, to be educated is not to know how to read and write but rather posses the knowledge and skills ability are useful to individuals and the society. The process education rely much on the philosophy of the growth Nigeria's need for technological and economical growth have been manifested by the emphasis on science and technical education since independence.

Technical education is defined as that aspect of education which leads to acquisition of practical and apply skills as well as basic scientific knowledge (FRN 2004), Osuala (1981) also define technical education as education to earn a living in an occupation in which success is dependant largely upon technical information and understanding of the laws of science and principles technology as applied to modern design, production, distribution and service, technical education are wide spread and visible, ranging from metalwork technology Automobile technology, electrical and electronic technology, building and woodwork technology which are designed as a professional course in engineering or technical education. Hence the tools and equipment are basic and dispersible to the teaching of the course; the practical nature of technical education makes it unique in content and approach. There require special care & attention and input of technical education are so visible to the extents that even an illustrate could see when failures occurs, (Osuala 1981) for this to be achieved a national curriculum is adopted in all colleges of education, accredited by (NCCE1990).

The metalwork technology programme is developed to offer a complete post secondary school. In all aspect of metalworking process, while the central purpose of metalwork technology programme is to provide it recipient with skill required for work in the metalwork industry. The curriculum content of metalwork technology should directly relate to what industries and business need to make graduates of the programme to easily work in the industries. These called for curriculum content that have to do with new technological changes Elobuike (1991).

Statement of the problem

The national commission for colleges of educational (NCCE 1990) stated in its minimum standard that its aims are to produce technical teachers with the intellectual subjects and to make them adaptable to any changing situation in the technological development. But the situation seems to be unrealistic. The graduate of these product cannot gain employment, graduate of these programme are still half back as a result of ill-equipments and inadequate facilities in the school workshop Okoro (1991). Considering the aims and objectives of the programme, the suitability and adequacy of course contents, personals qualification, training experience, and teaching methods which are suppose to contribute to effective teaching of course could be evaluated and seen to be the major factor that affect the effective teaching of metal work technology programme in college of education minna. It is also very difficult to relate whether graduate of these programmes are actually meeting the needs of the society or not. Evaluation will therefore reveal among other things whether the anticipated changes in the levels of knowledge and performance in skills have been achieved. It will also reveals differences in learning rate and effectiveness of the course content and indentifies the deficiency of educational programme.

Purpose of the study

The main purpose of the study is to evaluate the Metalwork Technology programme in Niger State College of Education. Specifically, this study seeks to determine:

1. The qualifications of personnel's to affective teaching and learning of metalwork.

2. The suitability and adequacy of the curriculum content.

3. The performance of students of the programme.

4. The teaching and learning facilities.

Significance of the study

The findings of this research will be of immense benefit to the National Board for Technical Education (NBTE), National Commission for Colleges of Education, metalwork technicians and the society at large.

The National Board for Technical Education (NBTE) and National Commission for Colleges of Education (NCCE) will benefit from the research work in the area of curriculum design, planning and reviewing the curriculum contents of the metalwork technology through the acquisition of skills to prepare them for the challenges of the metalwork industry if published or use through paper presentation in the form of seminars, workshop, symposia, enlightens forum and kept in the library for consultation

The metalwork technicians will also benefit from the research work by using the right tool as it goes a long way in reducing the risk of danger of accident and then minimizes damage of equipment or tools. Finally, the findings of the study will be of benefit to the society if adequately implemented as it will give the society competent workforce that will

be able to fabricate metals to create individual parts, assemblies, or large scale structures for human consumption.

Scope of the study

This research work was delimited to evaluation of metalwork technology programme. Specifically identified the qualifications of personnel's to affective teaching and learning of metalwork, the suitability and adequacy of the course content, the performance of the undergraduate students of the programme, the teaching and learning facilities and the performance of the graduate of the programme.

Research question

The study provides answers to the following questions:-

1. What are the qualifications of personnel's to affective teaching and learning of metalwork?

2. What are the suitability and adequacy of the curriculum content?

3. What are the performances of the students of the programme?

4. How are the teaching and learning facilities?

5. What are the performances of the graduate of the programme?

Assumption of the study

The following assumptions were made to guide the design of the study:

1. That the respondents are sincere enough to provide valid information that would give an authentic data for the research work.

2. That the responses from the respond will provide a valid judgment to research work.

Hypothesis

The following null hypotheses were formulated to guide the study and tested at 0.05 level of significance:

HO_1 There is no significance difference between the mean responses of Metalwork technology teachers and Metalwork technology student on the suitability and adequacy of the course contents in Niger State College of Education Minna.

HO_2 There is no significance difference between the mean responses of Metalwork technology teachers and Metalwork students on teaching and learning of metalwork in Niger State College of Education Minna.

CHAPTER II

REVIEW OF RELATED LITERATURE

Work related to present study will be reviewed under the following sub-headings

1. Historical background of technical education

2. Metal Work technology programme towards self reliance

3. Curriculum content in metalwork technology programme

4. Technical personnels qualification, training, methodology and experience in teaching technical education

5. Training Facilities and Equipment of metalwork technology programme

6. Strategies Involves Evaluating technical education

7. Summary of review related literature

Historical Background of Technical education

After the Second World War, many European countries begin to seek changes in their educational system; many African countries on their part were not only seeking political independence from Europe but also educational reforms with emphasis on a more utilitarian school (Adigun 1997). As the various changes occurred in the west including the United Slates, they spread to different African countries which have just gained their independence. However, due to the fact that various Colonial administrations in Africa paid more attention to academic programmes as it was less expensive, emphasis has to shift to something more practical in the post independence era.

Nigerian education system as inherited from the colonial master (Britain) neglected technical-vocational education. Education then was mainly meant to produce clerks and interpreters for administrative and evangelical work of the colonial government and missionaries (Fafunwa, 1974). Adaralegbe (1979) as quoted by Macgregor (2002) also informed that all that deemed relevant for education of such clerks was literacy. Ability to speak and write in English was an asset.

The African child in the traditional society was taught to learn by doing; his school was the family compound, the forest, the farm and indeed the entire environment; his teachers were parents, the extended family members, neighbours and the entire community; his books were stories, myths, legends and other oral traditions and instructions (Adigun 1997). Though the pre-colonial Africa had no formal school, the informal education was quite pragmatic. Critics of colonial education maintained that the curriculum of traditional African education was embodiment of skills, values and attitudes which each group learned in order to be fully integrated in the larger society (Matseye, 1992).

Similarly, Fafunwa (1974) also maintained that education in traditional Africa society was basically functional. The coming of the missionaries led to the introduction of the formal system of education in Nigeria by 1842. This was the establishment of primary and secondary schools. The global economic depression in early nineteenth century forced the colonial government to reduce the number of European officers in the administrative and technical staff in the civil service, government decided to train local personnel in the various government departments.

In 1908, Government survey school, first established in Lagos and later moved to Ibadan from Ibadan to Oyo in 1934. A junior technical staff training course was also

introduced in 1931 for the training of Nigerian Technical Assistants. It was patterned after the survey school in Oyo and the aim of the course was to train Nigerians for supervisory duties. A similar course was established in Kaduna in 1938 and was staffed by members of the Public Works Department. Also in 1901, the Nigerian railway established a departmental training course to train selected station staff who at least must have five years railway experience, similar training programme was established by Marie, and Post and Telegraph departments in 1928 and 1931 respectively (Adigun 1997).

In the early 1930s, Yaba Higher College was established: it was the first post secondary institution for the learning of science and technology. The college was established to provide intermediate level manpower in agriculture, medicine, Engineering, survey and teachers to teach basic science and technical subjects. They also helped in laying the foundation for the development of an appropriate curriculum in science and technical education for secondary schools. In 1946, government made a conscious planning of a system of technical education in her ten years plan for development and welfare. The plan not withstanding there was still lack of skilled Nigerians to take up the available skilled jobs in the labour market which resulted from the departmental prospects going on in the country then. Amidst these available job opportunities, there was rising unemployment rate among the school leavers. This problem gave government some concern hence her review of education system in 1977 to meet up with the prevailing situation. This education policy was, however, revised in 1981 by introducing emphasized technical-vocational education in various stages of education (NPE, 1981). Technical colleges in Nigeria could be traced to 1945 when Yaba High College was converted to technical institution. There were also establishments of other technical institution at Enugu, Kaduna, Benin City, Kano and Port Harcourt in subsequent years. In 1965, these technical institutions were renamed Government

Technical College (Fafunwa 1974). Ever since then, there has been increasing number of technical college. Industrial technical education in technical college is under vocational education NPE (1998) defines vocational education as "that aspect of education that is obtainable but specifically designed to prepare individuals to acquire practical skills, basic and scientific knowledge and attitude required as craftsmen and technicians at sub-professional level". Industrial technical courses or trades offered in technical colleges could be classified into engineering and construction trades. The engineering trades includes auto-mechanics work, mechanical engineering craft practice, welding and fabrication, foundry, electrical installation and maintenance work, radio, television and electrical work etc. The construction trades are the block, brick and concrete work, plumbing and pipe-fitting, carpentry and joinery, furniture making etc. (NPE, 1998; NBTE, 1987) the introduction of 6-3-3-3 system of education and the subsequent emphasis on vocational-technical education gave birth to the establishment of Federal College of education (Technical) in Nigeria. These institutions are under the auspices of national Commission for Colleges of Education (NCCE) the commission, which was signed into law on 13th January, 1989. Before the establishment of the National commission for Colleges of Education (NCCE), in 1989, the period between 1977 and 1987 witnessed a phenomenal increase in the number of colleges of education established in Nigeria. Admission requirements and curricula offerings varied from one college to another (Orukotan 1997) Requirements, accommodation, library, health centre, sporting facilities, funding etc.

After approval of the Board of the commission result of such accreditation was sent to respective institution. The real accreditation started in July 1993 and ended in June 1994. This covered 20 Federal Colleges of Education, 36 States Colleges of Education,S13 NCR awarding Polytechnics, 3 Private Colleges of Education and 1 Army college of education. After trial testing of NCCE minimum standard a series of workshops were organized by

the Academic programme departments between June - July 1995 so as to effect a review. The commission set up and maintains minimum standards for academic programmes in all NCE- awarding institutions. With this all colleges of education now operates the same curriculum (Orukotan 1997). He further said that the commission also produced minimum standard guidelines in certain vital areas of educational management, Viz: admission requirement, funding, facilities and personal management relevant to NCE programme. The commission also produced minimum standard guidelines for pre- NCE, part time, sandwich, and distance learning NCE programmes.

"The national policy on education (1981) defined technical education as "the aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge". Also, the national policy on education (2004) defined technical and vocational education is used as a comprehensive term referring "to those aspects of the educational process involving, in addition to general education, the study of technology and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life". According to Okoro (1987), NCE (technical) education programme should have its objectives clearly expressed, and should be periodically examined to judge its current validity and revised as necessary.

The national commission for college of education (NCCE 1996 revised) stated in it minimum standards that the objectives of (technical) education programme shall be:

1. To produce qualified technical teachers and practitioners of technology capable of teaching introductory technology in the junior secondary schools.

2. To produce technical (NCE) teachers who will be able to inculcate scientific and technology attitudes and values into the society.

3. To produce qualified technical teachers motivated to start the so much deserved revolution of technology development right from the Nigeria schools.

4. To prepare teachers so as to qualify them for a six-semester (minimum) post NCE degree programme in technical education.

Metalwork Technology towards self reliance

Metalwork is equally designed as a professional course in engineering, technology or technical education. The word, programme, depicts real plans of what is to be done. What is to be done, in actual fact, requires manipulation. This is why the word programme, is mostly used in expressing activities performed in vocational technical education (Olaitan, Nwachukwu, Igo, Onyemachi and Ekong 1999). It is for this reason, also that we have what we call technical education programmes, covering programmes or activities in metalwork, automobile, building, woodwork and electrical/electronics technology. Metalwork technology is one of the areas of specialization in technical education. The National Policy on Education (FRN2004) defined technical and vocational education as a comprehensive term referring to those aspects of the educational process involving in addition to general education, the study of technologies and related sciences and acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Also according to Briton (1978) as quoted by Atsumbe (1994), that technical education requires acquisition of skills and calls for good and sufficient training facilities.

The philosophy of technical education i.e. metal technology programme

and other areas of specialization (NCE) (technical) is to provide technical teachers with the intellectual and professional background adequate for teaching technical subjects and to

make them capable to any changing situation in technological developments not only in the country but also in the world at large (NCCE 1996).The vision of technology self-reliant came up in 1977 when the national council for science and technology development (NSTDA was converted to the Federal Ministry of Science and Technology in 1980 (Elegbede, 2000). This ministry was further merged with Federal Ministry of Education in 1984, but without well defined policy on science and technology (Macgregor 2002). Technical Education in the whole world is regarded as the strongest weapon for national development. The multi-purpose role it plays in the development and transformation of the traditional society into a theatre of modern technology cannot be over-emphasized (Macgregor 2002). According to Awoniyi (1979) also observed that effective teaching of practical is done by qualified teachers and technicians arouse the attention of student interest. Also, Onen (1984) maintained that the industrial training of students was meant to enhance student's acquisition of skills while in school and after graduating. There has been a great deal of concern, at least in the last few years, at the rising level of the poor employment prospects of the products of our educational institution especially at the tertiary level. This has been mainly due to the seeming contraction in the economy, inadequate preparation of graduates for the world of work, which makes graduates inadequately prepared for employment. Atsumbe (2005) buttressed that inadequate skilled technical personnel trained from the school system is seriously affecting the growth and development of industries in Nigeria. On the other hand Fajana (1975) is of the opinion that the Nigeria economic experience could be described as one of "growth without development". Our society is changing at an exponential rate due to increasing knowledge and technological dimension. In the recent years, science and technology are assuming a central focus in our educational system in this country as far as government educational policies are concerned. The Federal

Ministry of education emphasized on science and technology education led to the higher institutions admission policy of 60 - 40 percent science and science based courses to Arts and humanity courses respectively. The implementation of 6-3-3-4 system of education attests to this (Macgregor 2002). Also Eyibe (1985) asserted that when consideration is given to the role and nature of technical subjects as a practically oriented subject, there is need for long period of attachment in a related industry.

A new body known as National System of Science and Technology (NISST) was formed to co-ordinate all institutions, agencies, societies and individuals involved in the establishment, development and operation of science and technology activities in Nigeria. The encouragement given by the government gave birth to the settlement, of Oshogbo steel rolling mill; Aluminum smelting was a bold technological step. The Defense Industries Corporation (DIG) is another one. There is the iron and steel industry at Ajaokuta. All these are pointers to Nigeria's technological development efforts. The Nigerian engineers under the umbrella of Nigerian society of engineers took up the challenges, applied to Federal Government for fund, across River Benue. However, Nigeria is still very much dependent on foreign engineering companies for major road network construction, modern buildings, petroleum production, refineries and maintenance, electric power supply equipment, communication network e.tc. (Elegbede, 2000)

Curriculum Content in Metal Work Technology Programme

Curriculum was derived from a Latin word "Currere" which means "a running course. In other word, it is a course to be run before the attainment of a goal. In his 1918 and 1924 publications, Bobbit translated curriculum from Latin to mean a race course or the race itself- a place of deed or series of deeds. According to Tanner and Tanner

(1975), curriculum is the planned and guided learning experience and intended learning outcome, formulated though the systematic reconstruction of knowledge and experience under the auspices of the school, for the learner's continuous and willful growth in personal-social competence.

Salami (2000)'defined curriculum as all the learning activities which are intended to bring about certain desired change in the leaner and the assessment of the extent to which changes have taken place in the society for which is the school responsibility. The course content is the subject area which a learner will be exposed to while dealing with a particular subject. It could also be an educational programme design for a specific

purpose and to run for a given period e.g. NCE (technical) course content in .metalwork technology programme will contain the activities that the studies will go through for the three years before he or she can be awarded an NCE certificate.

Howard (1972) as quoted Atsumbe (1994) also postulated that: "Every human society is dynamic rather than static. The society changes in terms of needs, values and goals then if education is to serve its course in a society, the school curriculum must also be constantly reviewed or modified in the light of changes as they occur.

The planning of vocational technical education curriculum follows concrete and realistic guidelines. Vocational technical education, for instance, it is not for lazy and unintelligent persons, hence it helps only those who help themselves. Vocational education is meant for only those who need it, want it and hope to progress through it. For this reason, the curriculum for vocational technical education is planed for work and so its programme are carried out using real materials and real jobs (Olaitan,1999)

In planning a vocational technical education, planners require adequate information to become fully aware of the prevalent occupational needs of both the learners and the society. They also need projected data on manpower needs, job enrollment and other economic considerations for effective programme planning.

It is believed that in any business, training is the key to success. It is also true that through training one acquired basic skills in the trade or profession. From the acquisition of skills comes competency in practical exhibition and the public will be aware of end attributes. Walton (1981) observed that the craftsman designer has greater freedom of expectation. His work is often only required to satisfy his own needs or those of an individual client, thus, he can carefully select the most suitable materials and adopt method of construction and forms which cannot always be produced by machine.

Higher education is the third tier of education in Nigeria educational system. It can be defined as a source of skilled personnel and the driving force behind achieving sustainable development (Olaitan 1999). In this context, higher education will include those education received in the universities, polytechnics, monotechnics, and colleges of education. They further stressed that as a reservoir of knowledge, higher education institutions have been crucial centres for the search for truth and new knowledge. Okebukola (1997) as quoted by Olaitan (1999) remarked that the primary mission of higher education is to conduct research, disseminate knowledge, and produce skilled persons who are capable of playing effective roles in national economic and technological growth and development of a nation. In which case, the mission of higher education in Nigeria stand, among others, is social development, higher production, economic growth, reinforcement of cultural identity and peace, maintenance of social cohesion and elimination of poverty. He further stressed that the higher education

institutions should be a factory for turning out academic and quasi professionals; but should aim at producing competent professionals in different sectors of the labour force, knowledgeable individuals and diplomats that can be at the helm of affairs of the nation. Therefore, higher education in Nigeria has to play a leading role in the renewal of the entire educational system and the society through relevant and good quality programmes within the macro and micro societies.

Technical personnel's Qualification, Training, Methodology and Experience in Teaching Technical Education.

Nigeria would have become more positive and self-reliant (NERC 1984), if there was adequate training in the field of technology.

A person teaching general and special technical theory in educational institutions the aim of which is to educate and train technicians (Okorie, 2001). According to NCCE (1996), the minimum qualification for a lecturer shall be:

1. B.S Engineering Technology with at least a second class lower plus evidence of

Teaching qualification such as TTC: PDE: PGDTE; NCE.

2. B.ED in Industrial, Vocational and Technical Education with at least a second class lower.

While for Instructors it shall be:

1. HND with at least a lower credit pass plus teaching qualification such as TTC, PGGE or PGDTE, NCE.

2. FTC or ANTC or C & G final with teaching qualification (NCCE 1996)

Also on teachers' qualification, Ogunyemi (1991) made the following remarks "to qualify to teach introductory one needs to poses an NCE (technical) certificate or a degree in Industrial & Vocational Technical Education". Since it is teachers that impart knowledge, their training and educational development is the same surest way and basis for technological development. According to Basilic (1999) "the quality of product of the 6-3-3-4 cannot only be determined by the quality of facilities available but also by the quality to teachers". The supply of technical teachers to teach in school efficiently would be hard to come by; the few products of such institution (colleges of education) have been absorbed into the economy. Therefore special incentives should be provided to attract this category of professionals to the teaching field. Idris (1991) has also stated that "the quality of education which are receives depends on the quality, capacity and dedication of teachers who disseminate and effective welfare packages to carter for them". The success of an\ educational system no matter how well planned to a large on the quality and quantities of teachers. According to Musaazi (1982) stressed that for any satisfactory performance of any personnel, professional sufficient opportunities for professional growth must be put in place.

Okechukwu (1984) had observed that one of the major challenges of technical education in the country is that of training of technical teachers who will be using caching methods and supportive skill that are integrated in the success of instructional method. The above statement shows that there is every need for teachers to acquire special training that will meet the need of students, society, industries among others According to NPEB (FRN 2004 section 5, 75) "In-service training shall be developed as an integral part of continuing teacher education and shall also lake care of all inadequacies. In supporting this view, Folayan and Abdulkadir (1981) stated the same time made available to invest in the training of introductory technology teachers.

Alaku, (1997) noted that, the Nigerian Government pays special attention to "technical education" as provided in the national policy on education and train of technical teachers for production of technical manpower. To realize its goal, the government established colleges of education (technical) for the tertiary teachers. Also the NBTE (1981) report also expressed need for the retraining of technical teachers since those already trained did not posses adequate technical skills to teach those subjects. Such NCE graduates were not trained in line with the new national policy on education, because introductory technology subjects were not taught to such NCE holders. Experience is said to be the best teacher, since learning is said to be a relatively change in behaviour due to experience.

The teacher continues to improve in his/her teaching methodology, and develop easier skill oriented techniques as a matter of on-his-job practices. As he or she educate, learns more, that is one of the advantages of teaching profession. The teacher should not only master his subject matter to know but how why and what lo teach. In emphasizing the importance of a competent teacher, Kolade (1985), opined that: "the well educated teacher is not the one who has mastered the jargon of pedagogy but one who himself so constantly is quest of knowledge and intellectual power that learning in him begets learning in his students".

Generally, teaching involves solving certain problems no matter how one looks at it, since it requires imparting knowledge from simple to complex, known to unknown. Baraka (1997) emphasize that "competent teachers are vital to every dynamics, Successful educational programme". In the last three decades many new methods of teaching have been developed, tested and adopted to different learning situations (Adigun 1997). He further stressed that teachers should note that the most suitable method of teaching will depend on these factors;

i. The general objectives or aims of the course of study

ii. The specific learning objective to be achieved

iii. The subject to be taught

iv. The size of the class

v. The type and intellectual ability

vi. The time available for teaching the subject

vii. The abilities of the teacher

viii. The facilities available

Atsumbe (1994) stressed that: "The demonstration method is one of the most effective teaching methods used in industrial education courses. It is possible for students to learn how to perform manipulative operation by reading or by being told how to do them, however, they can learn faster and more effectively when they are shown how job is done". According to Okorie (1979), "a careful designed teaching method can work wonders in making learning effective". The acquisition of manipulative skill requires efficient instructional methods which are used as demonstration. It is then obvious that the programme cannot be successfully carried out without the necessary workshop tools and equipment. Atsumbe (1994) postulated that vocational graduate students are better taught by involving them in the learning-teaching process. He further opined that technical teacher's educators should adopt a method whereby students participate actively like craft training in traditional education. Ogundipe (1997) in his view towards improving and motivating the teachers lightly observed that "the effective and efficient teacher who developing

Carries out his duties must be motivated and rewarded.

Training Facilities and Equipment in Technical Education

An institution offering NCE (technical) programme should provide unit shops in each given area of specialization and equip them in accordance with the required list of equipment. In addition the institution should provide technical drawing studio, separate integrated workshop equipped with standard introductory technology equipment similar to that which is supplied to the secondary school, (NCCE 1996).

The increasing need for technical and vocational education in the country has led to the establishment of some technical institution in the country with arm to equipped them. The schools lack necessary equipment and other infrastructural facilities for effective instruction and learning. It was also noted that these equipment which were inadequate have not been installed in a number of school particular by Schools and technical colleges (Adigun, 1994). He further said that facilities in vocational and technical education as "those goods and services that helped to facilitate teaching and learning process in the educational set up. These includes the spaces, equipment, workshop, laboratories, studio, library, classroom, other utilities etc. which assist education to function and attain the set educational goals of acquiring technical skills are used in the world of work".

Every school set up faces the problem of providing and maintaining suitable classrooms, workshop tools, equipments, library, teaching resources etc. Aina (1991) maintained that there is inadequacy of technical equipment and thus most of the equipment and tools are not functional thereby leading to drawback of national development. The need for facilities and equipment for any technical education programme cannot be over emphasized. The National Education Research Council (NERC, 1984) reported that "the fact

that there is no adequate and relevant curriculum developed within the limit of the nation's economy and the absence of requisite facilities and equipment made some college authorities to shelve the idea of including technical and vocational subjects in the curriculum in schools.

Learning by doing which leads to the acquisition of manipulative skills was the major emphasis on the introduction of technical education in curriculum of schools. Therefore, the influence and role of workshop towards student's attitude have relative importance. According to Brilton (1978) as reported by Atsumbe (1994) technical education requires acquisition of skills and calls for good and sufficient training. Folayan and Abdulkadir (1981) equally contributed to this issue and had this to say. "There is an obvious display of double face. The government claims to realize the importance of technical education, but do very little or nothing about its improvement". Others talk a lot about it, and make substantial provisions of their annual budget and that the school workshops are empty or ill-equipped. The budgeting allocation remains on papers and not found their route to the institutions where they are required. Also, in expressing the importance of facilities to education, Okeke (1989) stressed that facilities can limit education programme, but well-planned facilities will not only enhance the day to day learning process but pave the way for launching new education programme in schools. The library is another important training facility that is very important in the preparation of teachers, because it compensates for inherent textbooks and classroom inadequacies (Farrant 1964).

Strategies Involves evaluating Technical Students

Evaluation: is the process of determining the nature and extent of those changes in learner's behaviors after a programme of curriculum and instruction (Nwana, 1979) it is an act of asses or fining the value or worth of the performance of the student to know much they have learn.

Type of Evaluation

1. Formative evaluation

2. Summative evaluation

The best model for evaluation of technical education is known as (CIPP model) is the most widely recognized and comprehensive curriculum model for evaluating programmes, these model is known as

C-   Context

I-   input

P-   Process

P-   Product

Context Evaluation: contact evaluation is especially important when consideration is been given to starting a program or when the existing program being revised. Such evaluations assess clients need and may confirm or disconfirm the appropriateness of the program used. Context evaluation is good for determining weather a program warrant low priority or high priority. Context evaluation is good for clarify or modify objective in an existing program. Context evaluation is good for finding out whether an existing program is needed or not

2.   Input evaluation: input evaluation is important when planning new programs or revising existing ones. Input evaluation identified and examined alternative of services delivery plan e.g. alternative model

Also when the plan is subsequently submitted for finding and possible accreditation

3.   Process evaluation: process evaluation occurred during the operation of the program. Such evaluation monitors the implementation of the choose service delivery plans in order to answer two basic question.

1. Is the program been carried out as planned?

2. Are there problems in the design or in applications of that to be considered?

3. Process evaluation will allow you to know what experiences of participates are having and weather the activities such as selection, recruitment and assessment.

4.   Product Evaluation: product evaluation identifies the accomplishment of a program and assesses the extent to which they are appropriate and sufficient and meeting the: organizational, professional and societal needs.

These type of evaluation is done periodically during program cycle and afterward.

CIPP Model of evaluation: This Is described as a best model for evaluating technical students because of its widely recognition probably the most comprehensive curriculum model for evaluating programme, the CIPP model evaluation is certainly the most powerful than another re-build model given is great emphasis in decision making and accountability which yields good information both guiding program development and informing consumers and its sponsors about the program merits (summative). Thus, C.I.P.P is good for formative and summative evaluation. Therefore, is the only model that is appropriate to Industrial and Technology Education (I.T.E) when choosing a model, you must consider what you want and areas the model covered.

Summary of Related Literature

The literature review revealed that the technical education has played a very significant role in the socio-economic and technological development of every nation and has become an important entity to the existence of man which started in Nigeria in 1945 when Yaba High College was converted to Technical College.

The reviewed literature revealed that Metalwork technology is one of the areas of specialization in technical education equally designed as a professional course in engineering, technology or technical education.

The literature review further revealed that the society changes in terms of needs, values and goals then if education is to serve its course in a society, the school curriculum must also be constantly reviewed in the light of changes as they occur. The teacher should not only master his subject matter to know but how why and what lo teach.

The literature review further revealed the main purpose of evaluation is to judge the worth, usefulness, effectiveness or value of the programme, be it an educational programme, curriculum, textbook, student's performance or equipment and the best model for evaluation of technical education is known as (CIPP model) is the most widely recognized and comprehensive curriculum model for evaluating vocational and technical education programmes model.

CHAPTER III

METHODOLOGY

This chapter described the procedure used in the course of the study. Thus, the research design, area of the study, population of the study, the sampling size and technique, instrument for data collection, validation of instrument, administration of instrument, method of data analysis as well as the decision rules would be covered.

Research Design

In carrying out this study, the descriptive survey approach was used, where questionnaires are used to determine the opinion of the respondents on the issue under investigation. Yalams and Ndomi (1999) define survey research as the gathering of information about a large number of people or objects by studying a representative sample of the entire group through the use of questionnaires. In support of this, Nworgu, (1991) stated that research design is a plan or blue print which specifies how data relating to a given problem should be collected and analyze. Therefore, the survey research was considered suitable since the study will seek information from a sample that was drawn from a population using a questionnaire.

Area of the study

The study was conducted at the department of Metalwork Technology option School of Technical Education College of Education Minna.

Population of the study

The population is 34, made up of 7 lectures and 27 students of Metalwork Technology option respectively of School of Technical Education College of Education Minna.

Table 3.0: Shows the target population of the Metalwork Technology lecturers and students

Name of Place	Total Number
1. Metralwork personnel's	7
2. Metralwork students	27
Total	**34**

Sample size and sampling technique

The researcher ignored sample technique due to the fact that the population was small. There by used whole lectures and thirty-three (27) students of Metalwork Technology option of the college.

Instrument for data collection

The instrument used for data collection was a structured questionnaire developed by the researcher for this study. It consisted of two (2) parts in which the first indicate the introductory part of the respondents and the second part is divided into five sections A, B, C, D and E. All items are to be responded to by indicating the appropriate respondent's best perception using four point rating scales. Section A contains ten (10) items which deals with qualification of personnel of Metalwork technology programme. Section B contains eight (8)

items which deals with the suitability and adequacy of the curriculum content. Section C contains seven (7) items which deals with the performance undergraduate students of the programme. Section D contains thirty (30) items which deals with the adequacy of teaching and learning facilities and section E contains eight (8) items which deals with the performances of the graduate of the programme.

Validation of the instrument

The instrument for the data collection was designed by the researcher and were validated by (3) Lecturers from Industrial and Technology Education Department in Metalwork Technology option of the Federal University of Technology, Minna, to ascertain the appropriateness of questionnaire items before administering it to respondents.

Administration of the instrument

The instrument for the study was administered to the respondents by the researcher through the help of one research assistant from the hospital which was later collected through the research assistant by the researcher after appropriately completed by the respondents.

Method of data analysis

The analysis of data for the research questions and hypothesis were accomplished using the mean and t-test. The mean was used to determine the degree of acceptance or rejection in research questions, while t- test was used to test the hypotheses of two groups of respondents.

Decision rule

The mean of 2.50 was used as decision point for every questionnaire item. Consequently, any item with mean responses of 2.50 and above was considered to be agreed and any item with a mean response of 2.49 and below was equally considered not agreed in Section A, B, C, D and E respectively. Also the t- test was used to test the hypothesis at 0.05 level of significant to compare the mean response of the groups. A critical value of ±1.96 was selected based on the 38 degree of freedom at 0.05 level of significant. Therefore, any item with t- calculated value less than the t- critical was regarded as not significant. While any item with t-calculated value equal or greater than the critical was regarded as significant.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

This chapter present analysis of the data collected for the study.The data were present and

analyzed based on the research question.

Research Question I

What are the qualifications of personnel of Metalwork Technology programme?

In determining the qualification of personnel of metalwork technology programme in college of education minna, 10 items of were presented to the respondents to express their opinions. The reseponses of the respondents are presented on table 4.1 below.

Table 4.1: Mean responses of the respondents on qualifications of personnel of Metalwork Technology programme

N_1= 7, N_1= 27

S/N	ITEM	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_t$	REMARK
1.	SSCE holders	1.90	2.04	1.97	Disagreed
2.	TTC II holders	1.71	2.22	1.97	Disagreed
3.	NCE holders	2.14	1.93	2.04	Disagreed
4.	OND holders	2.00	2.19	1.55	Disagreed
5.	HND holder.	2.71	2.19	2.45	Disagreed
6.	B.tech/B.Sc holders	2.86	2.22	2.54	Agreed
7.	PGD holders	2.86	1.96	2.41	Disagreed
8.	M/Tech/M.Sc holders	3.14	2.30	2.72	Agreed
9.	PhDs holders	2.86	1.96	2.41	Disagreed
10.	Proffessor	2.86	1.78	2.32	Disagreed

Key: N_1 = Lecturers, N_2 = Students, $\bar{X}_1$ = Mean of response of personnel, $\bar{X}_2$ = Mean of response of students, $\bar{X}_t$ = Average mean responses of the qualifications of personel of metalwork technology programme.

The analysis of mean responses of the two groups of respondents from table 4.1: reveals that

the item 6 and 8 under this sub-heading are rated as Agreed with mean score ranging between

2.54- 2.72 as the qualifications of personnel of metalwork technology programme. This

signifies that personnel of metalwork technology programmeare B.tech,M.tech and degree holder.

Research Question II

What are the suitability and adequacy of the curriculum content?
In determining the suitability and adequacy of metalwork technology programme in college of education minna, 8 items of were presented to the respondents to express their opinions. The responses of the respondents are presented on table 4.2 below.

Table 4.2: Mean responses of the respondents on the suitability and adequacy of the curriculum content

$N_1= 7, N_1= 27$

S/N	ITEM	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_t$	REMARK
1.	The curriculum content of the programme is capable of producing qualified technical teachers	3.30	3.19	3.25	Agreed
2.	The curriculum content of the programme have skill-related activities embedded in it	3.14	2.67	2.91	Agreed
3.	The time allocated to the curriculum of the programme is sufficient	3.00	2.96	2.98	Agreed
4.	The curriculum content of the programme is up-to-update to meet the trends in the metalworking industry.	3.60	2.89	3.25	Agreed
5.	The curriculum content of the programme provides employability skills to the students	3.14	2.89	3.02	Agreed
6.	The curriculum content of the programme provides occupational skills to the students	3.14	3.22	3.18	Agreed
7.	The curriculum content of the programme is flexible	3.14	2.93	3.04	Agreed
8.	At the end of the programme, the curriculum enables the students to be job creators and not job seekers in their field of study.	3.14	3.00	3.07	Agreed

Key: N_1 = Lecturers, N_2 = Students, $\bar{X}_1$ = Mean of response of Lecturers, $\bar{X}_2$ = Mean of response of students, $\bar{X}_t$ = Average mean responses of the suitability and adequacy of the curriculum content.

The analysis of mean responses of the two groups of respondents from table 4.2: reveals that the items under this sub-heading were jointly agreed by the respondent with mean score ranging between 2.91- 3.25.This signifies that all the item are suitable and adequate for the curriculum content.

Research Question III

What are the performances of the graduate of the programmes?
In determining the performance student of metalwork technology programme in college of education minna, 7 items of were presented to the respondents to express their opinions. The responses of the respondents are presented on table 4.3 below.

Table 4.5: Mean responses of the respondents on the performance of the student of the programmes

N₁= 7, N₁= 27

S/N	ITEM	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_t$	REMARK
1.	The students can translate mechanical drawings for production process.	3.30	3.78	3.54	Agreed
2.	The students can do basic drilling and boring operation	3.30	3.48	3.39	Agreed
3.	The students can carry out basic welding operation	3.14	3.30	3.22	Agreed
4.	The students can carry out basic forging operation	1.43	3.44	2.44	disagreed
5.	The students can produce mechanical drawings for a production process	2.86	3.19	3.03	Agreed

| 6. | The students can operate a lathe machine. | 2.71 | 3.30 | 3.01 | Agreed |
| 7. | The students can teach/ transfer the knowledge they have acquired by teaching students in a lower level | 2.71 | 3.37 | 3.04 | Agreed |

Key: N_1 = Lecturers, N_2 = Students, $\bar{X}_1$ = Mean of response of personnel, $\bar{X}_2$ = Mean of response of students, $\bar{X}_t$ = Average mean responses of the performances of the graduate of the programmes.

The analysis of mean responses of the two groups of respondents from table 4.3: reveals that the items 1,2,3,5,6 and 7under this sub-heading are rated as Agreed with mean score ranging between 3.01- 3.54.while item 4 was rated disagreed with mean score of 2.44. This signifies that the student of the programme can perform all the item listed except forging operation.

Research Question IV

How adequate is the teaching and learning facilities?
In determining the adequacy of teaching and learning facilities of metalwork technology programme in college of education minna, 30 items of were presented to the respondents to express their opinions. The responses of the respondents are presented on table 4.4 below.

Table 4.4: Mean responses of the respondents on the adequacy of teaching and learning facilities.

N_1= 7, N_2= 27

S/N	ITEM	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_t$	REMARK
1	Standard work benches with vices	2.57	3.11	2.84	Adequate
2	Lathe machine	2.71	2.93	2.82	Adequate
3	Pillar/Table Drilling machine	3.00	3.04	3.02	Adequate
4	Grinding machine	3.00	3.19	3.10	Adequate
5	Forge	2.86	3.00	2.93	Adequate
6	Welding machines -Arc and Gas	3.00	2.93	2.97	Adequate
7	Bench shear	3.14	3.00	3.07	Adequate
8	Files (assorted)	3.14	2.93	3.04	Adequate

		$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_t$	
9	Try square	3.30	2.96	3.13	Adequate
10	Micrometer screw gauge	3.60	2.96	3.28	Adequate
11	Vernier calipers	3.43	2.93	3.18	Adequate
12	Spring dividers	3.30	3.04	3.17	Adequate
13	Hammers (assorted)	3.43	2.78	3.11	Adequate
14	Anvil	3.43	2.89	3.16	Adequate
15	Scribers	3.43	2.96	3.20	Adequate
16	Stakes (assorted)	3.00	3.19	3.10	Adequate
17	Taps and Dies	3.14	3.56	3.35	Adequate
18	Wing dividers	3.14	3.30	3.22	Adequate
19	Odd leg calipers	3.43	3.07	3.25	Adequate
20	Steel rule	3.43	3.26	3.35	Adequate
21	Snips	3.30	3.00	3.15	Adequate
22	Drills	3.25	3.04	3.15	Adequate
23	Hacksaw frames and Blades	3.29	2.89	3.09	Adequate
24	Buffing Discs	3.29	3.04	3.17	Adequate
25	Oil cans	3.14	2.96	3.05	Adequate
26	Folding and Bending machines	3.14	2.89	3.02	Adequate
27	Shaping machine	2.90	3.04	2.97	Adequate
28	Milling machine	2.90	3.11	3.01	Adequate
29	Foundry and Forging tools	3.57	3.04	3.31	Adequate
30	Vernier protractor	2.90	3.19	3.05	Adequate

Key: N_1 = Lecturers, N_2 = Students, $\bar{X}_1$ = Mean of response of Lecturers, $\bar{X}_2$ = Mean of response of students, $\bar{X}_t$ = Average mean responses of the teaching and learning facilities.

The analysis of mean responses of the two groups of respondents from table 4.4: reveals that the items under this sub-heading are rated as Adequately with mean score ranging between 2.82- 3.35.this signifies that the teaching and learning facilities are adequate.

Research Question V

What are the performances of graduate of the programme? In determining the performance of the graduate of metalwork technology programme in college of education minna, 8 items of were presented to the respondents to express their opinions. The responses of the respondents are presented on table 4.2 below.

Table 4.3: Mean responses of the respondents on the performance of graduate of the programme?

$N_1= 7, N_2= 27$

S/N	ITEM	$\bar{X}_1$	$\bar{X}_2$	$\bar{X}_t$	REMARK
1	The students pass through the programme compete freely with others with similar qualification in the society	3.60	3.22	3.41	Agreed
2	Graduates of the programme can carry out welding operation.	3.60	3.63	3.62	Agreed
3	Graduates of the programme can carry out welding operation on a lathe machine	3.43	3.22	3.33	Agreed
4	Graduates of the programme can bore and re-bore cylinders.	3.00	3.52	3.26	Agreed
5	The students that pass through the programme can perform casting of metallic part with foundary operation	3.00	3.41	3.21	Agreed
6	Students can translate mechanical drawings for production process.	2.71	2.70	2.71	Agreed
7	The students that pass through the programme can perform forging operation	2.71	2.93	2.82	Agreed
8	Some of the graduate of the have effectively established themselves.	3.14	2.96	3.05	Agreed

Key: N_1 = Lecturers, N_2 = Students, $\bar{X}_1$ = Mean of response of Lecturers, $\bar{X}_2$ = Mean of response of students, $\bar{X}_t$ = Average mean responses of the performance of undergraduate students of the programme.

The analysis of mean responses of the two groups of respondents from table 4.5: reveals that the items under this sub-heading were jointly Agreed by the respondents with mean score ranging between 2.71- 3.62. this signifies that the graduate of the performance of the programme can perform all the item.

Hypothesis I

There is no significance difference between the mean responses of Metalwork technology lecturers and Metalwork technology student on the suitability and adequacy of the course contents in Niger State College of Education Minna.

Table 4.6: T – test statistical analysis of the Metalwork technology personnel and Metalwork technology student.

$N_1= 7, N_2= 27$

S/N	ITEMS	SD_1	SD_2	t- cal	REMARK
1.	The curriculum content of the programme is capable of producing qualified technical teachers	0.45	0.67	0.37	NS
2.	The curriculum content of the programme have skill- related activities embedded in it	0.35	0.67	1.81	S
3.	The time allocated to the curriculum of the programme is sufficient	0.93	0.74	0.08	NS
4.	The curriculum content of the programme is up-to-update to meet the trends in the metalworking industry.	0.00	0.63	5.90	S
5.	The curriculum content of the programme provides employability skills to the students	0.35	0.63	1.00	NS
6.	The curriculum content of the programme provides occupational skills to the students	0.35	0.57	- 0.33	NS
7.	The curriculum content of the programme is flexible	0.35	0.66	0.81	NS
8.	At the end of the programme, the curriculum enable the students to be job creators and not a	0.35	0.72	0.52	NS

job seekers in their field of study.

Key: N_1 =Number of Metalwork technology lecturers, N_2 = Number of Metalwork technology students, SD_1 = Standard Deviation mean of response of Metalwork technology lecturers, SD2 = Standard Deviation mean of response of Metalwork technology students, S = significant, NS = Not significant

Table 4.6: revealed that the t –test accept the null hypothesis only at items 1, 3, 5, 6, 7 and 8 respectively at 0.05 level of significance. Meaning that there is no statistical significance differences between the mean responses of Metalwork technology lecturers and Metalwork technology student on the suitability and adequacy of the course contents in Niger State College of Education Minna.

Hypothesis II

There is no significance difference between the mean responses of Metalwork technology teachers and Metalwork students on teaching and learning of metalwork in Niger State College of Education Minna.

Table 4.7: T – test statistical analysis of the Metalwork technology personnel and Metalwork technology student.

N_1= 7, N_1= 27

S/N	ITEMS	SD_1	SD_2	t- cal	REMARK
1	Standard work benches with vices	0.90	0.96	- 1.04	NS
2	Lathe machine	0.45	0.90	- 0.65	NS
3	Pillar/Table Drilling machine	0.00	0.88	- 0.24	NS
4	Grinding machine	0.00	0.61	- 1.58	NS
5	Forge	0.35	0.67	- 0.54	NS
6	Welding machines -Arc and Gas	0.53	0.54	0.23	NS

7	Bench shear	0.35	0.54	0.58	NS
8	Files (assorted)	0.35	0.54	0.88	NS
9	Try square	0.45	0.51	1.26	NS
10	Micrometer screw gauge	0.49	0.58	2.13	S
11	Vernier calipers	0.49	0.54	1.72	S
12	Spring dividers	0.45	0.64	0.90	NS
13	Hammers (assorted)	0.49	0.57	2.24	S
14	Anvil	0.49	0.50	1.93	S
15	Scribers	0.49	0.51	1.68	NS
16	Stakes (assorted)	0.93	0.86	- 0.37	NS
17	Taps and Dies	0.35	0.50	- 1.83	S
18	Wing dividers	0.35	0.46	- 0.73	NS
19	Odd leg calipers	0.49	0.54	1.24	NS
20	Steel rule	0.49	0.44	0.63	NS
21	Snips	0.35	0.61	1.20	NS
22	Drills	0.45	0.74	0.68	NS
23	Hacksaw frames and Blades	0.45	0.74	3.68	S
24	Buffing Discs	0.45	0.51	0.93	NS
25	Oil cans	0.35	0.51	0.78	NS
26	Folding and Bending machines	0.35	0.50	1.09	NS
27	Shaping machine	0.64	0.51	- 0.41	NS
28	Milling machine	0.64	0.50	- 0.62	NS
29	Foundry and Forging tools	0.49	0.64	1.71	S
30	Vernier protractor	0.64	0.61	- 0.81	NS

Key: N_1 =Number of Metalwork technology lecturers, N_2 = Number of Metalwork technology students, SD_1 = Standard Deviation mean of response of Metalwork technology lecturers, SD_2 = Standard Deviation mean of response of Metalwork technology students, S = significant, NS = Not significant

Table 4.7: revealed that the t –test accept the null hypothesis only at items 1, 2, 3, 4, 5, 6, 7, 8, 9, 12,15,16,18,19,20,21,22,24,25,26,27,28 and 30 respectively at 0.05 level of significance. Meaning that there is no statistical significance difference between the mean responses of Metalwork technology personnel's and Metalwork technology student on teaching and learning of metalwork in Niger State College of Education Minna.

Findings

1) Base on the data collected and the analysis for this study the following major findings made with respect to the research questions and hypotheses. Findings related to the qualifications of personnel of metalwork technology programme. Signifies that personnel in metalwoek technology programme, are.

   1.B.tec

   2.M .tech and degree holder.

Finding related to the suitability and adequacy of the curriculum content.signifies that all the item are suitable and adequate for the curriculum content.

Finding related to performance of the student of the programme,signifies that the student of the programme can perform all items except forging operation.

Finding related to how adequate is the teaching and facilities,signifies that the teaching and learning facilities are adequate.

Finding related to the performances of the graduate of the programme,signifies that all the product can perform all the items.

Discussion of findings

The findings of this study have been organized and discussed according to the five research questions and hypotheses formulated.

Research question i, examines the qualification of personnel of metalwork technology programme.the result from table 4.1 show that items 1, 2,3,4,5,7,9,and 10 rejected while items 6 and 8 were agreed therefore the level of personnel qualification affect students performance. It is inline with Idris (1991) stressed that the quality of education which any nation received, depends on the quality, capacity and dedication of teacher. also in support was okechkwu(1984) who served one of the major challenges of technical education is the train of technical teachers who will use teaching methods and supportive skills that are integrated for the success of the instructional methods also in the NPE(2004 section 8 subsection 75) supports that in-service training shall be developed as an integrated part of continuing teacher education.

Base on suitability and adequacy of the curriculum content. The result in table 4.2 showed that the mean response of respondents with 2.50 and above in item 1,2,4,5,6 and 7 were agreed upon while no item was disagreed having a mean response 2.50 and above, therefore showed that the curriculum content is suitable for the teaching of metalwork technology as it was agreed upon by both respondents, that there is need for updating the curriculum content of NCE(technical) metalwork technical, which confirms Okebukola (1997) as quoted by Atsumbe (1994),stressed the need for the renewal of the entire

49

educational system and the society through relevant and good quality programme with macro and micro societies. Also Howard (1972) stressed school curriculum must also be constant reviewed or modified in the light of changes as they occur.

Based on the performance of undergraduate student of the programme, the result from table 4.3 showed items 1,2,3,4,5,6,7 and 8 agreed while no item was disagreed, which showed that the student did acquired the required or necessary skills. This is inline with NPE(2004) definition of technical and vocational education, as referring it to the study of technology and related sciences and acquisition of practical skills. in view with Briton(1984) lamented that the industrial training of student is mean to enhance students acquisition of skills while in the school and after graduate.

Based on the adequacy of teaching and learning facilities. The result from the table 4.4 showed that items 1 to 30 agreed while no item was disagreed, which showed that training facilities and equipment are factors that contribute to effective teaching and learning of metalwork technology programme in colleges of education minna. This is inline with Aina (1991) stressed that there is adequacy of technical equipment and thus most of the equipment and tools are not functional thereby leading to drawback of educational developments. NERC (1984) stressed about the absence of requisite facilities and equipment which has made college authorities to shelve the idea of including technical and vocational subjects in the curriculum in schools.

Base on the extent to which graduate of programme of acquire skills.The result from table 4.5, showed that the items 1,2,3,5,6,and 7 agreed while item 4 disagreed which showed that the graduate of the programme have acquired the necessary skills this also inline with NPE (2004) definition of technical and vocational education as referring to the study of technology and related sciences and acquisition of practical skills .in view with brilton (1978) as quoted by atsumbe (1994) technical education requires acquisition of skills and calls for good and sufficient training facilities.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The main purpose of this research work was to determine whether the curriculum content, lecturer's qualification, training, experience and methodology, skill acquisition and factors that contribute to effective teaching in College of Education Minna in Niger State.

To achieve these objectives, five research questions were formulated for the specific purpose to guide the study.

Reviews of literatures were based under the following sub- headings.

(i) Historical background of technical education

(ii) Metalwork technology programme toward self-reliance

(iii) Curriculum content in metalwork technology programme

(iv) Technical personnel Qualification training experience and methodology in teaching technical education.

(v) Training facilities and equipment in teaching metalwork technology programme .

(vi) Strategies involved for evaluating technical education.

(vii) Summary of literature review.

However, the data for this study were collected by means of questionnaire.

The items in the questionnaire were structured based on five formulated research questions. Questionnaire was administered to the respondents by the researcher. The statistical tool used for analyzing the data is frequently count, mean, standard deviation and test.

Implications of the study

The findings of the study have implications on students, lecturers parents society and the government of niger state and the entire nation if not properly addressed. The study provides information on the followings:

The finding as regard suitability and adequate of curriculum content in teaching of metalwork technology. Shows that students that pass through the programmed can compete freely with others with similar qualification in the society. The implication is that if there is no evaluation and realistic adjustment, and then graduates will be half baked, which will make them unemployable.

Finding related qualification, of personnel of metalwork technology programme affects student performance. Lecturer's inability to deliver is lectures effectively to his students contribute to poor performance. The implication is that an unqualified lecturer is liable to have the inability to teach effectively contributes to poor academic performance in which at the end of the programme they are not useful to themselves and society at large.

Finding related to how adequate is teaching learning and facilities of metalwork technology. The implication is that the learning process will be inadequate and the students would not acquire the required practical- skills.

Findings related to the extent to which the students have performed in the acquire skills. The finding shows that the students do not posses the required practical skills. The implication is that the students are skillfully handicapped in which it brings drawback in technological development of the nation especially in the aspect of metalwork technology. Since, technological development and growth is all about what you can do with knowledge and skills.

Conclusions

From the findings of this study, it was found that lack of adequate equipment and facilities, the need for updating the course content of NCE (technical) metalwork technology programme, personnel's qualification, training experience and methodology affects students performance and students are unable to acquire the necessary skills. It was also clear that both respondents agreed that the course content have skills embedded in it, and yet the students have not acquired the necessary skill. Evaluation, therefore, as revealed among other things whether the anticipated changes in the levels of knowledge and performance skills have been achieved. It also reveals differences in learning rate and the entire educational programme and also identifies deficiencies of educational programme.

Recommendation

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

1. Government should provode adequate equipment facilities resources to enhance technical education

2. More emphasis should be placed on practical during the training and retraining of personnel.

3. More emphasis should be placed on the acquisition of practical skills for students. Inother words students should be motivated to acquire the required practical skills.

Suggestions for Further Research

The following suggestions are made for further research

1. Mechanism for Improving Skill Acquisition in Metalwork Technology Programme.
2. The effect of Leadership style in Management of Colleges of Education.
3. Evaluation of Students Attitude toward Metalwork technology as a career.

References

Adigun A.O (1994)**.** Some Inhibiting Factors of Implementation of Technical Education Policy. Med seminar paper, presented at the faculty of education, university of Benin, Benin..

Adigun, kA.O. (1997) <u>Introduction to Vocational and Technical Education</u> (with Principle and motheds of teaching skills). Raytel communications (Nig, Mushin Lagos.

Ahmadu, R.M. (2005). National workshop on Revamping Technical Education to Face Challenges of Technological Development in Nigeria. Organized by Education Trust Fund (E.T.F) Thursday 22nd June 2005, Abuja.

Aina, O.C (1991). Technical and Vocational Teacher Training in a Strategy for Technical Development, Kaduna NCCE 1 (1);

Atsumbe B.N (1994). Strategies for improving the preparation of introductory Teacher in Kogi State. A project for M.E.D Department of Vocational Teacher Education, University of Nigeria Nsukka.

Atsumbe B.N (2005).School-Industry Partnership: A Veritable Tool for Quality Technology Education Programmes. <u>Journal of research in Curriculum and Teaching</u> February, 2006, vol.1 No. 1,

Baraka, M.N. (1997) Instructional Strategies in Technology Education a Diagnostic Procedure for Identify Content and Specifying Behaviour. <u>Journal of Technical</u> <u>Teacher Education</u> 2(1); 27-30

Basher S.A (1999): Contemporary State of Industry Technology in the 6-3-3-4 system. A case Study of Kano, Katsina and Jigawa state. A paper presented at the second Conference Series of Federal College of Eduation (Technical) Bauchi.

Bobbit, F. (1981). The Curriculum Buston: Houghton Miffling Co.

Elegbede, S.A (2000). Sustainable national development in the new millennium. A paper presented at the national conference of school of applied science Engineering and environment studies, federal polytechnic *2nd -4th August. Page 4-5. P.10

Fafunwa, A.B (1974) <u>History of Education in Nigeria.</u> London: George Allen and Unwin.

Farrant J.S (1964) <u>Principles and Practice of Education</u>: Longman Sheekwah, Tong Printing Press Ltd.

Federal Repblic of Nigeria (1998, 2004): <u>National Policy on Education</u> (Revised). Lagos: NERDC Press.

Federal Republic of Nigeria (1981): <u>National Policy on Education</u> (Revised). Lagos: Federal Government Press.

Folayan and Abdulkadir (1981): <u>Technical Teachers Training in Nigeria,</u> vocational Educations (1) P 24-30

Idris A. (1991) Problem of vocational and technical education in Nigeria. <u>A Journal of Technical Education.</u> Enugu 4th dimension Publisher.

Macgregor, O.O (2002): Technical Education: A panacea to national development in the 21ˢᵗ century. Lagos: Adeniran Ogunsanya College of Education.

Musaazi, F.C.S. (1982). The Theory and Practical Education Administration. The studies In Nigeria education series. London, Macmillan.

National Board for Technical Education (NBTE), 1981) Standards for Accreditation Of Diploma Programmes in Polytechnics. Kaduna: Baraka Press

National Board for Technical Education (NBTE, 1987) Standards for Accreditation Of Diploma Programmes in Polytechnics: Kaduna Baraka Press

National Commission for College of Education (NCCE1996). Minimum Standards For Nigeria Certificate in Education, Teachers, Vocational and Technical Education. Atmen Ltd Kaduna (87-92)

Ogundipe M.A (1997): Management problems of Nigeria Educational System. Asaba Journal Education 1 (1) 16-21

Okeke C.C (1989) Curriculum needs of Technical Education for Implementation Of the Introductory Programme in Ehaimetator E.T (ed). Implementation of the National policy in Education NERA 69-74

Okoro (1991): Okoro, O.M (1991): Programme Evaluation in Education. Pacific Correspondence College and Press Ltd. Uruorulu-Obosi, Anambra State, Nigeria.

Okoro, O.M (1987). A Model for Evaluating Vocational Teacher Education Programmes In Nigeria. West African Journal Education. Vol 26, No 1