ASSESSEMENT OF HUMAN AND MATERIAL RESOURCES FOR THE TEACHING AND LEARNING OF MOTOR VEHICLE MECHANIC TRADE IN TECHNICAL COLLEGES IN KOGI STATE.

BY

ADAMS, Victor
2014/1/52503TI

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA

OCTOBER, 2019

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION, FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA IN PARTIAL FULFILLMENT FOR THE AWARD OF BARCHELOR OF TECHNOLOGY DEGREE (B.Tech) IN INDUSTRIAL AND TECHNOLOGY EDUCATION

OCTOBER, 2019.

DECLARATION

I Adams Victor with matric number 2014/1/52503TI an undergraduate student of the Department of Industrial and Technology Education certify that the work embodied in this project is original and has not been submitted in part or full for any other diploma or degree of this or any other University.

……. ……

Name & Matric No. Signature & Date

CERTIFICATION

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

Dr. Mohammad Abdulkadir
(Project Supervisor) Sign and Date

Prof. Robert O. Okwori
(Head of Department) Sign and Date

(External Examiner) Sign and Date

DEDICATION

I dedicate this work to God Almighty for His grace, care and compassion, His profound love made it possible for me to make it so far, to my loving parents Mr. & Mrs. A. H. Adams and to my ever supporting Siblings and Friends.

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ABSTRACT

The study was designed to assess human and material resources for the teaching and learning of motor vehicle mechanic in technical colleges Kogi State. Relevant literatures were reviewed in line with the objectives of the study. Three research questions and two null hypotheses guided the study. A descriptive survey research was used for the study. The study was conducted in all the four Technical Colleges in Kogi State. A total of 152 respondents comprising of 124 motor vehicle mechanic students and 28 motor vehicle mechanic teachers was used as a total population for the study. A structured designed questionnaire designed by the researcher and validated by three experts from Industrial and Technology Education, Federal University of Technology Department, Minna was used for data collection for the study. Mean and standard deviation were the statistical tools used for the data analysis, while t-test statistics was used to test the null hypotheses formulated at 0.05 level of significance. The findings among others revealed that: both human and material resources are not sufficiently available for effective teaching and learning of motor vehicle mechanic trade. Based on the findings, it was recommended that adequate human resources such as qualified motor vehicle mechanic teachers/instructors, motor vehicle mechanic technicians, motor vehicle mechanic craftsmen and workshop attendants should be employed in Kogi State technical colleges for effective implementation of motor vehicle mechanics programme. Also The National Board for Technical Education (NBTE) and the technical college authority should develop mechanism to monitor and ensure the provision of adequate human and material resources for teaching and learning motor vehicle mechanic trade in technical colleges.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Education is the core of any meaningful development. Unfortunately, the education sector in Nigeria has suffered from limited and strict fiscal budgets and has been starved of both human and material resources (Ihejirika, 2013). The United Nations Educational, Scientific and Cultural Organization (UNESCO) suggested that 26 percent of the annual budget of every country in the world should go to education. Unfortunately, Nigeria is still far from this UNESCO suggestion. A'Aeth (1975) and Coombs (1989) delineated the situation of African development as educational predicament. During the colonial era, schools were significantly few which meant that fewer Africans had access to education which was deliberately designed to sustain dominance over the European superiority in the dual education system (Abraham, 2000; Chisaka & Mavundutse, 2006). Teaching makes pursuit of knowledge and skills possible through systematic intercommunication between teachers and learners. It occurs every day and comprises of teacher, learner, techniques and materials interaction. Part of these materials are identified as educational technology.

Learning is a pursuit that begins at birth and can be envisioned to continue for a lifetime in classrooms and training centres, effective learning takes place in a well-arranged way. Facilities and personnel are employed to provide an education designed for classroom learning, which aims to prepare students to work and be involved in the society which they live. Teaching at it most definite level of educating and conveying knowledge is the most essential part of a teacher's job. It is more noticeable than inspiring, motivating and creating relationships. Learning comes in three domains; cognitive, psychomotor and affective domains. The cognitive domain deals with the recall or recognition of information and knowledge and the enhancement of intellectual or mental skills and abilities (Okpara, 1994). The psychomotor

domain deals with the enhancement of manual or manipulative skills. Affective domain on the other hand deals with the learners‟ social development and the interest, attitudes, emotions, appreciations and values (Scot, 2002, Okoro, 1999). The learning of every subject involves an element of the three domains. For instance, the study of motor vehicle mechanic trade requires sufficient theoretical knowledge (cognitive), right attitude and interest in practical work (affective) and practical skills in motor vehicle repairs and maintenance (psychomotor).

According to Adeyanju, (1997) the ability to teach is the interest of proficient teachers, but a complex process. Teaching can occur as a result of bringing in newly acquired skill, knowledge, discernment, new insights, findings, observations and so on .Caldwell (2004) noticed that the most essential thing in schools is to have a generation of well knowledgeable teachers who care very much about students getting the highest quality of education in a subject. Teachers and the quality of teaching are the serious link to improving student's accomplishments. Caldwell also view countless advancement, component exist in schools and in states and local formalities to ensure good teaching quality. These include teacher preparation, certification, professional development and assessment. Some research carried out in these areas shows that successfully increasing student's literacy accomplishments involves creating and maintaining organizational constitutions in schools, such as focus on evaluating and developing the teaching and learning.

Educational objectives are usually stated in cognitive domain may be because it is easier to measure. The affective domain should equally be considered because as Okoro (1999) pointed out, without the proper interest or attitude towards a subject, the learner will find it very difficult to learn what the teacher is trying to teach. Educational psychologists Ausubel, Novak and Hanessian (2004) and American Psychological Association (APA) (2002) have agreed that learning in these three domains is greatly influenced by several factors. These factors for convenience can simply be referred to as cognitive, psychomotor and affective

factors that influence learning respectively. Affective factors influence learning, these are those factors that affects people's interest and attitudes towards learning a specific subject or trade (Okafor, 2002). Okafor identified interest, motivation, self-concept and belief and adjustment as some of the affective influence on the learning of most technical subjects. According to Okoro (1994) technical colleges are regarded as the principal vocational institutions in Nigeria. They give full vocational training intended to prepare students for entry into various occupations Motor vehicle mechanic trade is one of the technical subjects offered in most technical colleges in Nigeria. To ensure the realization of the Motor vehicle mechanic trade objective, the curriculum of Motor vehicle mechanic in Technical Colleges is made up of five components namely; general education subjects, trade, theory, relative studies and workshop practice.

The aim of motor vehicle mechanics work trade in Nigeria technical colleges is to provide competent vehicle mechanics with good theoretical knowledge who should be able to diagnose and carryout repairs and/or maintenance on various types of Diesel and Petrol Vehicles (NBTE, 1985) thus, the programmes for motor vehicle mechanics work in Nigeria technical colleges is designed to produce competent maintenance craftsmen for all types of motor vehicle. According to the National Board of Technical Education (NBTE 2001) these crafts-men may also wish to take the opportunity for further technical education.

Assessment is a form of evaluation that uses collected data to project the value of a programme. Okoro, (1994) presumed that, assessment and evaluation are usually carried out in two ways: through the propositions of teachers and through standards recommended by government such as NBTE, examination bodies such as the National Business and Technical Education Board (NABTEB). The government and examination parties may have suggested certain levels of resources for teaching and learning of various courses. Such stipulated standards can be the crux for assessment. According to Poripo (2012) assessment is the

organized determination of quality, value and purpose of a programme. This means that, assessment provides factual means of tracking the progress of an individual in a programme (Poripo, 2012). More so, assessment is the grouping of something with respect to its value, appraisal, systematization, sorting and organization. It is also the act of evaluating or assessing a person, facilities, a situation or an event (Poripo, 2012). In addition, assessment is the process of detailing, usually in quantitative terms, knowledge, skill character and quality. The researcher also noted that assessment can focus on facilities, or the educational system as a whole. Assessment therefore, indicates a process of deciding the value or the efficiency of school quality indicators like facilities, equipment, and classrooms in the training of graduates. It is on the proposition of assessment result, that the level of attainability and sufficiency of automobile resources can be determined and possibly determined improvement strategies. Despite the different types of models selected by educational inspectors, the primary objective is to consider if the programme is of standard. In Kogi State, human and material resources constitute important factors of motor vehicle mechanic curriculum implementation which need to be assessed in order to know if motor vehicle resources meets the standard set by NBTE. Consequently, suggest possible solution for improving the resources for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges. Olaitan (1996) stated that the survival of any programme (motor vehicle mechanic programme inclusive) is accomplished by continually searching for programme enhancement through assessment process. This type of regular assessment of resources for teaching and learning of motor vehicle mechanic trade in government technical colleges have not been carried out regularly by the Federal and State Ministry of Education, the National Board of Technical Education (NBTE), Inspectors of Educations, School Administrators, and Technical College Heads' of Department of motor vehicle mechanic . Also literatures known to the researcher on the assessment of human and material resources for teaching and learning motor vehicle mechanic

in government technical colleges in Nigeria and Kogi State in particular seems to be scanty. Hence, it is against these frameworks that this study seeks to assess the human and material resources for the teaching and learning of motor vehicle mechanic trade in Kogi State Technical Colleges.

1.2 Statement of the Problem

There has been a drop in the performance level of motor vehicle mechanic candidates in National Business and Technical Education Board (NABTEB) examination. In support, NABTEB Chief Examiner in a report of post examination analysis, reported that the performance of motor vehicle mechanic candidates from Kogi State technical colleges were very poor. In the year 2017, a motor vehicle mechanic student candidate was examined and failed which represent one hundred percent failure rate. Also, in the year 2016, three motor vehicle mechanic candidates were examined, and all the candidates failed which also represent one hundred percent failure rate. However, from the year 2013 to 2017, no motor vehicle mechanic candidate was examined. The causes of the continuous failure rate of motor vehicle mechanic candidates in NABTEB examination from the year 2010 to 2017, according to NABTEB (2014) was as a result of lack of personnel and material resources amongst others.

Furthermore, high failure rate of motor vehicle mechanic candidates in NABTEB examination, has made motor vehicle mechanic graduates of technical colleges to remain unemployed when these graduates are supposed to be employers of labour. In spite of subsequent government effort to restore technical colleges in Kogi State, failure rate of motor vehicle mechanic candidates in NABTEB examination have not been reduced. Based on these situations, there is need to assess the human and material resources for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges.

1.3 Purpose of the Study

The major purpose of this study was to assess the human and material resources for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges. Specifically, the objectives of the study are to:

1. Determine the availability of human resources for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges.
2. Determine the adequacy of material resources for the teaching and learning of motor vehicle mechanic technology in Kogi State technical colleges with reference of NBTE benchmark.
3. Suggest ways of improving human and material resources for teaching and learning motor vehicle trade in Kogi State technical colleges.

1.4 Significance of the Study

The findings of this study, if implemented will be of great benefit to the Federal Government of Nigeria, motor vehicle mechanic teachers and students, school administrators in the technical colleges and the society. It will help the government to facilitate assessment so as to appraise their effort to improve technical and vocational education standard in technical colleges in term of provision of tools, equipment, workshop and classroom facilities in motor vehicle mechanic through the Ministry of Education. Motor vehicle mechanic teachers/instructors of technical colleges will aid from this study because it will reveal the state of resources in all the technical colleges in Kogi State which will enable them to find out if the resources are available and adequate for the teaching and learning of motor vehicle mechanic. Students of motor vehicle mechanic will gain from this study in the sense that the state of availability and adequacy of human and material resources in the technical colleges of Kogi State will be revealed.

Also, the study will allow the school administrators to know the level of availability and adequacy of resources for the teaching and learning of Motor vehicle mechanic based on National Board for Technical Education (NBTE) benchmark for resources and also it will help school administrators to know the resources that are inadequate in the technical colleges in Kogi State. Finally, the society will hopefully profit from the findings of this study in the sense that graduates of motor vehicle mechanic would be productive entrepreneurs to the society. This will help reduce the rate of unemployment not just in the society but the country at large.

1.5 Scope of the Study

This study covered the assessment of the human and material resources for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges. To determine the availability and adequacy of human and material resources for the teaching and learning of motor vehicle mechanics trade and ways of improving these resources at technical college level in Kogi State.

1.6 Research Questions

This study provided answers to the following questions:

1. Are the human resources available for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges?
2. Are there adequate material resources for teaching and learning of motor vehicle mechanic in Kogi State technical colleges?
3. What are the ways of improving human and materials for teaching and learning motor vehicle mechanic in Kogi state technical colleges?

1.7 Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

HO_1: There is no significant difference in the mean response of motor vehicle mechanic students and teachers on the availability of human resources for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges.

HO_2: There is no significant difference in the mean response of motor vehicle mechanic students and teachers on the availability of tools and equipment for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges.

CHAPTER TWO

2.0 REVIEW OF RELATED LITERATURE

The literatures for this study were reviewed under the following subheadings:

2.1 Historical Development of Technical Education in Nigeria

2.2 Problems of the Technical College Teacher in Nigeria

2.3 Objectives of Technical College Education

2.4 Challenges of Technical and Vocational Education in Nigeria

2.1 Historical Development of Technical Education in Nigeria

The advent of Missionaries and British colonialism in Nigeria has brought many interesting of development to TVE. Technical Education has been neglected for as long as the history of the Nigerian amalgamation and development can trace. According to Ekunke (2008), right from the beginning of colonial rule till the end of the Second World War the Nigerian government neglected Technical Education. In an abortive 1942 Ten-year plan, this aspect of education was simply dismissed with the statement that it was doubtful whether a big trade school which would be extremely expensive to build and equip, and would also require a large European and African staff. Furthermore, there would be no great demand for the products when trained .The first major step taken in the direction of promoting technical education was the acceptance of the minority report of the commission which the British colonial government had set up in 1948 under the chairmanship of Rt. Hon. Walter Elliot.

Our colonial masters (the British) recognized the importance of technical and vocational education (TVE) early enough and tried hard to lay a foundation for its

take off (Adegbile, n.d). Adegbile further stated that, in the premises of Yaba College of Technology, some organized training schemed were in operation. These training include:

a) Lands and Survey Training School 1908,
b) Marine Training School 1928 and
c) Public Works, Posts and telegraphs and railway 1931

A total of five full-time and part-time courses ranging from Mechanical Engineering Assistants to Handicraft Instructors courses were offered with a total enrolment of approximately 400 students. The Electrical Engineering Assistants and Architectural Assistants courses were introduced in 1949; Civil Engineering Assistants courses in 1950 and in 1953, the institute had a total enrolment of six hundred students (600) half of whom were residential and studying on full-time basis. However, in 1959 the institute presented the first set of students for the city and guilds of London Institute Examinations in Building Construction and Electrical/Mechanical Engineering. Prior to this arrangement, the students had been assessed by means of internal Diploma examinations. Similar institutes were established by the Colonial Masters in Enugu 1950; Ilorin 1951; Kano 1953; Ijebuode and Ogbomosho 1959 all geared towards the provision of adequate manpower. Consequently. NBTE (1985), approved a broad classification of technical institutions as follows;

i. **Best Centres:**

   Vocational schools at the post primary level, engage in artisan training to produce artisans. The course lead to the award of ministry of labour trade test certificate and is tenable for employment especially in government.

ii. **Technical Colleges**:

A college of further education providing courses in a range of practical subjects, such as information technology, applied sciences, engineering, agriculture, and secretarial skills. The courses lead to the award of National Business Certificate (NBC) and National Technical Certificate (NTC). Both at craft level. Advanced National Business Certificate (ANBC) and Advanced National Technical Certificate (ANTC) at master craft level. The certificates are awarded by the National Business and Technical Examination Board (NABTEB).

iii. **Apprenticeship Schemes:**

These are training outfits, not necessarily component of the formal system, but form an integral part of our technical education and training. Given their level of contribution to manpower production, they constitute a force to be reckoned with. Similarly, due recognition must be accorded to the open apprenticeship scheme of the National Directorate for Employment (NDE), and popular road side apprenticeship motor mechanic scheme and numerous other semi-skilled professional which produce most of the artisans working in the industries today.

iv. **The Polytechnics/Colleges of Technology**:

This category includes; mono technics e.g. colleges of agriculture, school of survey, school of fisheries, etc. They are post-secondary institutions which in most countries, emerged as a result of development amalgamation of lower level institution to satisfy needed manpower requirements in industry agriculture and commerce. The polytechnics in Nigeria can thus be regarded as the apex of technical and vocational education.

2.2 Problems of the Technical College Teacher in Nigeria

There are many challenges worthy of noting. There is still lack of political will despite promises made by succeeding governments to focus attention on education for the needed economic drive. The political system in Nigeria does not favour continuity of programme or policy initiative made by others hence abandonment of project/programmes. However, not all the problems will be examined because of limited space and time. Nworgu (2007) with other expert in the vocational field enumerated the problems as:

i. **Insufficient Supply of Instructional Materials:**

   Instructional materials and consumables in technical colleges are very expensive and the federal and state governments have not been providing funds to address this critical area. All we are getting is just lip service to technical education. Even when the teachers are ready to improvise instructional materials, the little amount of fund needed could still not be received from the college authorities

ii. **Lack of Participatory Framework:**

   When educational reforms are dictated by privilege policy makers without generating it from the people directly involved; thereby creating problems of ownership, sustainability and lack of awareness on the part of those meant to implement the programme/reform.

iii. **Insufficient Supply of Technical Workshop:**

   Most technical colleges cannot boast of adequate functional workshops even when the teachers may be ready to teach the students, in spite of poor remuneration. There are some cases where technical equipment were supplied but no workshop to install the equipment This certainly led to frustration on the part of the technical college teachers.

iv. **Poor Planning:**

Executing programme without adequate planning of necessary conditions and infrastructure to put in place is common in Nigeria, and Kogi State is not different.

v. Lack of Adequate Motivation:

Technical college teachers are subjected to deplorable working conditions. Hardly are they found in furnished offices, instead they are put in large staff rooms, at times with students type of desks and chairs, whereas their counterparts in other sectors could have executive air-condition offices, private secretary or even messengers and reserved parking spaces, and could belong to prestigious clubs and association, be entitled to free lunch. These help to boast their ego as they are looked upon as being successful. Therefore, if education at the technical college level will be restored to acceptable level, hygiene-motivator principles must be applied in the administration for the purpose of getting teachers to have satisfaction from their job (Ariwerikuma, 1986 cited in Miller, 2011).

vi. Status Quo Syndrome:

Negative attitude towards change and the belief that established modes of operation and practices must be maintain e.g. slowness in adoption E-classroom in almost all our technical institution in an electronic era.

2.3 Objectives of Technical College Education

The goals/objectives of vocational and technical education as stipulated in the National Policy on Education (FRN, 2013) shall be to:

a. Provide trained manpower in applied science, technology and business particularly at craft, advance craft and technical levels.

b. Provide the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development;
c. Give training and impart the necessary skills leading to individuals who shall be self-reliant economically.

2.4 Challenges of Technical and Vocational Education in Nigeria

a. Non Professionalising the Teaching Profession:

The challenge of non-professionalising teaching in Nigeria is still very obvious (Etuk and Asukwo, 2015).professionalism is a concept which has been described by clearly and precisely defined standard by professionals who know and put into practice the core values, ideals, skills, knowledge, attitudes, rights, privileges, conduct and obligations expected of a professional. With the establishment of a regulatory agency, Teachers' Registration Council of Nigeria (TRCN) by the TRCN Act 31 of 1991 (FRN, 2002) to regulate and control the teaching profession in all aspects and ramifications, it is still unclear why teaching, like other professions in Nigeria is not publicly recognized as a core profession. As noted by Ciwar (2008), professions in Pharmacy, Law, Medicine, Engineering and others which are far younger than the teaching profession, enjoy the epitome and symbol of genuine professionalism. They proudly wear their identities and in whatever job they find themselves, they still prefer to be identified by their respective profession (Yusuf, 2011). According to Etuk and Asukwo (2015), the challenges facing the professionalism of the teaching profession include the practice of training would-be teachers by mushroom/satellite campuses; introduction of part-time programme to the would-be teachers, recruitment of uncertified and unqualified teachers to teach in the schools among others. Teaching in Nigeria does not emphasis or implement the pre-condition that practitioners must first be registered and a certificate of registration obtained as a license to practice; it does not distinguish between levels of qualification either in College

certificates or in experience and excellence in practice as do other professions; and the profession is yet to inculcate in members the trait of exerting service above self and insistence on membership registration (Yusuf, 2011). Fakoya (2009) enumerated factors militating against professionalizing teaching profession to be unequivalent level of education and training, lack of self-reputation, poor social class and academic background of entrants to the profession, lack of balance between the sexes in teaching, lack of commitment to the profession, poor salary structure, lack of professional culture in education and teaching career.

b. Poor Funding:

The three tiers of Government in Nigeria have not fully come to appreciate the contributions of Technical Vocational Education and Training to national economic development even though it is an indispensable tool for tackling unemployment and poverty in the society. This is because successive governments have not found it necessary to adequately finance both the planning and implementation of standard and sustainable TVET programmes in the country. In support of this statement, Okorie (2011), Okeke and Eze (2010) stated that insufficient finance is a realistic and practical factor inhibiting the implementation of TVET sector is holistically on science education. Too much emphasis is placed on TVET, but little is done to improve the teaching/learning of TVET programmes in Nigerian institutions. There are so many new sophisticated office equipment that have appeared in the market such as electric typewriters, dictating machines, computers, school buildings (classrooms, laboratories, libraries, workshops, furniture and so on); These facilities are conspicuously absent in our schools due to inadequate funds for their acquisition. The issue of funding remain a sore point in vocational technical teacher education particularly and education generally. Ogbodo and Efanga (2014) observed that though the Federal, State and Local Governments have been making considerable financial allocations to the education sector in the recent times, there is an abundant evidence of

underfunding and underinvestment in all levels of education system in Nigeria. They came to a conclusion that it has become clear that government is unwilling and/or unable to fund education alone, and this has therefore made partnering an imperative.

c. **Low Information and Communication Technology Compliance Curriculum:**

According to Merkley and Schmidt (2010), many schools at the primary and secondary level in Nigeria do not have computer education in their curriculum. The reasons are not farfetched: computers are not available in the schools. Looking beyond the primary and secondary schools, one should mention the introduction of computer studies as a session core course in the higher institutions, the course content of computer does not address the specific needs of students in their various professions. Students merely undergo a theoretical course with little practical, some without actually having any opportunity to undertake practical training on the IT equipment. Hence, students leave school armed with theoretical knowledge without practical skills in handling computers. The quality of TVET teacher education remains the cornerstone of any technological educational system. Yet, TVET teacher education institutions in Nigeria have not effectively responded to the need to integrate information technology throughout the teacher preparation programme. Most teacher training institutions in Nigeria lack computer hardware for training purposes. Teachers are not exposed to introductory courses in instructional technology and basic computer knowledge thus; new teachers have limited knowledge of how to work in a technology-enriched classroom or how to use technology in their professional practice (Okwor 2007, Nzeako 2005 & Oliver 2002). For the computer to be fully operational, it would need regular supply of power. This is lacking in so many schools in many parts of the country. Hence, installed computers may lie idle for most of the time because of lack of power supply while frequent fluctuations in power voltage can lead to mechanical breakdown

and cause damage to gadgets. People may resort to power generators or plants but they have to frequently buy diesel or petrol as well as to maintain them. This is an expensive alternative; as a result, many schools do not integrate ICT in their teaching and learning process.

d. **Non-use of Appropriate and Approved Methodology:**

One other outstanding constraint in the teaching/learning of TVET is the non-use of appropriate and approved methodology. In addition to normal lectures, the teaching of vocational technical subjects require the use of variety of teaching methods and techniques some of which are simulation, discussions, demonstrations etc. it is sadly noticeable that while some teachers adhere to these professional practices, a number of others do not. It is either that they are unaware of these methods or are indifferent to their use.

e. **Poor/Shortage of Qualified Vocational Technical Teachers:**

According to Sodiq (2001), national development has a direct link with education; he stated that the education of the teacher at any level should be the priority of any country wishing to develop in all facets of human endeavours. If we accept that no education system can rise above the quality of its teachers and we know, that education is the catalyst for all spheres of human development, then it follows that a country that harbours poor quality TVET teachers will remain undeveloped and thus suffers the consequences of under-development and technology compliant. Many tertiary institutions across the country are inadequately staffed. In most departments especially in TVET programmes, the number of qualified TVET teachers for each specialized area is in short supply. It is an indisputable fact that without quality TVET teachers, practical works which is an essential component of TVET programme will be difficult to implement. Acquisition of skills requires that strict attention and supervision should be given to every student. In other words, individualized

instructions become very difficult during practical's due to shortage of qualified TVET teachers and this affects performance of both the teachers and students as teachers are made to teach many TVET courses.

Many people who are qualified to teach TVET courses have always abandon teaching for other better jobs that have prestige and better remuneration. According to Adeyinka (2014), teaching is gradually becoming a profession for fresh graduates of universities and colleges of education who are ready to call it quit, without provocation, as soon as they find better job opportunity. Oluwale, Jegede and Olamade (2013) stated that attracting qualified staff into teaching and teacher training in TVET was a problem for most countries including Nigeria. In order to spur locally needed TVET teachers, it is imperative that Nigerian government should seriously consider proper retention schemes for their best talents by providing special working conditions such as; adequate research supports and other incentives to stem this problem of brain drain.

f. Lack Of Adequate Facilities:

Most technical education departments in Nigerian universities do not have laboratories or workshops space let alone usable equipment and facilities and where they exist, they are grossly inadequate, as the laboratories only have the items or equipment that were provided when the departments were established. It is however most surprising to know that most technical education departments still depends on engineering workshop and lecturers to teach technical education concepts in this 21st century.

The available facilities, programme as at today are inadequate quantitatively and qualitatively and besides they are obsolete. Daso (2012) indicated that only 40% of institutions of Higher Education in Nigeria have laboratory or workshop space for technical education programmes. The others, 60% do not have laboratory or workshop

space and that this reflects the low quality of technology programmes in higher institutions. He further noted that these few universities that have laboratories, experience acute shortage of laboratory equipment and supplies. Oryem-Oriya concluded that this situation is partly responsible for the reason it has been increasingly difficult to run experiments effectively for students and has made the teaching and research in science and technology difficult and therefore the country was producing insufficient and ill-prepared technical education graduates necessary for driving the technological and socio-economic development of Nigeria as a nation. The inadequacy in teaching, laboratory and workshop facilities has contributed to the diminution of the quality of technical education graduates in Nigeria. Daso (2012) citing Reyes – Guerra categorized students into three, namely: verbalizers, visualizers and doers. The verbalizers are those who learn easily if information is in written or spoken form. They benefit from lectures, tutorials and hand-outs. Visualizers learn easily when information is presented in pictorial or diagrammatic form while the Doers learn more easily when information is presented by practical demonstration by the lecturers. However, the inadequacy of facilities both qualitatively and quantitatively has put the visualizers and the Doers at a disadvantage. The verbalizers may also have problem in a class with large students' population. The implication of this scenario is that only a small proportion of the students benefit from the current pedagogical system (Daso, 2012).

g. Poor Public Perception and Apathy to Technical Vocational Education and Training:

Technical Vocational Education and Training (TVET) in Nigeria have a very low image and there is need for a turn around on its perception for public acceptance. Observations have shown that many parents especially the elites, the rich and the political class do not encourage their wards to make TVET a career and those people

who opt probably for TVET programme either by accident or chance are not motivated or encouraged because the society does not place any significant value or dignity on the programme. In Nigeria today, how many ministers, senators, vice chancellors, governors, local government chairmen, professors and even teachers of TVET do encourage their siblings to enlist for TVET certificates? Rather, they prefer them to study courses like Engineering, Pharmacy, Medicine, Law, Accounting etc. Therefore, boosting the image of government, TVET should be a serious concern to TVET practitioners, institutions and other stakeholders.

h. Curriculum Defect:

Most of the Nigerian universities and colleges that offer TVET programme do not have uniform course contents. Non uniformity in the course contents usually creates problems for students who may wish to transfer to another institution to complete their studies. This disparity in course contents of vocational technical education programme in Nigerian universities and colleges poses a great challenge for the standardization of the TVET programmes (Etuk & Asukwo 2015).

2.5 Resources for Teaching and Learning Motor vehicle mechanic in Technical Colleges

Resources from Educational perspectives connote all things in the school that may be used to help and facilitates teaching or learning. They include, human, financial and physical resources. Educational resources are tools that can work as a keys, support, complementary elements, etc. for education Oloyede (2003) classified educational resources into human and material resources. In terms of human resources required in schools, the most important are the teachers and the students. Human resource indicators include staff strength, teacher quantity, quality, qualification, and experience, while material resources include physical size of a school, physical facilities, and instructional facilities such as library, laboratories, and workshops.

Educational facilities refer to non-human and non-financial resources. They also include all movable and immovable materials, which are used for teaching, learning and other school activities. They are synonymous with schoo1 physical facilities, school material resources, and school plant and school facilities. Olagboye (2004) stated that educational facilities consist of instructional resources such as audio and visual aids, graphics, printed materials. Display materials and consumable materials. They also include physical resources such as land, building, furniture, equipment, machinery, vehicles, electricity and water supply infrastructure.

Teaching learning resources are all the things that teachers use to assist students to meet the expectations for learning defined by provincial or local curricula. Before a learning resource is used in a classroom, it must be evaluated and approved at either the provincial or local level. Evaluation criteria may include curriculum fit, social considerations, and age or developmental appropriateness. Chalk, board, duster, charts, av-aids, educational software, library and instructional material are the examples of learning resources. In another dimension Ojedele (2004) identified three components of educational facilities. These are school infrastructure, such as buildings and playgrounds; instructional Facilities (teaching-learning materials, equipment and furniture) and school physical environment (beautification of the school environment). Thus, here are the different kinds of resources that are used for implementing motor vehicle mechanic trade curriculum in government technical colleges as prescribed by the National Board for Technical Education (NBTE).

a. Human resources for teaching and learning motor vehicle mechanic trade are the technical teachers, workshop attendants, and cleaners.
b. Infrastructure is generally defined as the physical framework of facilities through which goods and services are provided to the public (Deepika, 2012)

Infrastructural facilities include classroom blocks, motor vehicle workshops, store, library, staff office, toilet, and bore hole.

c. Library Resources include motor vehicle mechanic textbooks, teacher guide, and motor vehicle mechanic curriculum.

d. Utilities include extinguishers, workbench, and first aid box.

e. Tools and equipment-a device or implement, especially one held in the hand, used to carry out a particular function. Motor vehicle mechanic hand tools are wide variety of non-powered devices used in motor vehicle mechanic repairs. Some general hand tools includes: measuring tools like callipers, micrometre, dial gauge, tachometer, and tap and die set. Equipment involves set of tools needed to perform different tasks that are part of the same activity. Equipment is classified into categories, these categories are general workshop equipment, electronic test equipment speciality equipment, Sand safety equipment Some general MVM workshop equipment includes: bench grinder, compressor, grease kit, oil drainage pump, oil extractor, jacks, engine crane, ratchets, sockets, drainers trolley, axel, pressure washer, work bench, mechanic work seat, radiator drainer, filter crusher, oscilloscope, impact wrench, air cutter, angle grinder, creeper, vice, engine stand, engine trolley, pressure washer, under hoist drainers, jack press ratchet wrench, and oil/water separator. Electronic test equipment includes equipment like: battery, jump starter, multi-meter, tests light, armature growler and leak detector. Some speciality equipment are: pipe bender, pulling ram kit, body straightening kit, injector cleaner, sand blasting cabinet, spring compressor, brake handler, hydraulic gear puller, hub tamer, fuel injector test kit, pressure brake bleeder, brake fluid tester. Safety equipment of devices includes: goggles, first aid, fire extinguisher, spill kit, oscillating fan exhaust extraction hose, and ear protector. These varieties of tools and equipment in motor vehicle mechanic trade imply that teaching and learning in

vocational and technical education are changing fast, not only in response to pressure from market but simply because of the challenges brought about as results of advancement in technology. Olayanju (2007) said that teaching and learning objectives in the area of motor vehicle mechanic trade at technical colleges.

f. Automobile workshop machines according to Hillier, Coombs and Roger (2006) are machines use to aid repairs in the workshop. These machines are usually powered by electric motors and are used extensively in auto repairs. General workshop machinery includes: tyre changer, wheel balancer, brake (lathe) machines, wheel aligners, and computer engine analyser, fly wheel grinder, dynamometer, metal lathe and injector cleaner.

2.6 Expected Standard of Resources for Teaching and Learning Motor Vehicle Mechanic Trade in Technical Colleges in Nigeria

The standard for the implementation of technical education programme (motor vehicle mechanic programme inclusive) is set by the National Board for Technical Education (NBTE). In setting standards both human and material resources are given consideration. The human resource required for implementing motor vehicle mechanic programme are qualified technical education teacher with at least a degree in technical education (B.Sc. (Ed) Technical Education) or higher national diploma in motor vehicle mechanic technology (HND motor vehicle mechanic Technology) in addition to certificate in education (NCE or PGDE). Also required is qualified motor vehicle mechanic technician/ machinist who should possess at least national technical certificate (NTC) in motor vehicle mechanic. An auto shop attendant is needed to take care of the workshop. The workshop attendant should possess apprenticeship certificate in motor vehicle mechanic and at least a First School Leaving Certificate (FSLC). On the other hand, material resources for implementing motor vehicle mechanic trade programme include infrastructural facilities, tools, equipment and machine. However, the infrastructural facilities

required for effective motor vehicle mechanic trade programme are well furnished classroom blocks, well-furnished staff office, well equipped motor vehicle laboratory, adequate power supply, staff and student toilet, adequate water supply and workbench.

2.7 Challenges of Implementing Motor Vehicle Mechanic Curriculum in Nigerian Technical Colleges

The challenges of implementing motor vehicle mechanic curriculum in Nigerian technical colleges are synonymous with the problems of general education in Nigeria. Egwu (2009) posited that some of the major challenges of the Nigerian education system (motor vehicle mechanic trade inclusive) includes;

a. Inadequate and obsolete infrastructure and equipment, for example poorly equipped motor vehicle mechanic technology education workshop and libraries, dilapidated classroom blocks.
b. Inadequate capacity in the institutions for internal/peer quality assessment.
c. Weak support structure for students Industrial Work Experience Scheme (SIWES).
d. Brain drain, human capital flight.
e. High incidence of cultism, examination malpractice and social and academic vices.
f. Unstable academic calendar.
g. Staff shortages across board.
h. Unattractive conditions of service for technical college teachers.
i. Inadequate funding of educational institutions.
j. Inadequate collaboration between educational institutions and organized private sector.

However, Udoka (2010), opined that the major challenge is funding. In same vein, Yusuf and Soyemi (2012), posited that inadequate financing is one of the problems of implementing technical education curriculum (motor vehicle mechanic curriculum inclusive) in technical colleges. Furthermore, Okoroafor (2010), also noted that; some of the problems of implementing technical education curriculum include;

i. Lack of sponsorship: Management of educational institutions find it difficult to sponsor the technical teachers/lecturers to seminars, conferences, and short courses claiming that there is lack of fund. This has reduced the rate at which the technical teachers/lecturers are upgraded.
ii. Inadequate infrastructure: Technical teachers/lecturers do not have the opportunity to put what they have learnt into practice due to lack of infrastructure.
iii. Inadequate Timing: Time should be provided for technical teachers/lecturers to go and upgrade themselves. Work load should not be so demanding that they preclude technical teachers/lecturers from research and time to develop new skills, abilities and knowledge through research and innovation.
iv. Lack of reward for excellence.

However, Nwogu and Nwanoruo (2011), stated that the challenges of technical education are numerous, which include lack of skilled manpower; acute shortage of technical teachers; and poor funding of technical education. Consequently, Olaitan in Odu (2011) posited that the following challenges confront the implementation of Technical Teacher Training Programme in Nigeria. These include insufficient material resources for training; dearth of qualified TVET educators; and the use of the quota system for selection of students in TVET teachers training programme.

In same vein Odu (2011) stated that, some of the challenges of Human Capital Development include inadequate funding; poor workshop organization; and inadequate instructional materials. Others challenges as posited by Okebukola (2012), include teachers inadequacies; funding inadequacies; gross Inadequacies in facilities; harsh and intimidating classroom; poor quality preparation of lesson by TVET teachers; resource inadequacy; unhealthy classroom; shortage of equipment; and social vices. According to Mohammed (2005), one of the problems of Technical and Vocational Education in Nigeria is the lack of motivated teachers and the reason for this lack of motivation could easily be traced to the low esteem of the teachers. More so, Onjewu (n.d.) posited that the lack of funds on the other hand affects other essentials needed in the implementation of technical education like the provision of teaching aids, furnishing of offices, laboratories, workshops and even basic infrastructures like classroom, seats and tables, so that a common sight to find students of architecture for instance sharing a table where each ideally should have one because of the technical nature of their course. Ekpenyong (2011) posited that, there are a number of factors, which have in various proportions impeded the smooth implementation of the goals and objectives of technical education. Some of the outstanding factors affecting the implementation of technical education include inadequate supply of technical teachers and equipment, misinterpretation of policy and public perception of technical education, technical college-industry relationship problem, poor condition of services of technical teachers, and inadequate guidance and placement services for technical students.

Accordingly, the National Board for Technical Education (NBTE, 2011), opined that, the underlining challenges of technical education sector include; low societal recognition, which translate to low enrolment and inadequate skilled workforce, obsolete instructional facility, inadequate funding, poor staffing, poor linkages with industry and general deficiency in quality. In addition, evaluation in all sectors of education tends to be by conventional

examinations, which generally does not factor in practical techniques in the industry. There are numerous challenges facing technical education in Nigeria. According to Aigbepele (2011) these challenges include;

i. Negative public attitude towards technical education. Aigbepele further stated that, most people see technical education as inferior and therefore will not want their ward to go into profession.
ii. Inadequate basic infrastructure facilities, workshops and laboratory.
iii. Inadequate funding of technical education.
iv. Inadequate and ill-equipped technical education staff.
v. Irregular review of the curriculum for technical education.

A critical assessment of government technical colleges in Nigeria revealed that some machines supplied by the federal government as far back as 1982 to technical colleges are still lying in crates (in some cases outside) for lack of workshops to install them. Parts of these machines have depreciated; others have disappeared over night or converted to personal use by domestic thieves (Ekunke, 2008). In some cases, the few machines available have become too old to be used or have broken down due to lack of maintenance. Facilities that are functioning have no electricity to power them.

2.8 Ways of Improving Resources in Motor Vehicle Mechanic Curriculum in Nigerian Technical Colleges

The availability of adequate and qualified teachers cannot be compromised for the success of Motor Vehicle Mechanic Trade n in government technical colleges in Nigeria. Federal Ministry of Education, Science and Technology 1985 decided to enhance the academic performance of students in different institution by equipping the schools with standard equipment .Umunadi (2013), stated that facilities which include the buildings, equipment, tools and school materials should be made available for effective use in schools, due to the fact that One of the major problems in technical colleges in Nigeria is lack of materials and equipment. According to Asabiaka (2008) stated that some of the ways in which resources used in motor vehicle mechanic curriculum can be improved includes:

a. Provision of qualified staff(such as teachers, workshop attendant/machinist) Providing the adequate number of staffs across board
b. Provision of adequate infrastructure for example an equipped motor vehicle mechanic workshops and libraries, dilapidated classroom blocks, student toilets good water and power supply.
c. Providing attractive and conducive environment for technical college staffs
d. Provision of adequate tools equipment and machines
e. Proper funding of educational institutions
f. Providing proper workshop organization
g. Providing adequate instructional materials

Aggarwal (2006) commenting on the vital role of the teacher puts it succinctly by positing that premises and equipment are needed in the education enterprise and persons are vital to them and a teacher is the supreme factor. There is no exaggeration that a spacious building, costly equipment, and a sound syllabus will serve some useful purpose only when there are teachers who are fully alive to the nobility of the profession and its accompanying responsibilities. Gwarzo in Okwori (2012) disclosed that adequate of equipment in schools will make our

students have ample opportunities to see and manipulate them in order to acquire the necessary knowledge and skills. In the same vein Buseri (2010) posited that to meet up with the rapid scientific progress in technology requires the presence of well trained, efficient, knowledgeable and skilful teachers who are versatile in the discharge of their duties and responsibilities.

2.9 Summary of Review of Related Literature

The review of related literature discussed Historical Development of Technical Education in Nigeria, Problems of the Technical College Teacher, Objectives of Technical College Education , Challenges of Technical Vocational Education in Nigeria , Resources for Teaching and Learning Motor vehicle mechanic in Technical Colleges, Expected Standard of Resources for Teaching and Learning Motor Vehicle Mechanic Trade in Technical Colleges in Nigeria, Challenges of Implementing motor vehicle mechanic Curriculum in Nigerian Technical Colleges, Ways of Improving Resources in motor vehicle mechanic Curriculum in Nigerian Technical Colleges

However, the review of related literature indicated that researches have been conducted to assess resources in technical colleges in other part of the country and other developing countries in Africa, but in Kogi State no study known to the researcher has being carried out to assess resources for teaching and learning motor vehicle mechanic technology in government technical colleges. Furthermore, the results from these researches have produced controversial outcome since some researchers reported that there are available resources for teaching and learning in technical colleges, others reported that the available resources for teaching and learning is inadequate. Consequently, majority of the researches are not conducted properly, since most of the researchers use only questionnaires to collect data and also the researchers do not personally observe the resources evaluated. In this study, the researcher used questionnaire and checklist developed based on NBTE required

resources for teaching and learning motor vehicle mechanic trade in technical colleges to collect data personally from, principals, vice principals, and motor vehicle mechanic personnel including heads of department of motor vehicle mechanic in all the six technical colleges in Kogi State. There is need to conduct this study due to the fact that no assessment study known to the researcher has been conducted to assess motor vehicle mechanic trade resources for teaching and learning in Kogi State technical colleges. Hence, the findings from this assessment study will remain a reference point to researchers in the field of technical education and related field.

CHAPTER THREE

3.0 METHODOLOGY

This chapter was discussed under the subheadings: Research design, Area to the Study, Population of the Study, Instrument for Data Collection, Validation of the Instrument, Reliability of the Instrument, Method of Data Collection, and Method of Data Analysis.

3.1 Research Design

Descriptive survey research design was used for the study. Questionnaire was used to seek the opinion of teachers and students on the investigated issue. This research designs was considered appropriate because no variable was manipulated in this study. Descriptive survey research design has been successfully used by (Adeyemi, 2008), Okwori (2012), and Bello & Shuaibu (2013). Therefore, survey design is considered suitable since the study sought information from a sample that was gotten from the population of the study using questionnaire.

3.2 Area of the Study

The study will be conducted in Kogi State of Nigeria. Kogi State is located in central Nigeria. The state capital is Lokoja, and other major cities are Ankpa, Anyinba, Idah, oboruke kabba and okene. Kogi state was formed in 1991 from parts of Kwara State and Benue State .(http//google.kogistate location)

3.3 Population of the Study

The targeted population for the study were two respondents comprising of 124 Technical College motor vehicle mechanic students and 28 motor vehicle mechanic teachers. The study was carried out in all four Government Technical Colleges in Kogi State. The Technical Colleges are Government Technical College Ankpa, Government Technical College Idah, Government Technical College Mopa, and Government Technical College Oboroke all in Kogi State, Nigeria.

3.4 Sampling Technique

Simple random technique was used for the study because the population is too large and will not be accessible. A sample of 65 will be randomly selected to represent the entire population comprising of 35 Technical College motor vehicle mechanic students and 30 motor vehicle teachers.

3.5 Instrument for Data Collection

The instrument used for data collection in this study was structured questionnaire. The questionnaire was on a 4- point rating scale of Highly Available (HA), Available (A), Moderately Available (MA) and Not Available (NA) for research question one and two; Strongly Agreed (SA), Agreed, Disagreed (DA), and Strongly Disagreed(SD) for research question three with a corresponding weight of 4, 3, 2, and 1 respectively. The questionnaire is divided into two parts, part one contains personal data of the respondent and part two has three sections based on the research questions, Section A is on the availability and adequacy of human resources, Section B is on the availability and adequacy of material resources, C is on the ways of improving human and materials for teaching and learning Section A, B, and C has 9, 15, and 16, items respectively.

3.6 Validation of Instrument

The instrument was validated by three Automobile Technology Lecturers from the Department of Industrial and Technology Education, Federal University of Technology, Minna. These lecturers' suggestion and corrections were used in modifying the instrument, to ensure that the items are clearly stated and appropriate for the stated research questions and hypotheses. The validated questionnaire items by the validators was used for data collection and data analyses.

3.7 Reliability of the Instrument

Cronbach Alpha reliability test was used to establish the internal consistency of the instrument. This is in line with Nworgu (2005) assertion that reliability concerns the consistency with which an instrument measures whatever it supposes to measure. Data was generated by collation of administered questionnaire to technical college in Lagos state which is outside the area of study. The instrument was administered to 65 respondents and 50 questionnaire were retrieved (i.e. 85% returned). It was face validated and tested for reliability which yielded a coefficient of 0.85.

3.8 Method of Data Collection

The researcher administered the questionnaire personally on the sixty five motor vehicle mechanic teachers and students. Also the researcher with the assistance of the Heads of Department of motor vehicle mechanic in the four (4) technical colleges administered the checklist together through joint observation.

3.9 Method of Data Analysis

Data relating to the research questions was analysed using mean while the t-test statistic and standard deviation via SPSS23 was used for testing the hypotheses at 0.05 level of significance. Any mean response of 2.50 and above is regarded as 'Adequate' and mean response below 2.50 was regarded as 'Inadequate'. Furthermore, judging with the NBTE benchmark for motor vehicle mechanic resources, when the resource available is lower than the minimum resource required, such resource or item was regarded as inadequate and when it is equal or greater than the minimum resources required, the resources or item was regarded as adequate. Also for testing the null hypotheses, if the calculated t-value is equal to or greater than the t-table value (t-critical), the null hypothesis was rejected at 0.05 level of significance. Otherwise accepted.

CHAPTER FOUR

4.0 PRESENTATION AND ANALYSIS OF DATA

This chapter presents the analysis of data collected from the research work. The data is organised based on the research questions and the null hypothesis (HO) formulated for the study.

4.1 Research Questions Presentation

4.1.1 Research question 1

Are the human resources available for the teaching and learning of motor vehicle mechanic in technical colleges, Kogi State?

Table 4.1.1

Mean respondent of motor vehicle mechanic teachers and students on the availability of human resources for teaching and learning of motor vehicle mechanic in technical colleges, Kogi state **N_1=14, N_2=36**

S/NO	ITEM	$\overline{X_1}$	$\overline{X_2}$	$\overline{X_T}$	REMARK
1.	Qualified Motor Vehicle Mechanic Technicians	3.46	3.68	3.57	Available
2.	Qualified Motor Vehicle Mechanic Teachers	3.38	3.32	3.35	Available
3.	Cleaners	3.23	3.43	3.33	Available
4.	Motor Vehicle Mechanic Craftsmen	2.85	3.14	2.99	Available
5.	Workshop Attendants	3.62	3.41	3.51	Available
6.	Administrators	3.23	3.41	3.32	Available
7.	Technical Instructors	3.15	3.35	3.25	Available
8.	Laboratory Technicians	2.31	1.97	2.14	Unavailable
9.	Librarians	3.38	3.16	3.27	Available

Keys: N_1= Numbers of teachers, N_2= Numbers of students, $\overline{X_1}$= Mean of teachers, $\overline{X_2}$= Mean of students, X_t= $\overline{\text{Ave}}$rage mean of teachers and students.

The result of analysis presented in Table 4.1.1 shows that Items 1,2,3,4,5,6,7, and 9 with their mean responses ranging from 2.51 to 3.57 were all available. This is so because their mean responses are above 2.50, they were the human resources available for the teaching and learning of motor vehicle mechanic trade. While item 8 with mean response of 2.14 was not available.

4.1.2 Research Question 2

Are there adequate material resources for teaching and learning of motor vehicle mechanic in technical colleges Kogi State?

Table 4.1.2

Mean respondent of motor vehicle mechanic teachers and students on the adequacy of material resources for teaching and learning of motor vehicle mechanic in technical colleges Kogi State **N_1=14, N_2=36**

S/NO	ITEM	$\overline{X_1}$	$\overline{X_2}$	$\overline{X_T}$	REMARK
1.	Automobile workshop and space for practical	3.38	3.51	3.44	Available
2.	Bench vices/clamps for practical	3.31	3.11	3.21	Available
3.	Extractor for taking foul gases away from the auto workshop	2.85	2.05	2.45	Unavailable
4.	Functional engine dynamometer, injector cleaner.	2.38	2.19	2.28	Unavailable
5.	Cylinder boring machines	2.08	2.81	2.44	Unavailable
6.	Regular standby generators	2.31	3.22	2.76	Available
7.	Wheel grinder for grinding	2.15	2.32	2.23	Unavailable
8.	Wheel balancing equipment	2.69	2.68	2.68	Available
9.	Wheel alignment equipment	2.15	2.19	2.17	Unavailable
10.	Computer engine analyzer	1.77	2.62	2.19	Unavailable
11.	Hand held automobile diagnostic scan tools	2.69	2.76	2.72	Available
12.	Body repair kits pipe bender and body straightening kit	2.62	3.16	2.89	Available
13.	Fuel injection kit	1.77	1.81	1.79	Unavailable
14.	Measuring tools like calipers, micrometer, dial gauge and tachometer	2.85	3.41	3.13	Available
15.	Brake fluid tester, pressure bleeder equipment.	2.62	2.32	2.47	Unavailable

Keys: N_1= Numbers of teachers, N_2= Numbers of students, $\overline{X_1}$= Mean of teachers, $\overline{X_2}$= Mean of students, X_t= Average mean of teachers and students.

The result of analysis presented in Table 4.1.2 shows that Items 1, 2, 6, 8, 11, 12 and 14 with their mean responses ranging from 2.68 to 3.44 were all adequate. This is so because their mean

responses are above 2.50, they were the material resources adequate for the teaching and learning of motor vehicle mechanic trade. While items 3, 4,7,9,10,13 and 15 with mean responses below 2.50 were not adequate.

4.1.3Research Question 3

What are the ways of improving human and material resources for teaching and learning motor vehicle mechanic in technical colleges Kogi state?

Table 4.1.3

Mean respondent of motor vehicle mechanic teachers and students on ways of improving human and material resources for teaching and learning motor vehicle mechanic in technical colleges Kogi State **N_1=14, N_2=36**

S/NO	ITEM	$\overline{X_1}$	$\overline{X_2}$	$\overline{X_T}$	REMARK
1.	Employing Qualified Number of Motor Vehicle Mechanic teachers	3.46	3.38	3.42	Agreed
2.	Employing Qualified Number of Motor Vehicle Mechanic Technicians	3.31	3.51	3.41	Agreed
3.	Employing Qualified Workshop Attendant	3.54	3.22	3.38	Agreed
4.	Provision of a proper workshop	3.69	3.59	3.64	Agreed
5.	Provision of adequate power and water supply	3.46	3.32	3.39	Agreed
6.	Provision of library	3.08	3.32	3.20	Agreed
7.	Adequate number of workbenches	3.38	3.49	3.43	Agreed
8.	Body repair kit	3.46	3.49	3.47	Agreed
9.	Fuel injector test kit	2.62	2.27	2.44	Disagreed
10.	Automobile diagnostic scan tools	2.92	3.49	3.20	Agreed
11.	Providing measuring tools	3.08	3.51	3.29	Agreed
12.	Computer engine analyzer	2.85	2.92	2.88	Agreed
13.	Wheel balancing equipment	2.92	3.22	3.07	Agreed
14.	Crankshaft cutting machine	2.54	3.08	2.81	Agreed
15.	Brake fluid tester, brake pressure bleeder equipment	2.38	3.24	2.81	Agreed
16.	Cooling system pressure tester	2.46	2.43	2.44	Disagreed

Keys: N_1= Numbers of teachers, N_2= Numbers of students, $\overline{X_1}$= Mean of teachers, $\overline{X_2}$= Mean of students, X_t= Average mean of teachers and students.

The result of analysis presented in Table 4.1.3 shows that Items 1,2,3,4,6,7,8,10,11,12,13,14 and 15 with their mean responses ranging from 2.81 to 3.64 were all agreed and required for improving human and material resources for teaching and learning of motor vehicle mechanic trade. While items 9 and 16 with mean response below 2.50 were not agreed, hence showing no relevance from respondents.

4.2 Research Hypotheses

4.2.1 Hypothesis 1

HO_1: There is no significant difference in the mean response of students and motor vehicle mechanic teachers on the sufficiency of human resources for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges.

Table 4.2.1: show the analysis of motor vehicle mechanic students and motor vehicle mechanic teachers on the sufficiency of human resources for the teaching and learning of motor vehicle mechanic in technical colleges Kogi State. ***N_1=14, N_2=36***

S/NO	ITEM	SD_1	SD_2	t-cal	REMARK
1.	Qualified Motor Vehicle Mechanic Technicians	0.66	0.47	-1.07	NS
2.	Qualified Motor Vehicle Mechanic Teachers	0.50	0.53	0.35	NS
3.	Cleaners	0.72	0.55	-1.03	NS
4.	Motor Vehicle Mechanic Craftsmen	0.89	0.71	-1.17	NS
5.	Workshop Attendants	0.50	0.59	1.12	NS
6.	Administrators	0.59	0.55	-0.96	NS
7.	Technical Instructors	0.68	0.48	-1.12	NS
8.	Laboratory Technicians	0.94	1.01	-1.04	NS
9.	Librarians	0.65	0.76	0.93	NS

Keys: N_1= Numbers of teachers, N_2= Numbers of students, SD_1= Standard deviation of teachers, SD_2= Standard deviation of students, S= Significant, NS= Not Significant, T= t-test, t-critical= ±1.96

From the table above, items 1, 2, 3, 4, 5, 6, 7, 8 and 9 are less than the t-critical (1.96), thus the null hypothesis of there is no significant difference between the mean response of principals and motor vehicle mechanic teachers on the sufficiency of human resources for the teaching and learning of motor vehicle mechanic in technical colleges Kogi State.

4.2.2 Hypothesis 2

HO_2: There is no significant difference in the mean response of students and motor vehicle mechanic teachers on the sufficiency of tools and equipment for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges.

Table 42.2: show the analysis of motor vehicle mechanic students and motor vehicle mechanic teachers on the sufficiency of tools and equipment for the teaching and learning of motor vehicle mechanic in technical colleges Kogi State. N_1=14, N_2=36

S/NO	ITEM	SD_1	SD_2	t-cal	REMARK
1.	Automobile workshop and space for practical	0.65	0.55	-0.68	NS
2.	Bench vices/clamps for practical	0.75	0.65	0.90	NS
3.	Extractor for taking foul gases away from the auto workshop	1.14	0.81	2.70	S
4.	Functional engine dynamometer, injector cleaner	1.04	0.84	0.67	NS
5.	Cylinder boring machines	1.03	0.96	-2.31	S
6.	Regular standby generators	1.10	0.63	-2.79	S
7.	Wheel grinder for grinding	0.98	1.08	-0.49	NS
8.	Wheel balancing equipment	1.03	0.97	0.52	NS
9.	Wheel alignment equipment	1.14	0.93	-0.11	NS
10.	Computer engine analyzer	0.83	1.03	-2.67	S
11.	Hand held automobile diagnostic scan tools	1.18	0.86	-0.21	NS
12.	Body repair kits pipe bender and body straightening kit	1.12	0.68	-1.65	NS
13.	Fuel injection kit	0.83	0.73	-0.16	NS
14.	Measuring tools like calipers, micrometer, dial gauge and tachometer	0.68	0.55	-2.94	S
15.	Brake fluid tester, pressure	0.87	0.85	1.05	NS

bleeder equipment

Keys: N_1= Numbers of teachers, N_2= Numbers of students, SD_1= Standard deviation of teachers, SD_2= Standard deviation of students, S= Significant, NS= Not Significant, T= t-test, t-critical= ±1.96

From the Table 4.4, items 2, 3, 4, 5, 7, 8, 9 and 10 are less than the t-critical (1.96), thus the null hypothesis of there is no significant difference between the mean response of motor vehicle mechanic students and teachers on the sufficiency of tools and equipment for the teaching and learning of motor vehicle mechanic in technical colleges Kogi State.

4.3 Findings of the Study

The following findings emerged from the study based on the research questions presented.

Research Question 1

What are the human resources available for the teaching and learning of motor vehicle mechanic in technical colleges, Kogi State?

The findings of the study revealed that all the itemized human resources available for the teaching and learning of motor vehicle mechanic in technical colleges, Kogi State:

1. Qualified Motor Vehicle Mechanic Technicians
2. Qualified Motor Vehicle Mechanic Teachers
3. Cleaners
4. Motor Vehicle Mechanic Craftsmen
5. Workshop Attendants
6. Administrators
7. Technical Instructors
8. Librarians

While the study also revealed that Laboratory technicians was the human resource that is unavailable for teaching and learning of motor vehicle mechanic trade in Technical Colleges in Kogi State

Research Question 2

Are there adequate material resources for teaching and learning of motor vehicle mechanic in technical colleges Kogi State?

The findings of the study revealed that all the itemized adequate material resources for teaching and learning of motor vehicle mechanic in technical colleges Kogi State:

1. Automobile workshop and space for practical.
2. Bench vices/clamps for practical.
3. Regular standby generators
4. Wheel balancing equipment
5. Hand held automobile diagnostic scan tools
6. Body repair kits pipe bender and body straightening kit
7. Measuring tools like calipers, micrometer, dial gauge and tachometer

While the study also revealed that the following items were not adequate for teaching and learning of motor vehicle mechanic trade in Technical Colleges in Kogi State:

1. Extractor for taking foul gases away from the auto workshop
2. Functional engine dynamometer, injector cleaner.
3. Cylinder boring machines
4. Wheel grinder for grinding
5. Wheel alignment equipment
6. Computer engine analyzer
7. Fuel injection kit
8. Brake fluid tester, pressure bleeder equipment

Research Question 3

What are the ways of improving human and material resources for teaching and learning motor vehicle mechanic in technical colleges Kogi state?

The findings of the study revealed that all the itemized ways of improving human and material resources for teaching and learning motor vehicle mechanic in technical colleges Kogi state:

1. Employing Qualified Number Motor Vehicle Mechanic teachers
2. Employing Qualified Number Motor Vehicle Mechanic Technicians
3. Employing Qualified Workshop Attendant
4. Provision of a proper workshop
5. Provision of adequate power and water supply
6. Provision of library
7. Adequate number of workbenches
8. Body repair kit
9. Automobile diagnostic scan tools
10. Providing measuring tools
11. Computer engine analyzer
12. Wheel balancing equipment
13. Crankshaft cutting machine
14. Brake fluid tester, brake pressure bleeder equipment

While the following items were not needed for improving human and material resources for teaching and learning motor vehicle mechanic trade in Technical Colleges in Kogi State:

1. Fuel injector test kit
2. Cooling system pressure tester

There is no significant difference in the mean response of students and motor vehicle mechanic teachers on the sufficiency of tools and equipment for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges.

There is no significant difference in the mean response of students and motor vehicle mechanic teachers on the sufficiency of tools and equipment for the teaching and learning of motor vehicle mechanic in Kogi State technical colleges.

4.4 Discussion of Findings

The findings from research question one of this study revealed that Qualified Motor Vehicle Mechanic Technicians, Qualified Motor Vehicle Mechanic Teachers, Cleaners, Motor Vehicle Mechanic Craftsmen, Workshop Attendants, Administrators, Technical Instructors and Librarians are the human resources available for the teaching and learning of motor vehicle mechanic in technical colleges, Kogi State. The findings of this study goes in line with the study conducted by Adeyemi (2008), on the availability of teaching manpower in technical colleges. Also there is no significant difference in the mean response of students and motor vehicle mechanic teachers on the sufficiency of human resources for the teaching and learning of motor vehicle mechanic trade on all the items. Therefore the null hypothesis of no significant difference was upheld for all items.

The findings from research question two of this study revealed that not all the listed motor vehicle mechanic material resources were available based on the NBTE minimum standard for material resources availability at technical colleges. The following materials among others were not available: extractor for taking foul gases away from the auto workshop, functional engine dynamometer, and injector cleaner, cylinder boring machines, wheel grinder for grinding, wheel alignment equipment, computer engine analyzer, fuel injection kit, Brake fluid tester, and pressure bleeder equipment. The findings of the study is in conformity with a study conducted by Aggarwal (2006), on the need of equipment and tools for effective teaching and

learning of Motor vehicle mechanics in technical colleges, in which his findings shows that the non-availability of material resources for teaching and learning of mechanical trade in technical college is among the major reasons why graduating craftsmen finds it difficult to set up their own motor vehicle mechanics workshop to practice motor vehicle mechanics trade. Meanwhile there was a significant difference on three (5) items on the sufficiency of tools and equipment for teaching and learning of motor vehicle mechanic trade in Technical colleges in Kogi State .Therefore the null hypothesis of no significant difference was upheld for the seven (10) items but was not upheld for the 5 items.

The findings from research question three of this study revealed that respondents agreed with most of the human and material resources required for improving teaching and learning motor vehicle mechanic in technical colleges. The study revealed that the following among others were not relevant: automobile diagnostic scan tools, cooling system pressure tester. These findings were in consonance with the opinions of Ekunke (2008), Poripo (2012) among others with the need of improving human and material resources for teaching and learning of motor vehicle mechanic trade in technical colleges.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the Study

The study is on the assessment of human and material resources for the teaching and learning of motor vehicle mechanic in technical colleges Kogi State. The study specifically focused on finding answers to the following research questions: what are the human resources available for the teaching and learning of motor vehicle mechanic in technical colleges Kogi State; are there adequate material resources for teaching and learning of motor vehicle mechanic in technical colleges Kogi State; what are the ways of improving human and material resources for teaching and learning motor vehicle mechanic in technical colleges Kogi state.

The review of related literature of this study was carried out in chapter two. The related literatures was reviewed under the following sub heading: historical development of technical education in Nigeria, problems of the technical college teacher, objectives of technical college education, challenges of technical vocational education in Nigeria, resources for teaching and learning motor vehicle mechanic in technical colleges, expected standard of resources for teaching and learning motor vehicle mechanic trade in technical colleges in Nigeria, challenges of implementing motor vehicle mechanic curriculum in Nigerian technical colleges, ways of improving resources in motor vehicle mechanic curriculum in Nigerian technical colleges and summary of review of related literature. It was discovered that the issue of assessment of human and material resources for teaching and learning of motor vehicle mechanic trade has faced many challenges in Nigeria which has hindered effective teaching and learning in technical colleges.

The method of data analysis was described in chapter three. The study employed a survey research design with the use of structured questionnaire of 40 items to collect data for assessing human and material resources for teaching and learning motor vehicle mechanic in technical colleges in Kogi State.

The population for study comprised 152 respondents made up of 124 motor vehicle mechanic students and 28 motor vehicle mechanic teachers. Simple random technique was used for the

study because the population is too large and was not be accessible. A sample of 65 was randomly selected to represent the entire population comprising of 35 motor vehicle mechanic students and 30 motor vehicle teachers.

The data collected were analysed using mean and standard deviation to answer the research questions; while t-test statistics was used for testing the null hypothesis at 0.05 level of significance.

5.2Implication of the Study

The findings of the study have implications on the quality of technical college education in Nigeria, on the government and administrators of technical colleges, technical teachers and National Board for Technical Education (NBTE). Based on the first research question, it was discovered that not all the required human resources were available for effective teaching and learning of motor vehicle mechanic trade in technical colleges. Based on the second research question, it was revealed that most of material resources required for effective teaching and learning of motor vehicle mechanic trade in technical colleges were not available. Based on the third research question, it was revealed that almost all the items listed for improving teaching and learning of motor vehicle mechanic trade in technical colleges were required.

5.3 Conclusion

Based on the findings of this study, it was concluded that human and material resources for teaching and learning of motor vehicle mechanic trade in technical colleges in Kogi State were inadequate when it was assessed based on NBTE standard of expected resources for implementing motor vehicle mechanic programme at the technical college level. Conclusively,

Kogi State technical colleges are in dire need of human resources such as qualified and competent laboratory technicians. Also, the technical colleges are in need of material resources such as functional engine dynamometer, fuel injector test kits, measuring tools etc.

5.4 Recommendations

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

1. Adequate human resources such as qualified motor vehicle mechanic teachers/instructors, motor vehicle mechanic technicians, motor vehicle mechanic craftsman and workshop attendants should be employed in Kogi State technical colleges for effective implementation of motor vehicle mechanic curriculum.
2. Material resources such as motor vehicle mechanic workshop, bench vices, measuring tools standby generators should be adequately provided in Kogi State technical colleges by the government for effective implementation of motor vehicle mechanic curriculum.
3. Periodically organizing retraining courses should be made available by technical college authorities to update and upgrade the professional skills of motor vehicle mechanic teachers.
4. Curriculum planners and developers should regularly update and upgrade the curriculum for training of motor vehicle mechanic teachers to equip the teachers with the technical and pedagogical skills needed to facilitate teaching and learning of motor vehicle mechanic trade via the use of tools and equipment.
5. The National Board for Technical Education (NBTE) and the technical college authority should develop mechanism to monitor and ensure the provision of adequate human and material resources for teaching and learning motor vehicle mechanic trade in technical colleges.

5.5 Suggestions for Further Research

Based on the findings of the study, the following suggestions were made for further study:

1. Assessment of Human and Material Resources for the Teaching and Learning of Motor vehicle mechanic trade in Government Technical Colleges in Kaduna State of Nigeria
2. Assessment of Human and Material Resources for the Teaching and Learning of Motor vehicle mechanic trade in Government Technical Colleges in North-East Geopolitical Zone of Nigeria.
3. Assessment of Human and Material Resources for the Teaching and Learning of Motor vehicle mechanic trade in Government Technical Colleges in Northern Nigeria.

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APPENDIX B

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION

QUESTIONAIRE ON:

ASSESSMENT OF HUMAN AND MATERIAL RESOURCES FOR TEACHING AND LEARNING OF MOTOR VEHICLE MECHANIC TRADE IN TECHNICAL COLLEGES KOGI STATE.

SECTION A

Personal Data

Please kindly respond to the necessary information required below. The information provided will be strictly used for the purpose of this research study.

Please tick the appropriate box

Motor Vehicle Mechanic Teacher ☐

TCIII Motor Vehicle Mechanic Student ☐

RESPONSE GUIDE

Guide on how to respond to the questionnaire: use the following rating scale to indicate your opinion by ticking the phrase that best describes your level of agreement to the items

Response Categories for Section A and B

- Highly Available(HA) 4 points
- Available(A) 3 points
- Moderately Available(MA) 2 points
- Not Available(NA) 1 point

Response Categories for Section C

- Strongly Agreed (SA) 4 points
- Agreed (A) 3 points
- Disagreed (DA) 2 points
- Strongly Disagreed (SD) 1 point

SECTION B

Research Question 1

What are the human resources available for the teaching and learning of motor vehicle mechanic in technical colleges, Kogi State?

S/N	ITEMS	Highly Available (HA)	Available (A)	Moderately Available (MA)	Not Available (NA)
1	Qualified Motor Vehicle Mechanic Technicians				
2	Qualified Motor Vehicle Mechanic Teachers				
3	Cleaners				
4	Motor Vehicle Mechanic Craftsmen				
5	Workshop Attendants				
6	Administrators				
7	Technical Instructors				
8	Laboratory Technicians				
9	Librarians				

Research Question 2

Are there adequate material resources for teaching and learning of motor vehicle mechanic in technical colleges Kogi State?

S/N	ITEMS	Highly Available (HA)	Available (A)	Moderately Available (MA)	Not Available(NA)
1	Automobile workshop and space for practical.				
2	Bench vices/clamps for practical.				
3	Extractor for taking foul gases away from the auto workshop				
4	Functional engine dynamometer, injector cleaner.				
5	Cylinder boring machines				
6	Regular standby generators				
7	Wheel grinder for grinding				
8	Wheel balancing equipment				
9	Wheel alignment equipment				
10	Computer engine analyzer				
11	Hand held automobile diagnostic scan tools				
12	Body repair kits pipe bender and body straightening kit				
13	Fuel injection kit				
14	Measuring tools like calipers, micrometer, dial gauge and tachometer				
15	Brake fluid tester, pressure bleeder equipment.				

Research Question 3

What are the ways of improving human and material resources for teaching and learning motor vehicle mechanic in technical colleges Kogi state?

S/N	ITEM	Srongly Agreed(SA)	Agreed(A)	Disagreed(DA)	Strongly Disagreed(SD)
1	Employing Qualified Number Motor Vehicle Mechanic teachers				
2	Employing Qualified Number Motor Vehicle Mechanic Technicians				
3	Employing Qualified Workshop Attendant				
4	Provision of a proper workshop				
5	Provision of adequate power and water supply				
6	Provision of library				
7	Adequate number of workbenches				
8	Body repair kit				
9	Fuel injector test kit				
10	Automobile diagnostic scan tools				
11	Providing measuring tools				
12	Computer engine analyzer				
13	Wheel balancing equipment				
14	Crankshaft cutting machine				
15	Brake fluid tester, brake pressure bleeder equipment				
16	Cooling system pressure tester				