A FOLLOW-UP STUDY OF MECHANICAL CRAFT TRADE GRADUATES OF TECHNICAL COLLEGES IN KADUNA STATE FOR CURRICULUM IMPROVEMENT

BY

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A THESIS SUBMITTED TO THE DEPARTMENT OF TECHNOLOGY EDUCATION, SCHOOL OF TECHNOLOGY AND SCIENCE EDUCATION MODIBBO ADAMA UNIVERSITY OF TECHNOLOGY, YOLA,

SUPERVISOR: PROF. L. C. EZUGU

APRIL, 2012

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A Thesis Submitted to the Department of Technology Education, School of Technology and Science Education Modibbo Adama University of Technology, Yola, in Partial Fulfillment of the Requirements for the Award of the Degree of Master of the Technology in Industrial Technology Education

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DECLARATION

I declare that this work was carried out in its original form by Bulus Yohanna Aduwak of the Department of Technology Education, School of Technology and Science Education, Modibbo Adama University of Technology, Yola.

…… ……

Signed Date

APPROVAL PAGE

This thesis entitled “A Follow-up Study of Mechanical Craft Trades Graduates of Kaduna States Technical Colleges for Curriculum Improvement” by Bulus Yohanna Aduwak (M.Tech/06/0158) meets the regulations governing the Award of Degree in M.Tech (Industrial Technology Education) of the Modibbo Adama University of Technology, Yola and is approved for its contributions to knowledge and literary presentation.

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DEDICATION

The thesis is dedicated to: Mary Bulus (wife), Rebecca Bulus (daughter), Godiya Bulus (daughter), Dorcas Bulus (daughter), Bassan Bulus (son) for their endurance and their support all through the period of this programme.

ACKNOWLEDGMENTS

The researcher is grateful to Almighty God for His guidance, grace, protection and provision throughout the duration of this project work. Profound gratitude also goes to the project supervisor Prof. L.C Ezugu, and Dr. E. V. Mbaga for the time taken out of their tight schedule to read through the manuscript of this research work and their constructive criticisms that has led to the actualization of this project. The researcher's sincere appreciation goes to his content and design readers, in persons of Dr. M.U Cyri and Dr. N.A Nwankwor who took their time to read through this work, criticized it objectively and offered very useful suggestions. The researcher's will not forget a moral support and encouragement received from, Dr. K.H Bulama, Mr. Duhu P.C, Mr. D.W. Quahha, and Mr. B. Eric for their positive professional criticisms, advice and suggestion that has helped the researcher in carrying out this study up to this stge. The researcher profound gratitude goes to Dr. K Farauta, Dean, School of Technology and Science Education, Prof. V.V Apagu, Head of Department of Technology Education, Dr. K. Farauta, Head of Department of Vocational Technology Education and Mr. R.N Gayus, I am greatly indebted to you all. The researcher gratitude also goes to Kaduna State Government for granting him in-service for this study. Finally, the researcher's appreciates the kindness of Stevenson Samtereni, Manabete, C.D, and Comfort (Mrs.) for typesetting his research work.

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ABSTRACT

The study was a Follow-up Study on Mechanical Craft Trades Graduates of Technical Colleges in Kaduna State for Curriculum Improvement who are working in some companies/industries in the three senatorial zones in the state. Finding out their opinion about the training they have passed through, in technical colleges, employing a descriptive survey design, the structured questionnaire (AFUSOMCTGOTCIKSFCI), known as follow up study of mechanical craft trade graduates of Kaduna State for curriculum improvement on sample of 125 respondents, comprised of 93 graduates and 32 supervisors. Mean and standard deviation answered the four research questions stated while the graduates z-test and among others that mechanical craft trades graduates do not have the skills in assembling of machine parts, mechanical craft trades graduates needed additional training to meet the challenges faced by their job and mechanical craft trade graduate lack skills in operating Information Computer Technology (ICT). Mean and standard deviation was used to analyzed research questions. While z-test was used to tested the hypotheses at $\alpha = 0.05$. The z-test result showed no significant difference between the mean responses to employee and employers with regard to their satisfaction with the performance at work place. The results of the study found the basic to draw the conclusion that skills in assembling of machine parts, additional training and skills in operating information computer technology by students needs to be improved. The study saw this as a challenge and hence recommended, among others that effort should be made by the schools administrators to strengthen workshop practice in their technical colleges, there is need for close cooperation between Technical Colleges and industries to enhance students with application of professional/technical knowledge and skills.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The reports and recommendation of the curriculum conference of 1969 formed the basis for the National Policy on Education for Nigeria, which is the country educational policy document. In this document, the Federal Government placed premium on commercial and Technical Education in order that the graduates can be equipped with knowledge, skills and attitudes for gaining employment or for becoming self-employed Federal Republic of Nigeria (FRN, 2004). Part of' the efforts towards achieving these objectives is that the range of courses in technical schools should he widened to include Mechanical Craft Trades (MCT). Electrical Engineering and Building Trades etc (FGN 2004). Mechanical Craft Trades (MCT) is one of the major engineering trades offered at the technical college level. It is practical oriented trade designed to expose students, not only to the art of machine work but also hasten industrial development in the areas of maintenance, goods production and general services (NABTEB 1995). Among the objectives of MCT offered at the technical colleges level, as specified by the National Board for Technical Education (NBTE, 1992) for National Technical Certificate (NTC) are:

i. To acquire a sound understanding on Mathematics and Science.
ii. Acquisition of knowledge and understanding of the basic concepts and mechanical craft trades.
iii. Acquisition of skills in welding and fabrication, auto-mechanic fitter machinist, air condition and refrigeration. However, it is very sad to note that more than twenty years after the implementation of Technical Education Programme. Nigeria is vet to enjoy its benefits fully (Sambo, 2003). Also according to Enemali (1994), it is the inability of Technical Education Programme to adequately respond to the needs of students for employable skills that has resulted in the production of pool of poorly prepared

indigenous manpower for effective participation in the Economic, social and political life of Nigeria.

The curriculum of Mechanical Craft Trades as in NBTE (2003) is broadly divided into three components:

a. General education which accounts for 30% of the total hours required for the program me.
b. Trade theory trades practice and related studies which account for 65% and
c. Supervised industrial scheme work experience, which accounts for about 5% of the total hours required for the programme. This component of the course which may be taken in industry or in college production unit is compulsory for the full-time students.

Mechanical Craft Trade curriculum is practically oriented and includes general metal work, engineering drawing refrigeration and air conditioning welding and fabrication, motor mechanic and litter machining (National Board for Technical Education (NBTE) 2001. The learner's ability to achieve the expected learning outcomes will depend on a variety of factors.

Olaitan (1999) pointed out that one of the factors essential for effective learning in technical education is a good command of technical information (knowledge) which can be subject to recall or identification when needed. Okorie (2001) and Usman (1994) have identified several factors standing against the successful attainment of the objectives of Technical Education in Nigeria. One of the strongest factors identify was teacher-related problem and specifically the instructional strategies adopted by technical teachers in Technical Colleges. This problem appears not have been very much addressed in technical colleges in Kaduna State. Hence, the inabilities of MCT teachers to identified and use the most appropriate and easy to understand method of' teaching MCT has affected the student's ability to acquire the necessary employable skills in this trade. Technology Educators like Leighbody and Kidd (1986) recommended several methods for teaching technical subjects.

Andrew and Erickson (1976) specifically recommended some instructional methods for teaching MCT at the Technical College level which include individualized demonstration and project methods.

In a similar view, Usman (2004) also pointed out that the successful completion of any task in the psychomotor domain depends on the knowledge and ability of the learner to identify objects repair, dismantling and assemble of parts. Hence, it is difficult to say whether or not the goals of technical college's programme in Kaduna state are being fully realized. This brings forth the need for this follow-up study.

Follow-up studies have been identified as important techniques in evaluation. Preston (1976), Okoro (1991) and Arukwe (1992) are unanimous in their views about the importance of follow-up studies in the evaluation process. (Okore, (1999) stated that follow-up provides graduates an opportunity to contribute towards the programme improvement. Based on the forgoing, this follow-up was designed to obtain feedback from MCT graduates as means of evaluating the effectiveness or otherwise of the programme in meeting the needs of the products.

1.2 Statement of the Problem

Technical colleges are charged with the responsibility of producing competent craftsmen for the nation's industrial and technological development. Abdullahi (1993) staled that technical colleges are expected, among other things, to assist students to acquire relevant occupational and technical skills prepare graduate for future occupation, and make them successful transition from school to world of work. The ultimate goal of all programmes offered in technical colleges in Nigeria is to produce efficient and relevant craftsmen that will promote and hasten industrial development in the areas of maintenance, goods production and general services. This technical level of the engineering pyramid work force forms the backbone of more than 70% needed for any national industrial development. Technical

colleges trained craftsmen in auto mechanics, plumbing, carpentry and joinery, painting and decorative, welding and fabrication, electrical and installation and filter machinist on completion of training, students could obtain work in industries or establish business of their own.

Since inception of Government Technical College Kaduna in 1970 and with the introduction of Mechanical Craft Trade (MCT) programme in Kaduna Stale Technical Colleges no record showed if any follow-up studies was conducted on the products of these colleges. This shows that attempts have not been made to obtain feedback data concerning job performance of the graduates.

Feedback on the effectiveness of education programme is needed to know areas that require changes modifications and addition of new one's, (Olaitan & Ali 1997). Feedback information that can be obtained from graduates of a programme and their employer has not been available through any research work (Jadas, 1999). This means that no effort had been made to obtain feedback information form the graduates or to give them any opportunity to contribute towards the programme improvement.

1.3 Purpose of the Study

The main purpose of the study was to obtain essential feedback information on the performance of MCT graduates who are working in some industries in Kaduna State.

Specifically, the study was designed to find out:

1. The level to which graduates of Mechanical Craft Trades of Technical Colleges are satisfied with their performance at their work place.
2. The level in which the employers of these graduates are satisfied with their performance.
3. Determine the technical competencies needed by graduates of Mechanical Craft Trades to keep them on the job.

4. Determine the areas of the curriculum of Mechanical Craft Trade that require improvement.

1.4 Research Questions

To guide this study, the following research questions were formulated.

1. To what extent graduates of Mechanical Craft Trade horn Technical Colleges satisfied with their performance at their work places?
2. To what extent the employers of graduates of Mechanical Craft Trades satisfied with the performance of the graduate at work place?
3. What is the technical competency required by technical graduates of MCT to progress them on the job and by their employers?
4. What aspect of curriculum of MCT of Technical Colleges require improvement?

1.5 Hypotheses

The following hypotheses were formulated to guide the study:

1. HO_1: There is no significant difference between the mean responses of employers and employees with regard to their satisfaction on the performance at work place.
2. HO_2: There is no significant difference between the mean responses of employers and employees with regard to the technical competence need by technical graduates of MCT.

1.6 Delimitation of the Study

This follow-up study was delimited to graduates of Mechanical Craft Trade (MCT) programme of Kaduna Stale owned technical Colleges, who are currently working in the industries across the three senatorial districts in the state.

1.7 Significance of the Study

The importance of this research work can be viewed from the information to be provided by the graduates of Mechanical Craft Trades of Kaduna State owned technical colleges as whether the objective of the training programme like mechanical craft trades is being achieved or not. The information provided will also determine how the graduates are performing in the private and public establishments in terms of knowledge and skills acquisition.

The following are the beneficiary of the findings of follow-up study.

Kaduna State Government

Mechanical Craft Trade Teacher

NBTE & NABTEB

The result of the study will assist the Kaduna Stale Government to know about the entire Mechanical Craft Trade programme in her Technical Colleges government will be able to use the results of the study to formulate viable policies for effective and enhanced technical education programmes in general and mechanical craft trade programme in particular.

The finding of this study will assist technical teachers in that they will be able to assess their methods in line with available facilities, and then monitor the effectiveness of teaching and instructional materials. They will be able to select appropriate materials in line with instructional goals and as well improvise the materials where they are unavailable.

The finding out of this study will assist NBTE and NABTEB which are government agencies that set standards and formulated policies for technical college programme had known where modification or reviews in existing curriculum are desired. Such information could help in subsequent curriculum review or reform.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter deals with the review of related literature under the following subheading:

2.1 Conceptual Frame Work for the Study

2.2 Programme Evaluation in Technical/Vocational Education

2.3 Approaches to Education Evaluation

2.4 Model of Evaluation

2.5 Facilities in Technical Colleges

2.6 Relevance of Follow-up Studies

2.7 Job Satisfaction

2.8 Related Empirical Studies

2.9 Summary of the Review of Literature

2.1 Conceptual Framework for the Study

The team “curriculum” is a key element in the educational process. Its scope is extremely broad and touches virtually every one who is involved with teaching and learning. Different scholars have defined curriculum in many ways because according to Olaitan and Ali. (1997) there has not been any consensus among curriculum specialists as to the precise definition of the term.

Olaitan and Ali (1997) defined curriculum as a systematic sequences of subjects and planned experiences required for graduation or certification of learner under the guidance of a school. Finch and Crunkiltion (1984) viewed curriculum in a generic sense to mean the “sum of the learning activities and experiences that a student has under the auspices of the school”. According to them formal courses are not the only items considered to be part of the curriculum. Club, sports and other extra curricular activities are significant contributors to the development of a total individual and to curriculum effectiveness. Salifi (1997) considered a

curriculum to be a collection of subjects or course offerings planned and organized in such a way that will provide a learner with the required skills and knowledge necessary or perform a given task. A good curriculum according to him develops effective and psychomotor domains of the learners. This is the type usually adopted for vocational/technical curriculum of which the Mechanical Craft Trade is a part in modem times. However, a new trend towards a more comprehensive approach to curriculum definition has been to view curriculum in terms of its major components. In this regard the term curriculum is replaced with programme for a convenience (Olaitan & Ali. 1997).

For a curriculum or programme to serve the purpose for which it is intended, it must be evaluated periodically. Evaluation within the context of curriculum, according to Finch and Crunkilton (1984), is defined as "the determination of the worth of a curriculum (or portion of that curriculum)". It includes gathering information for use in judging the worth of the curriculum, programme or curriculum materials. Programme evaluation in education involved the collection of data and the use of such data to assess the effectiveness or quality of such programme (Okoro, 1991). Programmes arc established for some purposes and it is the function of programme evaluation to determine the extent to which the purposes have been achieved.

Scholars are of the view that since contemporary curriculum is quite comprehensive it evaluation must also be comprehensive, taking into consideration the various aspects. To this end several methods and models have been devised for evaluating the curriculum/programme. An evaluation according to Okoro (1991) may be regarded as a set of steps or a system of thinking, which if followed or implemented will result in the generation of information, which can be used by decision makers in the improvement of educational programmes. Evaluation models provide a general guide, which can be adopted or modified to suit specific programmes being evaluated in which man curriculum/programme. An evaluation models was briefly reviewed.

2.2 Programme Evaluation in Technical/Vocational Education

Educational programmes are mounted to achieve some specific purpose for the society. To find out whether these purpose are achieved, programmes must be evaluated. Therefore programme evaluation is an indispensable tool to determining the extent to which objectives are achieved. Okoro (2000) emphasized that technical/vocational programme needs to be evaluated from time to time. In these connections, Okoro (2000) listed the purpose of programmes evaluation decision making accountability and personal improvement. Okoro (2000) stated that further on the way and the manner programme evaluation is handled in Nigeria. That is, programme evaluation is completely silent in the National Policy on Education (FRN 2004). Programme evaluation in Nigeria is done informally, as such results from such exercise are often not used to improve the programme. The practice of evaluation in education has been grossly misunderstood. Consequently evaluation has been taken to mean government approval of schools, supervision and inspection of schools, as well as accreditation of programmes (Aru1992).

Okoro (2000) suggested that government, school administrators and teachers/counselors further must be committed and must adopt a number of measures. These measures include making evaluation to be broad based, placing more emphasis on evaluation in programme planning and collecting and using evaluation data.

Makama in Amasa (1999) highlighted the following reasons for programme evaluation: meeting the accreditation requirements, accounting for funds, assisting the administration to make decision concerning the programme, answering the request from constituted authority, assisting in programme development for the staff and helping the administration to learn about unintended outcomes. Hence by the time all purposes are put into a proper perspective, educational programmes will be quite sound. Amasa (1999) stated that technical education programmes are quite expensive to install and operate. An evaluation study comes handy in providing information for justification of funding such programmes

because decision makers need to he convinced on the value of' a programme for them to approve the large sum of money required for the programme. Amasa (1999) further stated that evaluation will assist in determining whether the stated goals/objectives are being met, what aspect of the programmes requires improvement, the content area of the curriculum that requires improvement, expansion or revision, the feeling of the graduates over the completed programmes, manpower information for appropriate decision concerning the programme.

In the light of the foregoing evaluation seeks to identify and enhance the adequacy of a programme. Since the scope is wide it tends to cover all aspects of the programme. In management terms, it means system approach to instruction. The system here covers Cued facilities and equipment, instructional materials to ascertain availability quality, utilization, methods and other accessories that will ensure a thorough system overhauling.

2.3 Approaches to Educational Evaluation

Okoro (1999) stressed that educational programme is unique, hence a number of approaches have been used in programme evaluation to suit the particular nature of each programme. Different approaches have been identified even though they can be combined in order to yield maximum information for decision-making. Okoro further started that programme evaluation is broad based; the researcher must hear in mind aspect of the programme to he evaluated considering his time, competence resources and interest. The approaches that could be followed include:

i. Evaluation of Student Performance

This is the oldest method of evaluation. It is used to determine the effectiveness and value of educational programmes. In cases where students are required to sit for external examinations that are set and granted 1w external bodies that result could serve as an index of the quality of educational programme offered by the school compared to that of other institutions that under went the same external examination. (Amasa 1999).

ii. Evaluation by External Experts

External experts may carry out the evaluation of an educational programme. When a programme is being carried out by external experts, the programme is being assessed for acceleration by visiting accreditation team. Experts in various fields of study, carry out evaluation on the basis of which the programme is either accredited or denied accreditation (Gay, 1980).

iii. Cost Benefits Evaluation

This type of approach is concerned with assessing cost in relation to the achievements of the programme. The derivable benefits from programme innovations are evaluated to ensure that they justify the cost of such innovations. The cost benefit evaluation assists in identifying methods of running programmes more economically. (Mulusa, 1985).

iv. Follow-up Studies

In follow-up studies graduates of educational institution or training programme are contacted and various kind of information are sought from them. The information includes the evaluation of the educational training they receive while in school. Suggestion could be sort from them regarding how best to improve programme. The evaluation experts should also ask them to supply information on the positions they have so far occupied in their working places this is to determine the progress they are making. (Okpala. 1991).

v. Employer Survey

This particular approach extracts information from the employers of former students on the performance of their employees who are former graduates of Colleges of Education and their suggestions on how the programme could he improved for better services arc accepted. Information obtained from follow-up studies and employer survey could be used together for optimum benefit. (Okpala. 1991).

2.4 Models of Evaluation

Okoro (2000) defined an evaluation model as a set of steps or a system of thinking of which followed or implemented will result in the improvement of educational programme.

The study of evaluation models in technical/vocational education has become very necessary. According to Alkin and Elket (1979:15) the understanding of an evaluation model gives insight into and provides framework for undertaking of evaluations in a more defensible way. Alkin and FIket (1979) added that "further insights for practice are gained from the dynamics of model developments.

Okoro (2000) conceded that models serve as great help to programme evaluators because the models provide general guide and direction which can quite easily be modified to fit specific programmes being evaluated. Enhenehi (2006) explained that evaluation experts have adopted various types of evaluation model, among which are the Context, Input, Process and Product (CIPP) model, the Kenturky vocational evaluation model and the vocational teacher evaluation model. In this study, the CIPP model has been discussed owning to its wide spread use in educational research (Bulama, 2007). In selecting an evaluation model however. Okoro (2000) advised that the programme evaluator needs to take consideration on the following: (1) The appropriateness of the model. Can it yield adequate formation? (2) The complexity of the model. Can the evaluation taking consideration his experience effectively apply it, cost of implementation and other related factors?

It made up of four types of evaluation, context evaluation and product evaluation Mulusa (1985), Okoro (2000) and Bulama (2007) explained that input evaluation entails assessing student staff, requirement physical facilities, library resources and other materials that are needed in the programme is carried out as at that time of implementing the programme. Information from process evaluation provides feedback in the way and manner a programme is being implemented. Process evaluation deals with teaching methods, course offerings and other processes for implementing a programme. Product evaluation normally

comes in when a programme has been running and some students have graduated. Okoro (2000) concluded that evaluation determines the effectiveness of the programme in achieving the objectives of the programme".

Many curriculum/programme evaluation models a bound in literatures. A few of them are briefly reviewed here.

1. Context, Input, Process and Product (CIPP) Model:

This model was exposed by stuflebeam in 1969 as reported by Finch and Crunkilton, (1984). The CIPP Model portrays curriculum/programme evaluation as both a comprehensive and systematic scheme.

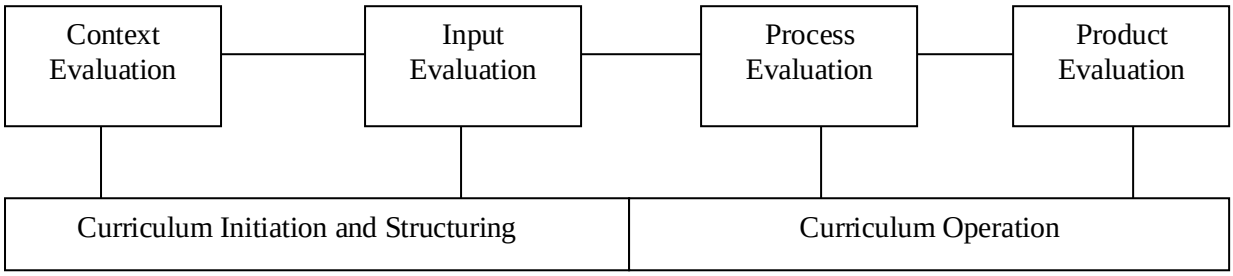


Figure 1: A framework for curriculum evaluation

Source: Finch and Bjorkquis (1977:294)

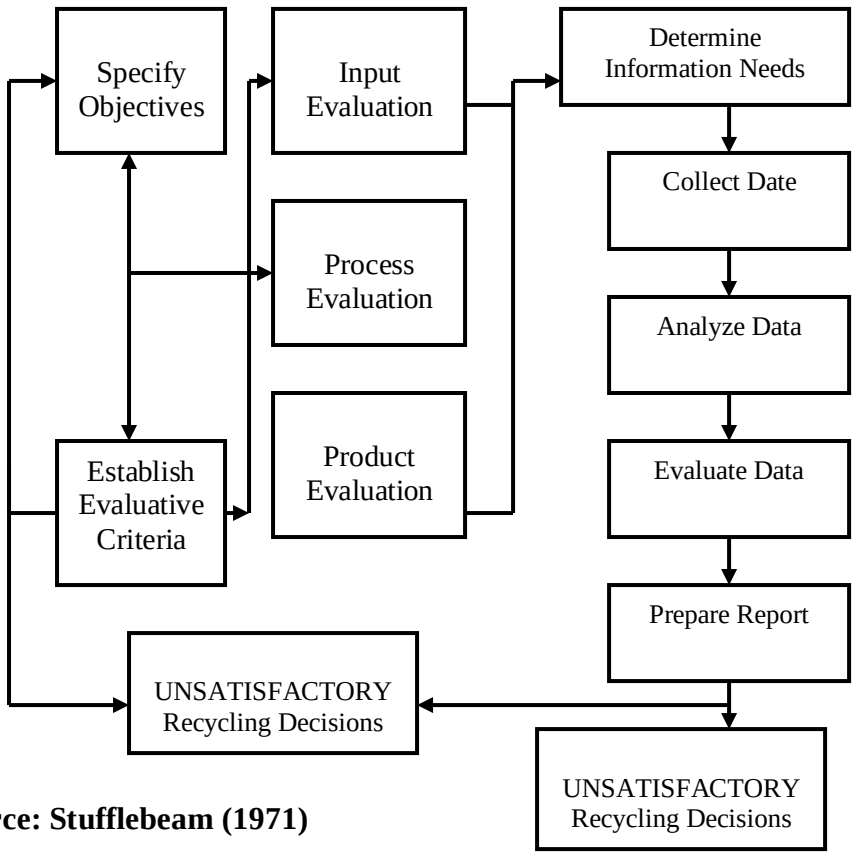
From the figure above, context evaluation is concerned with the determination and validation of goals and objectives. It deals with decisions on whether or not to offer a curriculum and if so, what its parameters will be. Input Evaluation provides information on resources available and how resources may be used to achieve desired ends. Process Evaluation is undertaken during the period of programme implementation and provides periodic feedback on the quality of implementation.

Process evaluation is intended to determine if there are defects in the implementation process-such as course offerings, teaching methods etc. Product evaluation determines the effectiveness of the programme in achieving the objectives and goals. It is mainly undertaken when course offerings have been completed and when some learners have

graduated from the programme. This aspect deals with examining the programme/curriculum effects on former students. The end product of any curriculum is the graduate and this product need to be studies if realistic statements are to be made about the north of the curriculum. This type of evaluation is usually accomplished through follow up studies.

For an evaluation of a programme such as the Technical Colleges to be all embracing and comprehensive therefore, it must include the four basic elements of the CIPP Model. Conversely, the researcher has observed that the latter part i.e product evaluation is often over looked and so, any form of evaluation conducted cannot be said to be comprehensive and complete.

2. The Figure shows a model for evaluating vocational/technical education programme



Source: Stufflebeam (1971)

The initial step in the above given figure according to the designer is the specification of programme objectives. These objectives are vital in both the implementation and the

evaluation of an educational programme. Next step is to establish evaluative criteria. Evaluation criteria give specific information for a assessing the effectiveness of the programme. The criteria will indicate how the programme components are to be assessed and what level of performance is to be considered satisfactory.

The two broad boxes the specific objectives and evaluative criteria lead to input, process and product evaluation. The input evaluation aspect deals with an attribute necessary for use in the implementation of the programme e.g. curriculum, classrooms, teachers and student. While process evaluation includes the teaching methods or the use of input components to achieve the objectives of the programme.

Finally, the product evaluation phase has to do with evaluation of the graduates of the programme. The reason is to find out whether societal needs are satisfied. The CIPP model can evaluate programmes through live steps. Viz-Deter information needs collect data, analyze data, evaluate data, and prepare data. Reports will be drawn far decision-making. If the report is satisfactory it means objectives of the programme have been achieved On the other hand, if the report is unsatisfactory, decision should be taken on what would be (lone to the programme. Hence, these procedures lead to the recycling of decision to reexamine both objectives and evaluate criteria.

The CIPP and modified one evaluation models are very important for this project because follow-up stud on graduates of Mechanical Craft Trade will show the extent to which the objectives of the programme have been achieved. The information obtained will go a long way to assist in planning for an effective Technical Colleges Program me in Kaduna State.

2.5 Facilities in Technical Colleges

Some of the facilities in technical colleges are inadequate. As observed by Inwang (2000) and further stated that another problem of poor performance of students in sonic technical colleges in Kaduna State was due to lack of facilities implementation for the

programme Schneider (2000) and Fakae (2005) learning viewed that environment definitely affect output of technical graduates students from Nigeria technical colleges.

Oke (2009) stated that curriculum is based on the need for students to demonstrate mastery in trade subjects, higher academicals standard in related secondary education (science social science) subjects and general education.

Aina (2000) further staled that some factor identified which responsible for poor facilities are as follows:

i. Lack of academic/professionally qualified, experienced and committed teaching staff
ii. Large enrolment of students
iii. Poorly trained technical personnel
iv. Poor maintenance culture (lfejika 2007)

According to Aina (2000) the National Seminar, blue print and instrument tackling problem facing technical/vocational education was produced to meet the challenge or TVE in the 21St century, Okoro (2000) suggested that government, school administrators and teachers/counselors must adopt a number of measures. These measures include making evaluation to be broad based, placing more emphasis on evaluation in programme planning, collecting and using evaluation data.

2.5.1 Facilities and Equipment of Mechanical Craft Trade Programme

The list of facilities, equipment and other devices, which are necessary for the smooth operation of MCT programme is contained in the curriculum of the programme (NBTE. 2003).

Jen (2002:48) explained that educational facilities in our institutions inadequate such as tools, learning/instructional materials, consumable materials and infrastructure (classrooms, assembly halls, libraries and workshop). This can further be classified into:

i. Tools equipment and training materials.

Programme pointed out that workshop of the Mechanical Craft Trade (MCT) shall provide the following:

1. Fining bench work
2. Machining work place
3. Welding and fabrication work place
4. Auto electricity section
5. Engine maintenance
6. Service station
7. Foundry section

NBTE 1992 general standard for school workshop further specified the criteria and standards for accrediting programmes in technical colleges as workshops must be well ventilated and should be well laid out to facilities its maximum use for production work. The focus of the study is to find out from Mechanical Craft Trade graduates about the programme they have past through with a view to providing useful data that will laid in a meaningful decision making for curriculum improvement.

2.5.2 Facilities and Programme Implementation

The availability of physical facilities for the implementation of Mechanical Craft Trade (MCT) programme is of crucial importance. However, several years ago many technical colleges were without facilities (Ogunyemi (1999), Ngada (2001) and Garba (2003) showed that in some schools, there were no buildings to house equipment. In others, the buildings were there but it was in short supply and was grossly ill-maintained. Therefore, in order to ascertain whether the situation has improved today, an evaluation exercise is required. Dogo (1997) and Adequn (2001) argued that the death of tools, equipment and other forms of instructional materials in our technical colleges is trace back to neglect. Ogunlaiase (1997) said that Nigerian people have lukewarm attitude towards government property. The non-challant altitude to public infrastructure, according to Isa (2003) has driven Nigerians to

indulge in idleness and wasteful celebrations instead of investing in education. Dalha (1996) reported ha the ill attitude of Nigerians to government property has led certain school to leave essential technical equipment to waste away in Hundarian containers.

Dalha (1996) added that sometimes the tools and equipment which were awaiting installation suddenly disappeared from the promises of schools. The outcome is that many schools in Nigeria continue to experience the death of tools and equipment in workshops. Ultimately, programme implementation in TVE faces a severe threat.

Any technical/vocational education programme are likely poor for implementing for not properly used. The development of positive attitude towards available facilities for optimum in urn and continuous utilization by teachers and students is quite inevitable (Oguntuase 1999). Technical/vocational education (TVE) aims at occupying individuals with knowledge and skills that will make them functional members of the society. However, John and Adeyemi (1999) argued that in technical /vocational, skills are not just acquired in a vacuum or without facilities. Consequently, available tools and equipment must be functional as to be effectively put lo use. The non functioning of tools and equipment in workshops and laboratories of schools in were lappledated and this is why many TVE programme suffer or waste away (Okwelle, 1999, John & Adeyemi 1999).

Practical lessons are for most skills training programmes. Eule (2000) argued that students practical work in our school workshop and laboratories demands that the following conditions be met among others:

1. Adequate consumable materials
2. Functional machines and accessories
3. Adequate manpower to man the machines
4. Adequate power supply to the workshop
5. Adequate hand tools

In some schools in Nigeria however, students lose time in the workshop and are therefore, unable to cover the syllabus that treats the practical aspect of their course (Abubakar, 2000), Ezoji (1999) attributed lack of proper planning, arrangement and equipment, materials and the mal-functioning of available equipment and machinery. Obafemi (1999) added that sometimes under utilized.

Ogbuegbuna - Onvejemezi (1998) held that non-use or under utilization of available facilities in our schools in attributable to the teachers. Ogbuegbune - Okivenu explained that resource materials in education do not on their own achieve any meaningful values. Their importance depends on what the teacher is bale to make of them, Oghueghune (1998:60) stressed that "one of the reasons why available materials are not used by many teachers in schools is that they lack the necessary skills to operate them". Buttressing this point Buba (1998) and Aggarwa (2002) argued that manipulative skills of technical teachers is indispensable in the effective utilization of facilities for implementing programmes in technical/vocational education. Most of the schools are unable to meet acceptable standards of performance (Abubakar, 2000 & Okoro 2006). Because there is close link students per0rmance and facilities. The availability, adequacy and level of utilization of facilities for the Mechanical Craft Trade programme require a survey opinion graduates.

2.6 Relevance of Follow-up Studies

Pelemon (2000) observed that follow-up studies, focus on the products that is the outcome students that have once gone through the programme are contacted in their various working places to ascertain from them what they have passed through.

Sherman (2006) investigated outcomes six months after training on the level of vocational technical education training and found out that male had a smoother transition to employment obtaining better employment outcome six months after training when compared with females. Skarmel and Ong (2006) stated that vocational and technical programme provide a clear

pathway for some students, particularly for boys studying in areas of building and engineering. Lamb and Wickers (2006) further examined that vocational and technical education programmes within schools need to be aligned with those outside schools and found that lined programmes typically result in smoother transition or works, particularly for students who do not further their education.

According to Okoro (1991) viewed that follow-up studies are identifying the strength and weakness of educational programme is an indication of whether modifications in objectives, context and teaching methods area are called for. He further started that students who have been in employment for sometime are in a better position to rate the training they received while in school and state the extent to which it has been of value to them in their present employment.

Detkesfen (1994) used follow-up studies or training needs assessment on curriculum. The used of graduates and employers survey for suitable curriculum improvement in gaining momentum in Africa.

Onidiran (1988) conducted a fellow-up studies on graduate for curriculum improvement and result shows that libraries are the biggest employers of the graduates and that the outcome of such studies was in valuable to curriculum improvement.

2.7 Job Satisfaction

Job satisfaction has been the most frequently investigated variable in organizational behaviour (Spector, 1997). Job satisfaction varies and researchers, for example Peretomode (1991) and Whawo (1993), have suggested that the higher the prestige of the job, the greater the job satisfaction. Many workers, however, are satisfied in even the least prestigious jobs. That is, they simply like what they do. In any case, job satisfaction is as individual as one's feelings or state of mind.

Job satisfaction can be influenced by a variety of factors, for example, the quality of one's relationship with their supervisor, the quality of the physical environment in which they work, the degree of fulfillment in their work, etc. However, there is no strong acceptance among researchers, consultants, etc, that increased job satisfaction produces improved job performance. In fact, improved job satisfaction can sometimes decrease job performance (McNamara, (n.d); War, 1998.

Hackman and Oldham (1975) suggested that jobs differ in the extent to which they involve five core dimensions: skill variety, task identity, task significance, autonomy, and task feedback. They further suggested that if jobs are designed in a way that increases the presence of these core characteristics, three critical psychological states can occur in employees: (1) experienced meaningfulness of work, (2) experienced responsibility for work outcomes, and (3) knowledge of the results of work activities. According to Hackman and Oldham, when these critical psychological states are experienced, work motivation and job satisfaction will be high.

2.8 Review of Related Empirical Studies

Related empirical studies with respect to follow-up study relevant to this study are presented.

1. Mama (1994) conducted a study on the followed-up graduates of environmental education. The study employed three research questions and two hypotheses. The research design was survey which was conducted randomly sampled technical/centre in Nigeria that involved three teachers each were contacted. The instrument used for collecting the data relevant for addressing the problem of this study was the followed-up graduates of environmental education questionnaire (FUGOEE), developed and validated by an exports. The followings are the findings of the study.

1. Inadequate facilities to practical

2. Lack of ii me all owed to practical
3. Lack of instructional materials greatly affected students performance.

In conclusion he made the following recommendations.

1. That adequate facilities should be provided for the practical periods.
2. That adequate of time should be a allotted to practical.
3. The instructional materials should he adequately provided for student in which it will enhance students performance.

Akoh (1989) conducted a study of follow-up the graduates of Business Education Programme of Alvan Ikoku College of Education.

In his study, he formulated five research question and tested three hypotheses. The research design was descriptive survey which was conducted in three randomly sampled in Federal College of Education Zaria. Kano and Yola. The instrument used for collecting the data relevant for addressing the problem of this study was the follow-up graduates of Business Education Programme of Alvan Ikoku College of Education (FUGOB EPAICE), developed and validated by an experts.

The following are the major findings of the study.

1. Inadequacy of teaching facilities.
2. Inducting staff
3. Lack of equipment which the graduates faced while in school hampered their effectiveness.

In conclusion, he made the following recommendations.

1. Adequate of teaching 1cilitics should he provided to enhance teaching and learning of the students.
2. Inducting of stall should be taking care off.
3. The equipment should he proved for the students while in the school to enhance their performance.

Joshua, (1983) in another study to evaluate the technical graduates programmes at the Technical College Calabar, Used the process and product technique in which two groups of students (those in the programme at the time and the graduates in the programme) were involved. The main purpose of the study was to find out the extent to which the programmes were equipping or have equipped students with the requisite skills and knowledge. To accomplish the study, two sets of survey questionnaire were developed and ministered on the 1982/9183 students and graduates of the programme from inception to 1980/81 session respectively. The main data analysis technique adopted was frequency and percentage.

The major findings revealed that even though the course offered, were, embracive, the number of computers for teaching of ICT and consumable materials for Basic Workshop Practice were inadequate and the practical experiences students were exposed to proved grossly inadequate.

Finding from the graduates also revealed that teaching of general subjects were over emphasized at the expense of technical knowledge and trade to courses as such they were finding it difficult to competently cope with the challenges faced in their places of work lack of skills in operating of machine tools and application of professional/technical knowledge and skills.

2.9 Summary of the Reviewed Related Literature

This chapter reviewed literature that is relevant to this study. The literature reviewed have shown that follow-up studies form important parts of a larger design for evaluating an educational programme. The review also showed that follow-up studies have potentials for providing essential feedback data on the adequacy of educational programme in meeting the needs of graduates, indicating areas of strengths and weakness within programmes and uncovering areas where change modification, addition, deletion or revision in existing programme are needed. However, the review of literature indicated that in spite of the

importance of follow-up studies in the evaluation process not much of the programme evaluation carried out are usually not completed and comprehensive.

Evidence in Literature also reviewed that although attempts have been made by researchers to highlighting the deficiencies and adequacies in technical education programme and problem associated with it no feed back information has been elicited from the graduates based on the follow-up studies. This situation has created a knowledge gap which must he filled in an evaluation if programme is to be comprehensive enough.

Okoro (1991) in Amasa (1999) identified a modified content, input process and product (CIPP) model for evaluating and implementation of any educational programme.

Therefore, bearing in mind the importance of technical education programme in training technicians and the need to ensure that adequate preparations are given to the graduates. To prevent the dumping of half-bake technicians in the country and to avoid unpleasant situation, it becomes pertinent to utilize ideas and in formation in the literature to conduct a fellow-up with a view to obtain essential feedback information which could assist in improving curriculum of mechanical craft trade of technical colleges in Nigeria whose objective is to improve economic growth and self-reliant.

CHAPTER THREE

METHODOLOGY

This chapter deals with the methods and procedures that will be employed in conducting this study. The chapter ill be presented under the following subheading. In this study chapter, the study discussed the following sub-headings: research design, area of the study, population of the study, instrument for data collection, validation of the instrument, reliability of the instrument, administration of the instrument, method of data analysis and decision rule for the study.

3.1 Research Design

This study is follow-up on graduates of mechanical craft trade in technical colleges of Kaduna state. Opinion survey research design was used to conduct the follow-up study. Thomas (1992) observed that a survey is a procedure in which information is" collected systematically about a set of cases, such as people organization, objects among others. Vandelen (1979) that survey research involves the assessment of public opinion, using questionnaire and sampling methods, which will help the researcher to collect detail description of existing phenomena with the intention of employing the data to justify the current conditions and practices.

3.2 Population of the Study

The target population of the study is 125 subjects. This comprises of employees and employer of graduates of mechanical craft trade of Technical Colleges in Kaduna State. Which is made of 33 supervisors and 92 graduates who are working in the 24 industries in Kaduna state.

3.3 Area of the Study

The area of the study is Kaduna State. The slate has area of 89,602 square kilometers. Ii lies between latitude 9^0 cast of the green which meridian. It shares boundaries with Abuja and six other states namely Plateau, Nasarawa, Niger, Zamfara, Kano and Katsina slate. The state is located in the Guinea savannah ecological zone of the country. It is currently made up of 23 local government areas. The majority of the graduates under the studies area mostly concentrated in the central senatorial district where most industries are sited. The researcher has been working for many years and conversant with the problems of mechanical craft trades graduates of Kaduna state. That makes the researcher to undertake this study.

3.4 Instrument for data Collection

Instrument used to collect data was a structured questionnaire developed by researcher. It is known as follow-up study questionnaire. The questionnaire is divided into sections. A. B. C. and Section A deals with personal data of respondents. Section B was concern with the extent employee satisfied with their performance at work place. Section was concerned with the technical competencies needed by technical graduates of MCT to progress on their job while Section D deals with the aspects of the curriculum of MCT of technical colleges that require improvement. All the sections were on a live- point rating scale as follows:

Response	Scale
Very satisfactory	(VS) 5
Satisfaction	(S) 4
Fairly Satisfactory	(FS) 3
Unsatisfactory	(US) 2
Very Unsatisfactory	(UVS) I

3.5 Validation of the Instrument

The instrument was subject to face and content validity, to determine the appropriateness and clarity of the instrument. A draft copy of the questionnaire was given to three experts in the Department of technology education, Modibbo Adama University of Technology, Yola. The experts were requested to assess the questionnaire items with regard to their ability to collect useful and accurate data for the study. Observations criticism and advice of the expert were consciously used to provide valid copies of the questionnaire. The research questions, and hypotheses of the study were made available to the valuators to see the relevance a of the questionnaire items. All suggestions and recommendations that was made by the valuators were used to compile the final copy of instrument.

3.6 Reliability of the Instrument

The final draft of the instrument was tested for reliability by administering the questionnaire on forty graduates of technical colleges employed in industries in three senatorial districts in Kaduna State were used for trial testing of the instrument by employing kuder Richardson formula (K-R 21) was appropriate for determining the reliability of the instruments such as questionnaire.

The formula is given as:

$$K - R21 = \frac{K}{K-1}\left[1-X\frac{(K-XS)}{K\sqrt{2}}\right]$$

3.7 Method of Data Collection

The data were collected by the researcher after administering the questionnaire. To facilitate this work however, two research assistants were appointed. For the purpose of administering the instrument. Kaduna state was divided into three zone, namely, zone one covered Zaria. Ikara, Kudan and Giwa. Zone two covered Kaduna south, Kaduna north and

Igabi while zone three covered Kafanchan. Zonkwa and Kaura. The research assistant administered the questionnaire in zone one and two while the researcher himself took charge of zone two. Three weeks were used to administration of the questionnaire.

3.8 Method of Data Analysis

Data collected using questionnaire was subjected to both descriptive statistics of mean and standard deviation. The statistical tools used for analysing research question were mean and standard deviation. Therefore the choosing of significance for hypothesis was 0.05 level of significance.

Where X_1 = Mean of the first sample

X_2 = Mean of the second sample

n_1 = Sample size of the first sample

n_2 = Sample size of the second simple

S_1 = Standard deviation of the first sample

S_2 = Standard deviation of the second sample

Z Test Formula

$$Z = \frac{X-X}{\sqrt{s/n^2}}$$

Source: Richard C. (2003)

Where x = satisfactory level

$\overline{X}$ = means of Observation

S = Standard deviation

N = Sample size

The interpretation of the mean was based on theory of class limit of real number, thus;

Scale	**Class Interval**	**Lower Class Limit**	**Upper Class Limit**
Strongly Agree (SA)	5	4.50	5.00
Agree (A)	4	3.50	4.49
Undecided (U)	3	2.50	3.49
Disagree (D)	2	1.50	2.49
Strongly Disagree (SA)	1	0.50	1.00

The decision rule for answering the research questions was based on truth limit of real numbers. The real mean is 3.0 while the lower and upper of 3.0 are 2.50 and 3.49 respectively. Therefore, any mean rating from 3.50 and above was agreed. The decision rule for hypothesis depends on calculated P-value. Therefore

Where $P < \infty$ - Reject null hypothesis.

$P > \infty$ - Up held null hypothesis.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents an analysis of the data collected for this study means standard deviations and Z-test tables were used in the presentation. Each table contains information on the responses to research questions and hypotheses.

Research Question 1

To what extent is graduates of mechanical craft trades from technical colleges are satisfied with their performance at their work place?

Table 1: Mean and Standard Deviation of Respondents Based on Level or Satisfaction of Graduates of MCT with their Performance at their Workplace.

S/NO	ITEMS	$\overline{X}$	SD	REMARK
1	My job schedule has direct bearing with my training in school	4.0	0.86	Satisfied
2	My boss does not give me all the encoragement I need to progress on the job.	4.1	0.86	Satisfied
3	Additional training is needed to meet the challenges posed by my job	4.1	0.74	Satisfied
4	Adequate tools are not provided for me to work with	4.0	0.83	Satisfied
5	Work under strict rules that do not allow me to express my abilities	4.0	0.75	Satisfied
6	My boss feels his position is threatened by my presence in the organization	4.1	0.76	Satisfied
7	Employers have full medical facilities for their workers	4.1	0.86	Satisfied
8	There is job security	3.9	0.94	Satisfied

9	Unionism is allowed to operate freely	3.8	1.02	Satisfied
10	Salaries is tax free	3.2	1.1	Not Satisfied
11	No casual workforce are employed	3.3	1.08	Not Satisfied
12	There is no redundancy in workplace	3.6	0.96	Satisfied
13	Welfare package is very encouraging	3.7	1.01	Satisfied
14	Salary is attractive	3.8	1.02	Satisfied
15	Retirement benefit is paid as at when due	3.9	0.95	Satisfied
16	Jobs is challenging enough to keep me busy	3.8	0.93	Satisfied
17	There is no career development	3.8	0.97	Satisfied
18	Free medical bills are offered	3.9	0.58	Satisfied
19	Bonus every end of year is given to employees	3.6	0.96	Satisfied
20	Employee has access loan facilities	3.8	1.00	Satisfied

Table 4.1 shows that the respondents satisfied with eighteen out of the twenty items statement and dissatisfied with item number ten and eleven. The mean scores for the satisfied item statements ranged from 3.6 to 4.1 and with the standard deviation(s) of 0.75 to 1.1 while the dissatisfied item statement had a mean score of 3.2 to 3.3 and standard deviation(s) of 1.08 to 1.1 respectively. The item number ten and eleven were not satisfied because the mean scores fell below 3.50 which is the cut off point.

Research Question 2

To what extent are the employers of graduates of mechanical craft satisfied with their performance at work place?

Table 2: Mean and Standard Deviation of Respondents Based on Level of Satisfaction of Employers with Graduates Performance at Workplace.

S/NO	GRADUATES	X	SD	REMARK
1	Application of professional and technical knowledge and skills	3.1	1.09	Not Satisfied
2	Foresight	3.6	0.92	Satisfied
3	Drive and determination	3.7	0.81	Satisfied
4	Expression on paper	3.6	0.67	Satisfied
5	Output of work	3.3	1.04	Not Satisfied
6	Gets straight to the roots of a problem	3.8	0.76	Satisfied
7	Productivity is very high	3.8	0.76	Satisfied
8	Has very high ability to handle any job	3.8	0.60	Satisfied
9	Employee(s) lack skill in assembling of machine Parts	3.4	0.92	Satisfied
10	Has the knowledge of creativity if given the opportunity	3.9	0.51	Not Satisfied

Item 10 is the only item that respondent rated highest with mean of 3.9 and standard deviation of 0.51. the item with satisfactory rating were items 2, 3, 4, 6, 7 and 8 with mean scores of 3.6, 3.7, 3.6, 3.8, 3.8 and 3.8 and standard deviation of 0.92, 0.81, 0.67, 0.67, 0.76, 0.60 and 0.92 respectively. While item 1, 5, and 9 with mean scores of 3.1, 3.3 and 3.4 and standard deviation of 1.09, 1.04 and 0.92 were uncertified with , because their means fell below 3.50, the cut off mean.

Research Question 3

What are the technical competencies required of a technical graduate of MCT to progress them on their job?

Table 3: Mean and Standard Deviation of Respondents Based on Level of Competencies needed by Technical Graduates of MCT to Progress them on their job.

S/NO	ITEMS	$\bar{X}$	SD	REMARK
1	Ability to construct and design	3.9	0.84	Satisfied
2	Ability to operate oxy-acetylene	3.6	1.00	Satisfied
3	Ability to perform bench work activities	3.9	0.89	Satisfied
4	Ability to repair petrol and diesel engine	3.6	1.09	Satisfied
5	Ability to interpret engineering drawing	3.7	0.94	Satisfied
6	Ability to disconnect spark plug cables and temperature sending unit wire	3.5	1.04	Satisfied
7	Ability to remove the crank shaft tuning gear	3.5	1.04	Satisfied
8	Ability to clean element with compressed air at low pressure	3.5	0.91	Satisfied
9	Ability to clean off corrosion around battery terminal	3.6	0.91	Satisfied
10	Ability to operate lathe and milling machine	3.5	0.82	Satisfied
11	Ability to charge the battery to full capacity	3.4	0.84	Satisfied
12	Abilities to construct practical project	3.5	1.01	Satisfied
13	Abilities to manage equipment and tools	3.8	0.74	Satisfied
14	Abilities to organize routine procedures to make for greater efficiency in the workshop	3.8	0.80	Satisfied
15	Abilities to interpret drawings	3.7	0.68	Satisfied
16	Abilities to demonstrate safe operational procedures for machine and equipment	3.8	0.74	Satisfied

17	Abilities to detect usual operations in the workshop	3.9	0.74	Satisfied
18	Abilities to develop and maintain an effective safety programme in the workshop	3.9	0.74	Satisfied
19	Knowledge of industrial design principles and production	3.3	1.88	Not Satisfied
20	Skills in operating machine tools and equipment when performing job tasks	3.4	1.24	Not Satisfied

The data presented in table 3 answer research question 3 on what technical competencies needed by technical graduates of MCT to progress them on their job. The result indicates that items 1-9 satisfied with their technical competencies needed for them to progress in their job and the mean scores were rated from 3.50 and above which is the cut off mean and mean fell above 3.50 the cut mean.

Only 11, 20 and 21items not satisfied because their mean 3.4, 3.4, 3.3, and standard deviation 0.84, 1.24, 1.84 which fell below 3.50 the cut off mean.

Research question 4

What aspect of the curriculum of MCT of technical college requires improvement?

Table 4: Mean and Standard Deviation of Respondents Based on Level of Aspect of the Curriculum of MCT of Technical College that require Improvement.

S/NO	**GRADUATES**	**X**	**$\overline{SD}$**	**REMARK**
1	General Education	4.0	0.94	Satisfied
2	Related Courses	4.2	0.73	Satisfied
3	Workshop Practices	3.5	1.06	Satisfied
4	Industrial Training Scheme	3.9	0.86	Satisfied
5	Has very high ability of production unit	2.9	1.11	Not Satisfied

6	Has very high ability to construct project work.	3.4	1.15	Not Satisfied
7	Core Trades	4.1	0.83	Satisfied
8	Extra Curricula Activities	3.8	1.13	Satisfied
9	Knowledge of Information Communication Technology	3.3	1.30	Not Satisfied

The data presented in the table 4, answered research question 4, it indicatess that item stated were satified by the respondents. The mean scores were rated from 3.50 and above which is the cut off mean. The item with the highest rating was item 2 with a mean score of 42. And standard devaition of 0.73, while items 5,6 and 9 with mean score 2.9, 3.4 and 3.3 and standard deviation of 1.11, 1.15 and 1.30 respectively were unsatisfied with because there mean fell below 3.50 the cut off mean.

Hypothesis 1

The following hypotheses were tested at 0.05 level of significance.

HO_1: There is no significant difference between the mean responses of employers and employees with regard to their satisfaction with the performance at workplace.

Table 5: Z-Test Analysis of Mean of Responses of Employers and Employees with Regard to their Satisfaction with Performance at Workplace.

Respondent	**N**	**X**	**S**	**Se Mean**	**95%C.I**	**Zc**	**P-value**	**Decision**
Employer	31	3.5	0.258	0.08	3.44-3.76	1.22	0.221	Upheld
Employees	91	3.5	0.25105	0.0561	3.7150-3-9350	3.95	0.00	Reject

Testing at $\infty = 0.05$

Where p-value is the probability of obtaining a test statistic at least as the one that was actually observed, interpreted as of

P<∞ - Reject Null Hypothesis

P>∞ upheld null hypothesis

Table 5 shows a z-calculated value of 1.22 and p-value of 0.221 for employer upholding the null-hypothesis while a Z-calculated value of 3.9 and a p-value of 0.00 for employee, rejecting null-hypotheses. This implies that there is significant difference between the opinion of employers and that of employees on the technical competences required of a technical graduate of MCT to progress on their job.

Hypotheses 2

HO_2: There is no significant difference between the mean responses of employers and employees with regard to the technical competence need by technical graduates of MCT.

Table 2: Z-Test analysis of Mean of Response of Employers and Employees with Regard to their Satisfaction with Performance at workplace.

Respondent	**N**	**X**	**S**	**Se Mean**	**95%C.I**	**Zc**	**P-value**	**Decision**
Employee	91	3.5	1.80	0.392	3.55-371	3.31	0.01	Upheld
Employer	31	3.5	0.33	0.075	3.64-3.94	3.87	0.00	Upheld

Testing at ∞ = 0.05

The above table shows a z-calculated value of 3.87 and p-value of 0.00 for employer upholding the null-hypothesis while a Z-calculated value of 3.31 and a p-value of 0.01 for employee upholding null-hypotheses. This implies that there is significant difference between the opinion of employers and that of employees with their performance at workplace.

4.2 Summary of the Findings

This section presents the summary of the findings of this study. The research questions formulated for the study served as the framework for presenting the following findings:

1. Findings related to what extent are the graduates of MCT from technical college satisfied with their performance at workplace are:
    i. The job schedule has direct bearing hearing with my training school
    ii. Adequate tools are not provided to work with
    iii. Additional training is needed to meet the challenges posed by the job
    iv. Job is challenging enough to keep me busy
2. Finding related to what extent are the employers of graduates of MCT satisfied with the performance of the employee are:
    i. Drive and determination
    ii. Penetration i.e gets straight to the roots of a problem
    iii. Productivity of employee of machining parts
    iv. Skilled in assembling of machine parts
    v. Application of professional
3. Findings related to what are the technical competencies needed by technical graduates of MCT to progress them on their job
    i. Ability to design and construct projects
    ii. Ability to perform bench work activities
    iii. Ability to repair petrol and diesel engine
    iv. Ability to interpret engineering drawing
    v. Ability to operate lathe and milling machine
    vi. Ability to manage equipment and supplies
    vii. Ability to organize routine procedures to make for greater efficiency in the workshops
    viii. Ability to demonstrate safe operational procedures for machine and equipment

4. Skills in operating machine tools and equipment when performing job tasks in ones occupational area.

Finding related to what aspect of the curriculum of MCT of technical college requires improvement.

The graduates of MCT from technical colleges are satisfied with:

i. General Education Studies

ii. Related Education Studies

iii. Industrial Training Scheme

iv. Technical Trade Subject

v. Information Communication Technology (ICT)

4.3 Discussion of the Findings

The findings of this study have been organized and discussed according to the four research questions and two hypotheses formulated. The research questions are discussed first followed by the hypotheses as outline below.

The data presented in Table 4.1 provide answers to research question one on what extent are the graduates of MCT from technical college satisfied with their performance at workplace. Table 4.1 shows that the respondents are satisfied with 18 out of 20 items statement and dissatisfied with item 10 and 11. This implies that most graduates of MCT are satisfied with their job. Job satisfaction has been the most frequently investigated variable in organizational behaviour (Spector (1997), 1Peretomode (1991) and Whawo (1993), have suggested that the higher the prestige of the job, the greater the job satisfaction. Many workers, however, are satisfied in even the least prestigious jobs. That is, simply like what they do.

The relevancies identified by the study are, job schedule has direct bearing with training in school, adequate tools are not provided to work with, additional training is needed

to meet the challenges posed by my job; job is challenging enough to keep me busy. These findings are in line with Ololube (2005) opinion that, the relevance of job satisfaction and motivation are very crucial to the long-term growth of any educational system around the world and they rank along side professional knowledge and skills, confer competencies, educational resources as well as strategies in genuinely determining educational success and performances.

The findings related to what extents are the employers of graduates of MCT satisfied with the performance of the employee. The finding revealed that the graduate lack the application of professional and technical knowledge and skills. This is in consonance with Olaitan (1996) who observed that in Nigeria today, many products of technical institutions are found in the streets without jobs because their training is inadequate and irrelevant to the need of industries and society. Supporting this view Cohen and Besharow (2002) found out that institution of training should duly update her curriculum. This is inline with the assertion of Dynakov (2003) who pointed out that training institution ought to have a bilateral character with the industries as this will promote the activities that will improve skill and knowledge update which will work to benefit the institutions.

Findings related to technical competencies needed by technical graduate of MCT to progress on them on their job. The analysis in table 4.3, indicated that majority of the graduate lack technical competencies in ability to design and construct interpret engineering drawing and ability to operate most machines. This finding support the view of Ogbuenre (1998) that one of the reasons why available materials are not used by many teachers in schools is that they lack the necessary skills to operate them in the same vein Buba (1998) and Aggarwa (2002) agued that manipulative skills of technical teachers is indispensable in the effective utilization of facilities for implementing programme in technical education.

The study revealed that most schools are unable to meet acceptable standard of performance (Abubakar, 2000) because there is a close link student’s performance and

facilities. The availability, adequacy and level of utilization of the facilities will enhance the performance.

Finding related to what aspect of the curriculum of MCT of technical college requires improvement. The analysis revealed that production unit and knowledge of Information and Communication Technology (ICT) requires improvement. This is inline with the study conducted by Joshua (1983) that the number of computer for teaching of ICT and consumable materials for Basic Workshop Practice were inadequate and the practical experiences students were exposed to prove grossly inadequate.

This findings is inline with the assertion of Dikko (2004) who pointed out that since the acquisition of skills expected from a particular training programme depends on the relevance of the course content of the skills required in industries, the academic curricular of the technical institutions therefore are important area that require constant update to measuring up with societal industrial needs. This finding is also inline with Ogwo and Oranu (2005) who maintained that curriculum must be responsive to societal needs and that employers are obligated to indicate what their need are and to assist schools in meeting their needs.

Hypothesis One

The table shows a Z-Calculated value of 1.22 and a P-value of 0.221 for employer upholding the null-hypothesis while a Z-calculated value of 3.9 and a P-value of 0.00 for employee, rejecting null hypothesis. The analysis of hypothesis one shown in Table 5 indicated that there is a significant difference between the opinion of employers and that employees on the technical competences required of a technical graduate of MCT to progress on their job.

Hypothesis Two

A Z-test significance was also used to test the second hypothesis toward the technical competence needed by technical graduate of MCT as presented on Table 6. The calculated valued of 3.87 and p-value of 0.00 for employer upholding the null hypothesis while a Z-calculated value of 3.31 and p-value of 0.001 for employee upholding null hypothesis. This implies that there is no significant difference between the opinions of employers and that of employee with their performance at workplace.

The implication of the finding is that it help to validate the finding made in research questions. The null hypothesis that there is no significant difference between the mean responses of employers and employees with regard to the technical competence needed by technical graduates of MCT is therefore upheld.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Re-Statement of the Problem

Mechanical Craft Trade is one of the era it training programme that are offered in technical colleges in Nigeria. The primary purpose according to NBTE (1992) is for the development of skills, knowledge and attitudes to enable graduates to function as competent members of the society. Since inception, Government Technical Colleges at various levels years ago and the introduction of the Mechanical Craft Trade (MCT) programme in Kaduna state technical colleges and students have been admitted and graduated unfortunately, attempts have not been made to obtain feedback data concerning job performance of these graduates.

Feedback on the effectiveness of education programme (such as the mechanical craft trade programme run by Kaduna state technical colleges) are constantly needed to extend to the areas that require change, modification and addition of new ones. (Olaitan & Ali 1997) stressed that no feedback information has been obtained from this graduate and their employers. This means that no effort has been made to obtain feedback information from the graduates or to give them any opportunity to contribute towards the programme improvement.

5.2 Summary of Procedure used for the Study

Survey research design was used in conducting this stud". It was a follow-up graduate of MCT of Kaduna slate owned technical colleges programs who are employed in the industry. Based on the specific purposes of this study, four research questions and two hypotheses were formulated which guided the study. Also related literature and previous studies related to the study were reviewed from which questionnaire was divided in seven section. Section 1 was structured to coiled personal data from respondents while the rest of

section was designed to collect information used to answer the research questions. Three experts in technology education validated the research instruments. Their comments, advice and suggestions were used for the development of the final instrument.

The questionnaire was administered to a total of 125 respondents. Which made up of 33 supervisors and 92 graduates who are working in the 24 industries in Kaduna state. However 122 valid copies of the questionnaire were received, indicating a return rate of 98%. This consisted of 91 employed MCT graduates and 31 supervisors. The 122 valid copies of the questionnaire were used to analyze the data collected, mean and standard deviation answered the research questions and students z-test was used in testing hypotheses at 0.05 level of significance. ($\alpha = 0.05$)

5.3 Summary of Major Findings

The results of the data analyzed in this study yielded the following major findings.

1. Mechanical craft trades graduates were satisfied with workshop practice.
2. Mechanical ca-aft trades' graduates do not have the skills in assembling of machine parts.
3. Mechanical craft trades graduates have abilities to manage equipment and machines.
4. Mechanical craft trades graduates lack skills in operating machine tools and equipment when performing job tasks.
5. Mechanical craft trades graduates have the ability to perform bench work activities.
6. Mechanical craft trade graduates lack skills in operating information communication technology.
7. Mechanical craft trades graduates agreed that additional training is needed to meet the challenges laced by their job.

8. Mechanical craft trades lack the application of professional technical knowledge and skills.

5.4 Conclusion

The 1ndings of this study serve as the basis for drawing the following conclusion:

1. Employees poor performance in information computer technology could be attributed to the lack of adequate supply of computers and qualified teachers in the technical colleges.
2. Mechanical craft trades graduates perform poorly in area of application of professional/technical knowledge because they lack the knowledge and skills while in schools.
3. If no urgent step is taken to improve facilities supply in the technical colleges, then the performances of mechanical craft trades graduates will face serious challenges.
4. The National Curriculum for Vocational Education at Technical School Level need to be revised such that key skills like Information Communication Technology (ICT) could be infused.

5.5 Implication of the Study

The findings of the study have serious implication for Kaduna State Government to know about the entire mechanical craft trades programme in her technical colleges in which ii will assist to use the results of the study to formulate viable policies for effective technical education programmes particularly in mechanical craft trade.

Further more the implication of the findings to NBTE and NABTEB who formulate policies for technical colleges programme will be able to know where modification or

reviews in the existing curriculum are desired so that such information could help in subsequent curriculum review or reform.

Another positive implication of this study for technical teachers is that, they ‘ill be able to assess their methods in line with available facilities, and then monitor the effectiveness of teacher as well improvise the materials where they are not available.

Lastly the implication of this study to mechanical craft trade graduates is to prepare for future occupational and technical skills which will make them successful in the world of work.

5.6 Recommendations

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

1. Effort should be made by the schools’ administrators to strengthen workshop practice in their technical colleges.
2. Due to lack of knowledge of Information Communication Technology (ICT) in schools, adequate computers should be supplied to all technical colleges to enhance knowledge of computer literacy.
3. There is need for close cooperation between technical colleges and industries to enhance students with application of professional /technical knowledge and skills.
4. Technical colleges should be encouraged to undertake practical exercise always to equip students with skills in operating machine tools and equipment.
6. Mechanical craft trades graduates should have very high ability in designing practical projects.

5.7 Suggestion for Further Studies

The following suggestions are made for further research on follow-up programme of technical colleges.

1. This study can be replicated and scope widened to cover Northwest Zone of Northern Nigeria.
2. A study should be carried out on competency re- trainig need of MCT teachers in Kaduna State

5.8 Limitation of the Study

The major limitation of the study lay in the area of retrieving copies of the structure questionnaire from the graduates and employers. A few copies were not returned. Therefore, it was difficult to achieve a 100% return rate.

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APPENDIX A

Department of technology Education,
Modibbo Adama University of Technology,
Yola.
Date……..

Dear Respondents,

A LETTER OF REQUEST TO RESPOND TO QUESTIONNAIRE ON THE TOPIC "A FOLLOW UP STUDY ON MECHANICAL TRADES GRADUATES OF STATE OWN TECHNICAL COLEGES OF KADUNA STATE"

I am a postgraduate student of the Department of Technology Education, Modibbo Adama University of Technology, Yola. You are please request to fill this questionnaire, which aims to collect data to assist in the study, as part of the requirement for the award of an M.Tech degree in vocational industrial technology education.

The main purpose of the study is to conduct a follow-up of Mechanical craft trades graduates of state own technical colleges in Kaduna state as their places of work.

Your response to the items in this questionnaire is very important for the successful conduct of the study. You are therefore kindly requested to respond to all the items as objectively as you can.

All information given by you will be treated with strict confidence and for the purpose of the research work only.

Yours sincerely,

Bulus Yohanna Aduwak

APPENDIX B

COPY OF THE QUESTIONNAIRE

SECTION 1: Respondents' Personal Data

i. Name of your place of work……

ii. Your area of specialization……..

iii. Your present position/rank……..

SECTION 2:

To what extent are graduates of MCT from Technical Colleges satisfied with their performance at work?

Please read the following questionnaire and indicate your choice by ticking (v) in the appropriate column.

The response scale is as follows:

Very satisfied (VS) 5

Satisfied (s) 4

Fairly satisfied (FS) 3

Unsatisfied (US) 2

Very Satisfied (VS) 1

S/N	ITEMS	Vs	S	Fs	Us	VUS
1.	MY Job schedule has direct bearing with my training in school					
2.	My boss does not find me all the encouragement I need to progress on the job.					
3.	Additional training is needed to met the challenges posed by my job					
4	Adequate tools are not provided for me to work with					
5.	I work under every strict rules that do not allow to express my abilities.					
6.	My Boss feels his position is threatened by my presence in the organization.					
7.	Employers have full medical facilities for their workers.					
8.	Job security					
9.	unionism is allowed to work freely					

10.	Salaries is tax fire					
11.	No casual work force					
12.	There is no frequent redundancy					
13.	Welfare package is very encouraging.					
14.	Salary attractive					
15.	Retirement benefit is paid as and when due					
16.	Job challenges					
17	Career Development					
18.	Free medical bills					
19.	Bonus every end of the year					
20.	Sub- loan					

SECTION 3:

To what extent are the employers of Graduates of MCT satisfied with their performance of the Graduates?

Please read the following questionnaire and indicate your choice by ticking (v) in the appropriate column.

The response scale is as follows:

Very satisfied (VS) 5

Satisfied (s) 4

Fairly satisfied (FS) 3

Unsatisfied (US) 2

Very Satisfied (VS) 1

S/N	ITEMS	Vs	S	Fs	Us	VUS
1.	Application of Professional/Technical Knowledge and skills					
2.	Foresight					
3.	Drive and determination					
4.	Expression on paper					
5.	Output of work					
6.	Penetration i.e gets straight to the roots of a problem					
7.	Productivity of employee(s)					
8.	Employee ability to handle any job in respective area.					
9.	Employee(s) is perfect when it comes in term of assembling of					

	machine parts.					
10.	Employee(s) has the knowledge of creativity if given the opportunity.					

SECTION 4:

What are the technical competencies needed by technical graduates of MCT to progress in their Job?

Please read the following questionnaire and indicate your choice by ticking (v) in the appropriate column.

The response scale is as follows:

Very satisfied (VS) 5

Satisfied (s) 4

Fairly satisfied (FS) 3

Unsatisfied (US) 2

Very Satisfied (VS) 1

S/N	ITEMS	Vs	S	Fs	Us	VUS
1.	Ability to design and construct					
2.	Ability to operate oxy-acetylene and are welding machine.					
3.	Ability to perform bench work activities					
4.	Ability to repair petrol and diesel engine					
5.	Ability to interpret engineering drawing.					
6.	Ability to disconnect spark plug cables and temperature sending unit wire.					
7.	Ability to remove the crank shaft tuning gear.					
8.	Ability to clean element compressed air at low pressure					
9	Ability to clean off corrosion around batter terminal.					
10.	Ability to operate lathe and milling machine.					
11.	Ability to disconnect batter ground cable from batter terminal.					
12.	Abilities to construct practical project					
13.	Abilities to manage equipment and supplies					
14.	Abilities to recognize routine procedures to make for greater efficiency in the workshops.					
15.	Abilities interpret drawings					

16.	Abilities to demonstrate safe operational procedures for machine and equipment.					
17.	Abilities to detect usual operations in the workshop					
18.	Abilities to demonstrate safe operational procedures for machine and equipment.					
19.	Ability to develop and maintain an effective safety programme in the workshop.					
20.	Knowledge of industrial design principles and production.					
21.	Skills in operating machine tools and equipment when performing job tasks in one's occupational area.					

SECTION 5:

What aspects of the curriculum of MTC of technical colleges require improvement?

Please read the following questionnaire and indicate your choice by ticking (v) in the appropriate column.

The response scale is as follows:

Very satisfied (VS) 5

Satisfied (s) 4

Fairly satisfied (FS) 3

Unsatisfied (US) 2

Very Satisfied (VS) 1

S/N	ITEMS	Vs	S	Fs	Us	VUS
1.	General Education					
2.	Related courses					
3.	Workshop Practice					
4.	Industrial Training Scheme					
5.	Has very high the ability of product unit					
6.	Project					
7.	Core Trades					
8.	Extra Curricula activities					
9.	Computer application					

APENDIX C

LETTER REQUESTING EXPERTS TO VALIDATE QUESTIONNAIRE

Department of Technology Education,
Modibbo Adama University of Technology,
Yola
Date…….
……
……..
……..

Dear Sir,

REQUEST TO VALIDATE QUESTIONNAIRE ON THE PROJECT TOPIC "FOLLOW UP STUDY ON MECHANICAL CRAFT TRADES GRADUATES OF KADUNA STATE OWN TECHNICAL COLLEGES FOR CURRICULUM IMPROVEMENT

I am a postgraduate student of the depar5tment of technology Education, Modibbo Adama University of Technology, Yola, undertaking a project on the above topic. A questionnaire, which is designed to collect data to assist in the study, is hereby presented to you. Please validate the questionnaire.

The purpose, research questions are presented in the questionnaire so as to facilitate the validation. It is hoped that your suggestion will greatly enhance the quality of the questionnaire.

Thank you,

Yours faithfully,

Bulus Y. Aduwak
M.TECH/TE/06/0158

APPENDIX D

The table below shows the industries/ companies where mechanical craft trade Graduate are working.

S/ No	Industries	Location	Local Government	No. of graduates	Supervisor
1.	Idea Flower Mill	Kaduna	Chikun	2	1
2.	Peugeot Automobile Nigeria Limited	Kakuri	K/south	8	2
3.	Defense Industries Cooperation	Kakuri	K/South	8	3
4.	NNPC Kaduna	Kachia Road	Chikun	11	2
5.	Nigeria Brewery PLC	Kakuri	K/south	14	3
6.	International beer & Beverages PLC	Kudandan	Chikun	2	1
7.	Kaduna Crown Cock manufacturing	Kakuri	K/south	2	1
8.	United wire products Ltd`	Kakuri	K/south	1	1
9.	Nocacco Nigeria Limited	Kakuri	K/south	1	1
10.	New Nigeria Newspaper company	Ahmadu Bello way	K/North	6	1
11.	Sunglass Company Ltd.	Kaduna	Chikun	3	1
12.	Roof company Nigeria Limited	Kadur	K/south	3	1
13	West Africa Bitum Emulsion Co. Ltd	Kakuri	k/south	1	1
14	Nortex Textile Ltd	Kakuri	K/south	2	1
15	Supertex Textile limited	Kakuri	K/south	2	
16	Zaria Industries limited	Dakachi	Zaria	4	1
17	Kafanchan Foods & flour Mills	Kafanchan	Jama'a	2	1
18	British America tobacco nig. Ltd	Zaria	Zaria	3	1
19	Sir King Morten furniture's	Kafamchan	Jama'a	1	1
20	Lap New World mortal	Kafanchan	Jama'a	1	1
21	Seven-up bottling Company	Kakuri	K/south	5	2
22	KSTA	Kakuri	K/south	1	1
23	Kaduna Machine tools	Kakuri	k/south	2	1
24	Crittal hope PLC	Kakuri	KI/South`	3	1
	Total companies/Industries=24				