

**EVALUATION ON THE IMPLEMENTATION OF MOTOR VEHICLE
MECHANIC WORKSHOP PROGRAMME IN TECHNICAL COLLEGE
LEVEL IN NIGER STATE**

BY

**LADEJI, IDUNUOLUWA BERNARD
2016/1/63724TI**

**DEPARTMENT OF INDUSTRIAL TECHNOLOGY EDUCATION
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA**

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**A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF
INDUSTRIAL AND TECHNOLOGY EDUCATION, FEDERAL
UNIVERSITY OF TECHNOOY, MINNA IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR THE
AWARD OF BACHELOR OF TECHNOLOGY
DEGREE (B. TECH) IN INDUSTRIAL AND
TECHNOLOGY EDUCATION**

MARCH, 2023

DECLARATION

I..... Matric No:
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.

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External Examiner

Signature & Date

DEDICATION

This project work is dedicated to my beloved parents Pst. and Mrs. George Florence Ladeji. May God almighty continue to bless them all the days of their lives.

ACKNOWLEDGEMENTS

I wish to acknowledge my deepest gratitude to God almighty for seeing me throughout my entire academic journey and through my project work, making it a success. My profound gratitude goes to my project supervisor, Mr. Stephen Yisa, for all his patience in guiding me to ensure that I follow all the standard practices for a good project work, also for his useful comments, suggestions and resourcefulness to the completion of this project work. I also appreciate the head of department, Dr. T. M Saba, the project coordinator, DR. A.M Hassan and to all my lecturers in the department and all the staff of the department of industrial and technology education for all their contributions to my entire academic journey I say thank you all. Special appreciation goes to my parents Mr. and Mrs. George Florence Ladeji for their moral, spiritual and financial support all through my program. I am forever grateful to you both and may the lord continue to blessing you. Thank you. To Professor and Mrs Segun Stella Oyero. I am grateful for your hospitality, for taking me in as your son. Thank you so much. To my amazing Aunt and her husband Pst. and Mrs. Oluwagbotemi Oluwadamilola Oluwadahunsi, thank you for being there for me always, for your hospitality, financial and moral support I am eternally grateful to you both. May God keep blessing you. To my other siblings David Ladeji, Sarah Ladeji and Michael Ladeji, thank you for all you do for me.

ABSTRACT

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CHAPTER ONE

1.0

INTRODUCTION

1.1 Background to the study

The outbreak of the novel coronavirus (COVID-19) and its evolution into a pandemic has seriously impacted the globe with grave consequences across many sectors in the member countries and the world at large. The pandemic has reportedly caused wide human misery and suffering and pushed the socio-economic well-being of people to the verge of collapse (International Labour Organisation (ILO), 2020).

The education sector and labour market felt the immediate impact of the pandemic and were instantaneously challenged with the precautionary measures and lockdowns undertaken in an attempt to slow down the spread of the virus. The workforce was initially hit as the global and domestic demand for products declined and curbing labour mobility was considered one of the most effective measures to tackle the spread of virus (World Health Organisation WHO, 2020). The education sector was also severely impacted with the widespread closure of education institutions. Since February 2020, 193 countries have chosen to shut down education institutions in an attempt to slow down the transmission of COVID-19. These closures have affected approximately 1.7 billion learners. The education sector in different countries has been hit particularly hard by the pandemic, putting 432.6 million learners out of education. According to a joint survey conducted by ILO, UNESCO and World Bank (2020), this unprecedented situation is affecting learning at all levels, including initial and continuing Technical and Vocational Education and Training (TVET) and causing disruptions in the provision of training.

Technical Vocational Education and Training (TVET) is a type of education designed to equip individuals with competencies in an occupational trade for the technological

and economic development of Nigeria. According to Federal Republic of Nigeria (2014), TVET is described as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. The objectives of TVET according to FRN (2014) include: providing training for manpower development in applied sciences, technology and business particularly at craft, advanced craft and technical levels; providing technical knowledge and vocational skills necessary for agricultural, commercial and economic development; acquire technical and vocational skills, and give training and impart the necessary skills to individual who shall be self-reliant economically. The attainment of these objectives is an important function of formal vocational institutions in Nigeria such as Polytechnics, Mono-technics and Technical Colleges (National Board for Technical Education, 2014).

Technical Colleges are post primary institutions where students are given full vocational training that will enable them acquire relevant knowledge, skills and attitude for paid or self-employment in various occupations in the world of work. Technical Colleges in the opinion of James (2016) are principal vocational institutions in Nigeria which are designed to prepare the individual to acquire practical skills, knowledge and attitude required of craftsmen and technicians at sub-professional level.

However, National Board for Technical Education (2014) reported that the quality of academic programmes in technical colleges is regulated by NBTE's curriculum development, supervision and periodic accreditation visits while the National Business and Technical Examinations Board (NABTEB) is responsible for the examination and

certification of the occupational trades leading to the award of National Technical Certificate (NTC) and Advance National Technical Certificate (ANTC). The trades offered in the Technical Colleges in Nigeria according to FRN (2014) include: Building Trades; Electrical Engineering Trades, Wood Trades; Printing Trades, Textile Trades, Hospitality and Mechanical Trades of which the Automobile Trade is subsumed.

Automobile trade is one of the vocational training offered in Technical Colleges in Nigeria. Classification of automobile trade in Technical Colleges according to NBTE (2014) include: Agricultural Implement Mechanics, Auto Electric Works, Vehicle Body Building and Motor Vehicle Mechanic Work. Motor Vehicle Mechanic Work (MVMW) is designed to produce competent automobile craftsmen for the technological and industrial development of Nigeria. The aim of MVMW according to NBTE (2014) is to give training and impart the necessary skills leading to the production of craftsmen, master craftsmen and other skilled personnel who will be enterprising and self-reliant. According to Olaitan (2016), the establishment of MVMW and other occupational trades in the Technical Colleges is geared towards imparting basic knowledge as well as training skills leading to the production of skilled craftsmen who will be enterprising, self-reliant and sufficiently competent to meet the demands in the world of work. The main component of MVMW is structured on foundation and trade modules. These components according to NBTE (2014) include: service station mechanic; engine maintenance; engine reconditioning; transmission; suspension, steering and braking systems; and auto- electricity. In other words, MVMW graduates are expected to diagnose, service and completely repair any fault relating to the conventional automobile assembly main unit to the manufacturers specification.

With improvement in vehicle technology, the frequency of regular servicing is coming down. For example, older generation of vehicles required more frequent engine tuning, oil changes, faster replacement of maintenance parts than modern vehicles (Klynveld Peat Marwick Geordeler, (KPMG) 2017). Therefore, upon entering into the dynamic world of work, MVMW graduates are faced with the difficulty to perform effectively in the modern automobile industry because they lack the required set of skills needed to undertake maintenance and repairs with basic diagnostic tools. In the opinion of Jika (2014), half baked auto mechanic graduates in the society often cause more damage to vehicles when they are contracted to service them and as such, modern automobiles suffer disrepair. This is attributed to the orthodox or traditional skills acquired from training with old and obsolete technologies (tools/equipment) as against the emerging technology skills required to repair modern vehicles (Inyiagu, 2014). Consequently, many auto mechanic craftsmen possess irrelevant and outdated skills.

1.2 Statement of the Problem

Motor Vehicle Mechanic's Work in technical Colleges is a vocational trade aimed at producing competent vehicle mechanics with sound practical skills, knowledge and ability to diagnose and carryout repairs and/or maintenance on all types of motor vehicles. Motor vehicle graduates upon completion of one or more employability modules have the opportunity to set up independent automobile enterprises become self-employed and be able to employ others (NBTE, 2014). With advancement in technology, automobiles that are manufactured, imported or assembled in Nigeria are controlled primarily by computers, electronic components and controls that require a higher degree of sophistication for testing and servicing, as well as special diagnostic tools and instruments. Consequently, vehicle technology and maintenance processes

have adversely affected transportation system in Nigeria and advanced the problems facing auto-mechanic graduates in the course of discharging their duties in the country. Therefore, availability of adequately skilled graduates to service the ever-growing automobile population is seen as a critical area where there is a gap between the automobile industry requirements and the quality of training received by graduates of MVMW in technical colleges (NBTE, 2014).

Based on the sizeable vehicular population in Niger States of Nigeria, it is evident that the maintenance of modern automobiles is still lacking thereby increasing the prospects of MVMW students for effective practice of automobile trade and a successful auto-mechanic career. Contrary to this high aspiration, expectation and hope by these students to make a good fortune out of the MVMW programme in Technical Colleges, majority of them have been graduating with little or no emerging technology skills to enable them establish self-owned automobile enterprises. This situation could be attributed to the deficiency of insufficient training facilities and equipments on modern automobile technology skills which has equally restricted MVMW graduates of technical colleges in skillfulness, efficiency, proficiency and productivity (Adetunji, 2015). Based on this insight the study evaluate the implementation of motor vehicle mechanic work programme at technical college level in Niger State.

1.3 Purpose of the Study

The general purpose of the study was to evaluate the implementation of motor vehicle mechanic programme at technical college level in Niger State. Specifically, the study tends to identify:-

1. The teaching methods employed in the teaching of motor vehicle mechanic work programme at technical college level in Niger State

2. The adequacy of infrastructural facilities in motor vehicle mechanic work programme at technical college level in Niger State
3. The strategies that could be used to improve the implementation of motor vehicle mechanic work programme at technical college level in Niger State

1.4 Research Questions

The following research questions will guide the study:

1. What are the teaching methods employed in the teaching of motor vehicle mechanic work programme in technical colleges?
2. How adequate are the Infrastructural facilities in motor vehicle mechanic work programme in technical colleges?
3. What are the Strategies that could be used to improve implementation of motor vehicle mechanic work programme at Technical college level?

1.5 Significance of the Study

The findings of this study would be of immense benefit to students, MVMW graduates, technical teachers, National Board for Technical Education, Automobile Industries, Government and educational researchers.

The teaching methods and teaching techniques identified in this study when integrated into the curriculum could help the technical college students of MVMW to acquire a set of skills required for professional servicing and maintenance of vehicles. Students will also be exposed to new body of knowledge/content on modern cars so as to enhance their understanding of their working principles and how to handle complex fault in them.

The acquisition of emerging technology skills will enable MVMW graduates to become self reliant, self-employed and employers of labour. These skills will also enable

MVMW graduates to acquire new competencies for servicing and repair of modern vehicles in order to remain relevant in the automobile industry.

The MVMW teachers will benefit from the findings of this study by identifying areas of automobile technology where students are deficient and on which they may need to update their technical competence for the production of enterprising graduates who will be productive in paid or self-employment. Teachers through the findings of this study will also identify appropriate teaching methods that will improve MVMW knowledge acquisition, outdated technologies in curriculum content that should be given less emphasis while the emerging technologies will be given adequate recognition in the training of MVMW students. MVMW teachers will equally use the findings of the study to master these new technology skills and strategies that can be used to improve MVMW implementation as a means of enhancement towards productivity and adaptability. Hence, updating their skills will remain paramount with constant advancement in frequent changes in automobile technology. This will be attainable when technical teachers attend planned retraining and improvement programmes that takes practical and new skills in automobile technology into cognizance.

The National Board for Technical Education which is solely responsible for planning and reviewing the technical college curriculum will through the findings of this study become aware of adequate teaching methods and techniques to be used to convey MVMW programme curriculum, emerging technology skills required by MVMW graduates in the maintenance of modern vehicles. National Board for Technical Education could use these identified skills to update the pedagogy and components of the curriculum for MVMW in technical colleges and strategies of implementation. This could make the curriculum more activity centered thereby stimulating the interest and motivation of students towards the automobile trade.

Automobile servicing companies will equally find the result of this study very beneficial when incorporated into the curriculum content of MVMW in technical colleges as it will produce a pool of highly skilled automobile graduates (craftsmen) who will be versatile and adaptable to the dynamic nature of MVMW, thereby enhancing the performance and productivity of the automobile industry towards the sustenance of Nigeria's economic and industrial growth.

The findings of this study will sensitize the government on the performance gap between technical and technological proficiency acquired by graduates of MVMW in technical colleges and the requirements of automobile industries. Hence, the government will be encouraged to organize retraining programmes and skill improvement workshops for instructors of MVMW whose responsibility it is to impart technical and technological skills on students for gainful employment upon graduation.

1.6 Scope of the Study

The scope of this study covers the evaluation of the implementation on motor vehicle mechanic programme at technical college level in Niger State, which intends to identify Teaching methods that can improve the acquisition of MVMW knowledge and skills, Various infrastructural and operational facilities that better exposes students to the working environment activities which make MVMW practices more expository in terms of both technological and scientific operations and advancements in Motor Vehicle Mechanic Work, and Strategies that could improve the implementation of MVMW programme in technical colleges to better improve the efficiency of MVMW programme on its graduates. The study is limited to technical colleges in Niger states. The duration of the study will be covered in six weeks.

1.7 Research Hypotheses

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

H₀₁: There is no significant difference between the mean responses of teachers and students on the teaching methods employed in the teaching of motor vehicle mechanic work programme in technical college level in Niger state.

H₀₂: There is no significant difference between the mean responses of teachers and students on the adequacy of Infrastructural facilities in motor vehicle mechanic work programme in technical college level in Niger state.

H₀₃: There is no significant difference between the mean responses of teachers and students on Strategies that could be used to improve implementation motor vehicle mechanic work programme at technical college level in Niger state.

CHAPTER TWO

2.0

LITERATURE REVIEW

2.1 Conceptual Framework

The conceptual model for the evaluation on implementation of motor vehicle mechanic work programme in technical colleges implies Teaching methods employed such as: Lecture method, Group discussion, Individual presentation, Assignments, Case study method, Workshops, Brainstorming, Discussion etc. Infrastructural facilities such as: Workshops, Classrooms, Libraries, equipments, Desks, tables and chairs, Electricity, Water, Visual and audio-visual aids. Strategies of implementation such as: Access new funding, Change physical structure and equipment, Create new teams, Develop and implement tools for quality monitoring charged with the implementation of educational policy. The Nigeria's National Policy on Education was designed to train individuals to acquire knowledge and skills for self-reliant and national development. The policy further states that: "the trainees of motor vehicle mechanic work programme shall have three options: secure employment either at the end of one or two modules of the whole course or after completing one or two modules of employable skills; set-up their own business and become self- employed and be able to employ others; and (3) pursue further education in advance craft/technical program and in post – secondary (tertiary) technical institutions such as science and technical colleges, polytechnics or colleges of education (technical) and universities".

Technical and vocational education system in Nigeria is designed to train competent personnel that will fit into the different sector of the economy. The graduates are expected to be able to diagnose, service, test and carryout repairs as designed by the national curriculum that is currently used by all technical colleges all over the country, accredited by National Board for Technical Education (NBTE). The rapid growing changes in the industries has brought a lot of competitions and challenges in the world

today especially in the technology sector. Therefore, graduates in these areas are expected to be highly competent in terms of “hard “technical skills and “soft” generic skills for them to serve and remain in the industry. It is obvious to recognize the importance of proper implementation of motor vehicle mechanic work pogramme in Nigeria towards technological development and self-reliant.

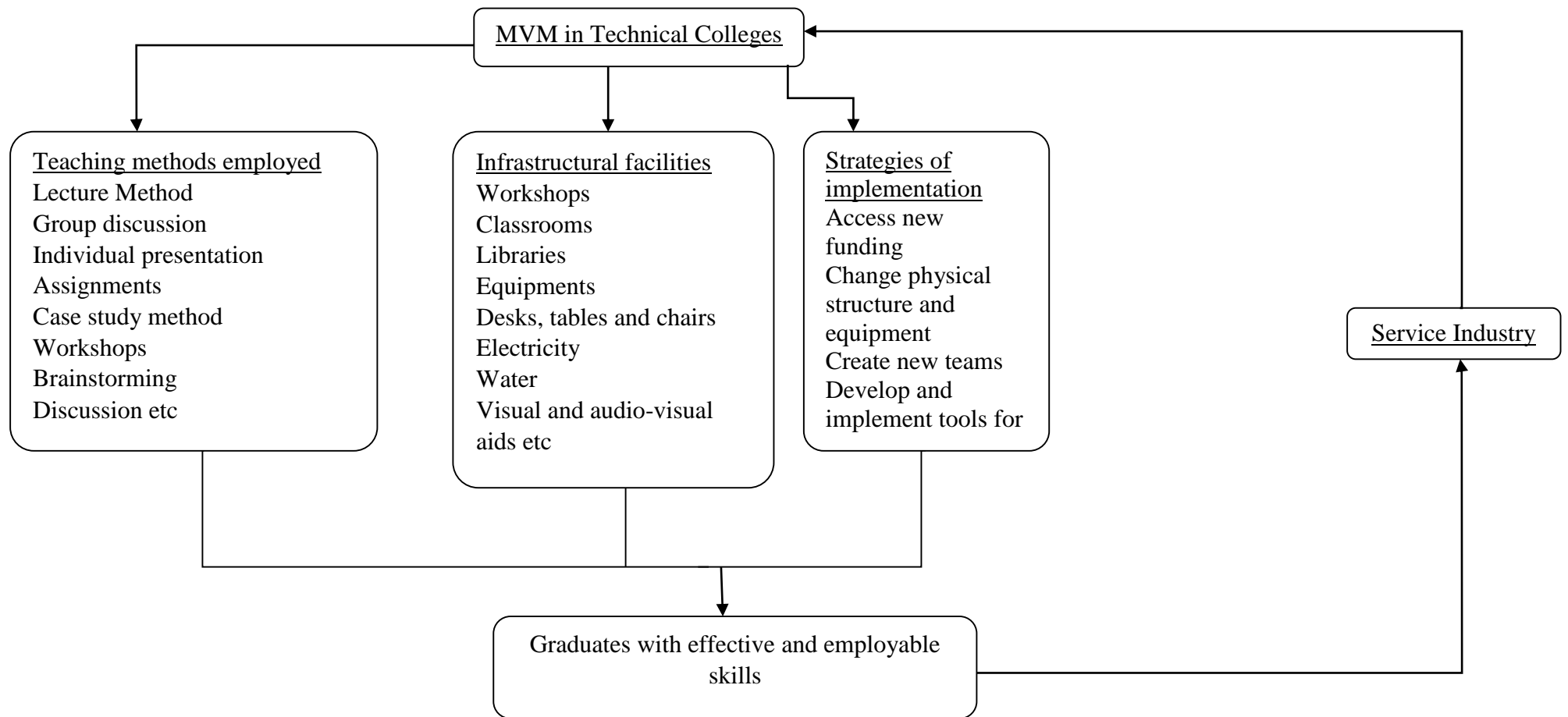


Figure 2.1: Conceptual model for the evaluation of implementation on motor vehicle mechanic work programme in technical college level in Niger State

Source: Author's work (2022)

2.1.1 Technical College Education in Nigeria

Technical Vocational Education and Training (TVET) programme in Nigeria evolved in response to technological and industrial needs of the people. TVET is a type of training that borders on the acquisition of knowledge and skills in occupational trades such as woodwork, metalwork, electrical/electronics, welding and fabrication, building, auto-mechanics, to mention a few. According to Miller (2011), there are five technical institutions in Nigeria outside the universities namely- pre-vocational and vocational schools at post primary level (Technical Colleges), Polytechnics and Colleges of Education (Technical) at the post secondary level established to provide a base for technological take off of the country (Federal Republic of Nigeria, FRN, 2014).

Technical Colleges have continued to train youths for the acquisition of requisite skills or competence or mastery of skills in various occupational trades. The Federal Republic of Nigeria (2014) reported that technical and vocational education is that form of education which is obtainable at the technical colleges. Ayonmike (2018) also stated that now in Nigeria, the need for the development of vocational education that takes place in Technical Colleges and skill acquisition centres has become imperative, taking cognizance of their relevance to the socio- economic manpower development of the nation. Technical College is a post junior secondary school (JSS) institution designed to provide individuals with vocational-technical instruction and skills in a particular trade or occupation. It is equivalent to senior secondary education but designed to prepare individuals to acquire practical skills, basic scientific knowledge and attitudes required as craftsmen and technicians at sub-professional level.

According to Federal Republic of Nigeria, (2014), technical colleges are saddled with

the tasks of providing, imparting or teaching practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economy and social life. As such, it should provide training on the acquisition of relevant and needed skills to meet the demand of modern commerce, technologies, related sciences and industries. Technical colleges are institutions where scientific knowledge and practical skills required for specific trade; employment or professionals, craftsmen, technician, technologist, scientist or similar levels of manpower are imparted or taught. The Federal Republic of Nigeria (FRN) in her National Policy on Education (FRN, 2014) stated that the curricula activity for technical colleges is structured in foundation and trade modules, with the trade modules consisting of five components. These five components or elements include: General Education; Theory and Related Courses; Workshop Practice; Industrial Training/Production Work and Small Business Management and Entrepreneurial Training.

- General Education: The general education programme is designed to create an environment which makes provision for trainee (student) development of knowledge, manipulative skills, attitude and values to realistic work settings, including the responsibility of maintaining strong ties with a variety of agriculture, business and industry-related areas.
- Theory and Related Courses: This component is centred on the knowledge about any aspect of the occupation student/trainee will enter into and the performance expected in the occupation.
- Workshop Practice: This aspect of the curriculum is focused on practical training of participants or students to the required levels of competencies.
- Industrial Training/Production Work: This will enable Technical College graduates to be well equipped to perform inter-related functions in and outside

the industry effectively in various trades or occupation setting.

- Small Business Management and Entrepreneurial Training: This programme is designed to equip graduates with skills for wealth creation, employment generation, self- sufficiency etc. The craft level is one of the trade modules (FRN, 2014).

The FRN (2014) further stated that for effective participation of students in practical work, the teacher-student ratio shall be kept at 1:20. Trainees completing technical college programmes shall have three options. These include: Secure employment either at the end of the whole trade modules, (that is craft level trade module, advanced trade module and technical level trade module) or after completing one or more trade modules of employable skill; Set-up self- owned business or become self-employed and then be able to employ others; Pursue further education in advanced and technical levels for higher skill acquisition capabilities in chosen trade. The range of courses in the technical colleges according to FRN (2014) shall be as wide as possible and include but not limited to: Mechanical Trades; Computer Craft Practice; Electrical trade, Engineering Trades; Building Trades; Wood Trades; Hospitality; Textile Trades; Printing Trades; Beauty Culture Trades; Business Trades and others.

Mechanical Trades:

- Agricultural Implements and Equipment Mechanic's Work
- Automobile Engineering Practice: Auto body Repair and Spray Painting
- Automobile Engineering Practice: Auto Electrical Work
- Automobile Engineering Practice: Autobody Mechanics' Work
- Automobile Engineering Practice; Autobody Building
- Auto Engineering Practice: Part- Merchandising
- Air-conditioning and Refrigeration: Mechanics' Work

- Mechanical Engineering Craft Practice
- Welding and Fabrication Engineering Craft Practice
- Foundry Craft Practice
- Instrument Mechanics' Work
- Marine Engineering Craft.

The curricula at the craft level are relevant and functional in that, it will produce youths that will become competent in vocational, technical and entrepreneurial skills and competencies.

2.1.2 Motor vehicle mechanic's work programme in Nigerian technical colleges

Motor Vehicle Mechanic's Work (MVMW) is a vocational trade that prepares individuals for the world of work. It is one of the automobile trades offered in technical colleges in Nigeria (NBTE, 2011). MVMW in technical colleges is aimed at producing competent vehicle mechanics with sound theoretical knowledge and should be able to diagnose and carryout repairs and/or maintenance on all types of Diesel and Petrol Vehicles (National Board for Technical Education, 2001). In other words, the programme for MVMW in Nigerian technical colleges is designed to produce competent maintenance craftsmen for all types of motor vehicle. These craftsmen may also wish to take the opportunity for further technical education. (NBTE, 2013).

A national curriculum according to Okoro (2013) was adopted in all technical colleges and accredited by the National Board for Technical Education (NBTE). The programme is offered at two levels leading to the award of National Technical Certificate (NTC) for craftsmen and Advanced National Technical Certificate (ANTC) for Master craftsmen.

In pursuance of the aims and goals of technical colleges, Federal Republic of Nigeria (2014) pointed out in the National Policy on Education that the main feature of the

curricular activities for technical colleges shall be structured in foundation and trade modules. In line with the policy statement, the revised National Technical Certificate (NTC) and revised Advanced National Technical Certificate (ANTC) programmes, curriculum and course specifications were published in 2001 for Motor Vehicle Mechanic's Work and other vocational courses in the Technical Colleges by National Board for Technical Education (NBTE). It was sponsored by United Nations Educational Scientific and Cultural Organization-Nigeria project in support of the Revitalization of Technical and Vocational Education in Nigeria.

2.1.3 Teaching Methods Employed in Motor Vehicle Mechanic Work Programme

Motor Vehicle Mechanic faculty strives to have more effective teachers so that students can learn better, and many explore methods to improve their teaching practice. Depending on the nature of the topic, number of students, and the facilities available, there are different methods teachers are using in the classroom. Below are given various methods and certain tips and techniques for improving these methods.

Lecture Method: A lecture is a talk or verbal presentation given by a lecturer, trainer or speaker to an audience. With all the advancement of training systems and computer technology, lecture method is still a backbone widely used in teaching and training at higher level of education. This method is economical, can be used for a large number of students, material can be covered in a structured manner and the teacher has a great control of time and material. Lecturing is not simply a matter of standing in front of a class and reciting what you know (Akor, 2014). The classroom lecture is a special form of communication in which voice, gesture, movement, facial expression, and eye contact can either complement or detract from the content. Most students consider lecture as best method because according to their opinion; it creates new ideas, it is

good for large class, develops creativity among students, teacher is experienced and has mastery on subject, explain all points and can answer all questions by students. The lecture method can be a highly effective and interactive method for transferring knowledge to students. Lecture gives the pupils training in listening and taking rapid notes.

Tips and techniques for improving lecture method

- Lecture material should be stimulating and thought provoking.
- Information should be delivered dramatically by using example to make it memorable.
- The teacher needs to use questions throughout the lecture to involve students in the learning process and to check their comprehension.
- Reinforce learning by using visual supports like transparencies, flip charts, whiteboard/ black board etc.
- Teacher should take feedback of students to improve lecture method.

Discussion Method: It is a free verbal exchange of ideas between group members or teacher and students. For effective discussion the students should have prior knowledge and information about the topic to be discussed. A problem, an issue, a situation in which there is a difference of opinion, is suitable for discussion method of teaching (Olagunju, 2016). Students rate group discussion (class discussion) as the second best method by giving reasons that; it has more participation of students, the learning is more effective, the students don't have to rely on rote learning, every student give his/ her opinion, and this method develops creativity among students.

Tips and techniques for improving discussion method

- The teacher should spend sufficient time in preparing the process and steps of discussion.
- Different aspects of the topic and the parameters should be selected for the focused discussion.
- Sufficient time should be allotted to discuss all the issues. At the same time students should know the time limit to reach a conclusion.
- The teacher in the beginning should introduce the topic, the purpose of discussion, and the students participating in discussion.
- Before the start of discussion, background information about the topic should be provided.
- There is a need to include questions to provide direction.
- Relaxed environment should be created to foster the process of discussion.
- Teacher after opening the discussion should play the role of a facilitator involving every one and at the end should summarize the discussion.
- Encourage students listen other's point of view and then evaluate their own.
- Teacher should give value to all students' opinions and try not to allow his/her own difference of opinion, prevent communication and debate.

Role Play Method: Role play occurs when participants take on differentiated roles in a simulation. These may be highly prescribed, including biographical details, and even personality, attitudes and beliefs; or loosely indicated by an outline of the function or task. These techniques have already demonstrated their applicability to a wide range of learners, subjects and levels. It is a memorable and enjoyable learning method. To gain maximum benefits from this method, the incidents selected for enactment should be as realistic as the situation allows (Ezenwa, 2014).

Tips and techniques before the role play

- The teacher should brief participants about the roles they will play, give them time for preparation, confirm confidentiality of role play, and ask participants to behave naturally.
- Teacher should select & brief observers about their roles.
- During the role play, the teacher must keep quiet, listen & take notes, avoid cutting role play short, but give time warning if previously agreed. The teacher should be prepared for some action if participants dry up and can intervene as a last resort.
- After the role play, the teacher thanks participants, ask for feedback from lead participants, take comments from observers, ask other participants to comment.
- The teacher should use role names not those of participants, summarize, drawing out learning points, leaving the participants with positive comments and feelings.

Case Study Method: Primarily developed in business and law contexts, case method teaching can be productively used in liberal arts, engineering, and education. This method is basically used to develop critical thinking and problem-solving skills, as well as to present students with real-life situations. The students are presented with a record set of circumstances based on actual event or an imaginary situation and they are asked:

1. To diagnose particular problem(s) only.
2. To diagnose problem(s) & provide solution(s).
3. To give reasons & implications of action after providing both problem & solution.

It is a time consuming method and sometimes the case does not actually provide real experience. It could be in-conclusive, and insufficient information can lead to inappropriate results. At the end, the students want to know the right answer by the teacher. The role of the teacher in conducting the case study should be to:

- Read the case and determine the key problems faced by the decision maker.
- Determine the data required to analyze the problems and for a synthesis into solutions.
- Develop, analyze, and compare alternative solutions, and recommend a course of action.

Tips and techniques

- Cases should be brief, well-written, reflect real issues, and open to a number of conflicting responses.
- Students should work in group to prepare a written report and/or a formal presentation of the case.

Brainstorming: It is a loosely structured form of discussion for generating ideas without participants embroiled in unproductive analysis. It is a very useful technique for problem solving, decision making, creative thinking and team building. It develops listening skills.

Tips and techniques

Ground rules for running brainstorming session include:

- There should be no criticism and the wild ideas should be encouraged and recorded without evaluation.

- Emphasis should be placed on quantity of ideas and not the quality.
- There is a need of equal participation of members.
- It can be unfocused so teacher should know how to control discussion and facilitate issues.
- It works well in small group

Assignment method: Written assignments help in organization of knowledge, assimilation of facts and better preparation of examinations. It emphasizes on individual pupil work and the method that helps both teaching and learning processes.

Tips and techniques

- Teacher should describe the parameters of the topic of assignment.
- Fully explain assignments so that students know how to best prepare. When the inevitable question, "Will we be tested on this?" arises, make sure your answer includes not only a "yes" or "no," but a "because . . .".
- Give assignments and exams that recognize students' diverse backgrounds and special interests. For example, a faculty member teaching a course on medical and health training offered students a variety of topics for their term papers, including one on alternative healing belief systems. A faculty member in the social sciences gave students an assignment asking them to compare female-only, male-only, and male-female work groups.

2.1.4 Infrastructural facilities in motor vehicle mechanic work programme

Facilities can be generally defined as buildings, properties and major infrastructure which include physical and material assets. Facilities in schools are materials resources that enhance teaching and learning thereby making the process meaningful and

purposeful. Facilities in schools can be defined as the entire school plant which school administrators, teachers and students harness, allocate and utilize for the smooth and efficient management of any educational institution, for the main objective of bringing about effective and purposeful teaching and learning experiences (Asiyai. 2012). According to Akinsolu (2014) facilities in schools are the physical and spatial enablers of teaching and learning which will increase the production of results. School facilities serve as pillars of support for effective teaching and learning. Teaching facilities include all of the infrastructure and material resources that are used to support the delivery of quality education. Infrastructure refers to basic physical and organizational structures needed for the successful running of the institution. Other relevant facilities in the school environment include text books, laboratory equipment, computer machines, seating facilities, supply of electricity and other technical and vocational facilities which are all paramount to the provision of qualitative education.

Good quality and standard institution of learning depend largely on the provision, adequacy, utilization and management of educational facilities. Akinsolu (2014) asserted that educational curriculum cannot be sound and well operated with poor and badly managed school facilities. From all indication, facilities in schools are physical resources that facilitate effective teaching and learning. They include blocks of classrooms, laboratories, workshops, libraries, equipment, consumables, electricity, water, visual and audio-visual aids, tables, desks, chairs, playground, storage space and toilets. .In Nigeria, Technical school enrolment has continued to increase without a corresponding increase in facilities for effective teaching and learning. As a result of underfunding of education in Nigeria, the government has been encouraging maintenance of available facilities in schools (Asiyai, 2012). Maintenance of facilities in schools entails ensuring that the facilities are kept near their original state as possible.

This involves keeping the school sports and football field clean, periodic renovation of the buildings, servicing the school bus and generator sets, repairs etc. for the purpose of restoring the facilities to optimum working condition.

School facilities are the material resources that facilitate effective teaching and learning in schools. It can be defined as those things of education which enables a skilful teacher to achieve a level of instructional effectiveness that far exceeds what is possible when they are not provided. Educational facilities are those material things that facilitate teaching and learning processes in the school. Some of the reasons for inadequacy of facilities and equipment in Nigerian schools has been sudden increase in enrolment of children in schools and reduced level of facility provision for technical schools. By nature, educational facilities have been positively linked with students' academic performance and educational efficiency. In order to realize the educational goals of the school and the school system, funds and facilities are required for the various activities of the school programme as well as for the extracurricular activities.

School facilities or infrastructure can be divided into two categories:

- a. Direct teaching facilities, that is, those that have direct relevance to the educative process, and
- b. Non direct teaching facilities, that is, those that have indirect relevance to educative process.

School facilities include: school buildings and equipment as well as school records and books.

School buildings are tangible structures which serve as shelter for educational activities. They include, among others: classrooms, laboratories (e.g.: physics, chemistry, biology, agricultural science, geography and languages, local crafts and home economics),

teachers common rooms/offices, toilets, rest rooms, reading rooms, dispensaries, libraries, hostels/dormitories, dining halls, assembly halls, staff quarters, sentry box, etc.

The effects of inadequate infrastructural facilities on performance of students are as follows:

(a) **Inadequate Educational Infrastructure:** This is one of the worst problems facing effective implementation of educational programmes including MVM. Inadequate classroom spaces have resulted in over-crowding in schools. Many technical schools were built long time ago by government. Hence, most of the buildings, roof-tops, desks, chairs, tables, floors, etc., have become extremely bad. Government ought to have put some efforts to renovate them so as to accommodate more students but this was not done. Other problems are:

1. Production of half-baked students. Many students spend the required number of years they ought to spend in schools and are not living up to expectations because they have not gained the desired knowledge they ought to gain within the specified time spent.

2. Many teachers no longer find their job interesting and satisfactory because of lack of facilities to carry out their job.

3. The enthusiasm in both students and teachers which create effective teaching and learning is fast fading away, as a result of lack inadequate school facilities. No matter how energetic, enthusiastic and committed a teacher might be, his or her effort, level of performance, effectiveness in the classroom might not produce the required result in teaching, evaluation and management because his or her action to satisfy the motive would be affected by negative context of the environment.

4. There is little or no motivation for both teachers and students to learn.

- (b) Inadequate Funding of Schools: This is a very big problem, hence, the failure to prioritize the use of available funds that would cover areas of need like: employing qualified teachers, procuring textbooks, improving on existing infrastructures, procuring equipment, instruments, teaching aids, and the like.

Lack of funds has resulted in the absence of workshop in schools, in training and re-training of teachers at all levels, inadequate provision of classroom buildings and laboratories, etc. It also affected the attendant problems of shortage of libraries and of stocking them with relevant up-to-date textbooks, as well as irregular payment of teachers' salaries and allowances.

- (c) Teacher Utilization: This is another major obstacle. The major problem confronting teacher utilization is in their allocation and distribution to schools. In this case, there is lack of competence of teachers' utilization in both urban and rural areas. Hence, a teacher's competent utilization is achieved when there is a good combination of his or her general education, mastering of teaching subjects and personal qualities in the day-to-day discharge of duties.

In this regard, it is a common place to find in most of our technical schools that even though teachers are qualified, their personal vices being displayed towards work have affected their competencies. There are numerous personal vices like: absenteeism, frequent ill-health or excuses, frequent maternity leaves, uncooperative attitudes, working at loggerheads with headmasters, headmistresses, principals and members of staff, etc., exceedingly lower the quality of competence, and as such, contribute to lowering the standard of MVM teachers.

- (d) **Lack of Enriched MVM Curricula:** The MVM curricula are yet to be enriched in accordance with its goals and objectives and they ought to have been carried out in several dimensions. The areas for immediate attention are: (i) Laying a good foundation for life-long learning; (ii) The inculcation of appropriate levels of literacy and numeracy; (iii) Developing good aptitude for practical work; (iv) The acquisition of socially desirable life skills; They are very related to the teaching and learning of vocational and technical education skills including classroom work and laboratory practice. Also, they equally apply to all forms and conditions of out-of-school learning at the time a student drops from a formal school system.
- (e) **Poor Knowledge of Practical Use of Equipment and Maintenance Culture:** Presently, there is a wide-scale of poor practical skills among students who have graduated from JSS level, as there is nothing to show that they have learnt the use of equipment in laboratories especially in vocational, technical and science subjects. Hence, the issue of maintenance culture has continued to elude the country.
- (f) **Lack of Statistical Population Data for MVM Planning:** There is lack of population data bank in Nigeria that ought to aid MVM planning especially in the provision of more classroom spaces, laboratories, teaching aids and equipment, etc. What happens in most cases is that population figures are usually over-politicized; hence, it has not been easy to allocate school-age population figures from the publicized population census data. It has affected the technical capacity including the logistics for data collection and analysis. This is why it is difficult to plan and implement the MVM programme.
- (g) **Poor Monitoring and Evaluation:** Adequate monitoring and evaluation of technical schools has been faulty. This depended on the managers assigned to do so.

Therefore: (i) there must be choice of appropriate performance standards and indicators; (ii) there should be a systematic programme of supervision, inspection and data collection and utilization for periodic monitoring and evaluation of the process and progress of the compulsory education scheme.

In this regard, the implication is that the administrators of educational programmes including the MVM should always monitor not only the nature and rate of attendance, truancy and drop-outs, but also they have to evaluate the reasons why such students behaved in a particular manner.

- (h) **Poor Electricity Power Supply:** This is the most basic problem because electricity is the power that moves small-scale businesses, laboratory practical works, industries, etc. It has remained a mirage in Nigeria's political dispensations as a result of the 'political will' to do so. Nigerian leaders are merely interested in what they are able to gather from the economy; hence, nothing works for the general good.
- (i) **Brain-Drain Syndrome:** This is due to the poor condition attached to teaching by the attitude of the government. The reward system in cash or fringe benefit cannot be compared with other professions. This is responsible for the high rate of trained teachers who abandon teaching for more lucrative professions.

2.1.5 Implementation strategies of motor vehicle mechanic's work programme

Implementation of MVM (Motor Vehicle Mechanic) work Programme in Technical Colleges entails putting into practice the officially prescribed courses of study, syllabuses and subjects. The process involves helping the learner acquire knowledge or experience. It is important to note that curriculum implementation cannot take place without the learner

(Common Wealth of Learning, 2000). However, the learner is therefore, the central figure in the curriculum implementation process. Implementation takes place as the learner acquires the planned or intended experiences, knowledge, skills, ideas and attitudes that are aimed at enabling the same learner function effectively in a society.

Implementation strategies: While implementation frameworks provide the ‘big picture’ for the conceptualization of implementing science and practice, they contain few immediately actionable steps that can be directly translated into practice. This situation began to change with the development of the concept ‘implementation strategies’. They have been defined as ‘methods or techniques used to enhance the adoption, implementation, and sustainability’ of a programme or practice. Teaching strategies are the tools that teachers have at their disposal to engage learners and enable learning objectives to be met via effective teaching and learning and teaching skills are how they select and use these strategies. Teaching strategies are differentiated from teaching models by using the definition of a model as the sequence of steps or phases (the syntax) used to achieve particular types of learning outcomes.

Examples of skills and strategies observed in practice have been divided into the following categories that follow the teaching and learning process. These are:

Planning and preparation

This suggests that planning effective teaching and learning sessions should include the following processes: specifying the aims and objectives or outcomes for the session, how to review the previous session and explaining the links to the current and next sessions, identifying appropriate content, activities and strategies by which the learners will learn, identifying strategies by which learning will be assessed, selecting the resources, materials and media to support learning and

considering how to summarise at the end of the session. Differentiation is central in effective planning, ensuring that all learners can learn effectively and are sufficiently challenged.

Strategies for differentiation

There is no single definition of differentiation, but all definitions are underpinned by a view of learners as individuals. Some approaches to differentiation suggest that differentiation needs to be considered at the planning stage of a session. While the learning objectives and standards should remain the same, time and support given to learners by the teacher should be varied according to individual learner. Examples of differentiation utilized during the visits include:

- Advising and keeping learners on track by providing individual support, giving the weaker learners individual instruction and taking the stronger learners that bit further so they are not bored
- Providing the right amount of ‘stretch’ for individual learners while also managing the group
- E-learning activity allows for wide differentiation, with for example, board games as an alternative approach for learners who haven’t understood
- Using group and paired work, with careful selection of those who work together to enable different pace of learning as well as styles, ‘I wouldn’t generally pair a weak learner with a strong one but there are occasions when this can work with the stronger learner being a mentor and also learning more themselves through explaining to others’
- Selection of different resources to reflect the group and individuals within the group, taking account of the learner experiences

- Using different forms of assessment to meet the needs of the learners, for example written, filmed or recorded.

Delivery of teaching and learning

This section includes examples of strategies used in the delivery of teaching and learning. They include:

- Strategies for giving information – presentation and demonstration
- Strategies involving technology
- Strategies for group and individual learning – pairs, group, whole class and individual
- Strategies for reinforcing learning – practice/repetition and questioning

Strategies for giving information-presentation

Presentation encompasses giving information in a number of ways including:

- Teacher explanation often at the start of a session - ‘this is what we are going to do, these are the objectives for the session’
- Giving information/instruction and checking that learners understand by, for instance, use of questioning
- Clearly presenting information at the start of a session and then linking to other teaching strategies – presentation followed by immediate activity
- Guest speaker input – from the relevant vocational/automobile sector
- Providing information through different sensory modes: visual, audio, kinaesthetic
- Providing information through a variety of mediums – video, board, paper, work-book, actual demonstration, verbal explanation, questions and answers and practical activity

- Short PowerPoint or other computer-based presentations for information, recapping on a previous session, setting exercises or structuring a session.

Demonstration

Demonstration has the added dimension of an explanation by example, a display of some sort, often accompanied by verbal explanation but not always. It is usually important to follow the demonstration with a related activity. Use can be made of a variety of technological aids. Demonstration examples include:

- The physical demonstration of a skill such as holding and using a blow torch or how to decommission and reassemble a computer
- A means of showing how something is done and that the tools being used are adequate for the job
- Demonstration of an activity, showing how to develop a planning process, for instance, with a sample of what the end result could be like
- Using technology such as moodle and/or storyboard to show what is required as well as giving information to set the scene and use of smart board to demonstrate tasks such as putting a joint together in construction
- While showing the way to do something, ensuring that learners understand that there are different ways of doing things and that if the end result is successful then that is alright.

Strategies involving technology

Educational technology is the study and practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources. Use of technology in the delivery of teaching and learning for any vocational

area is increasing all the time. It is also one of the ten approaches described by LSIS as effective in promoting effective learning. Examples drawn from the visits include:

- Interactive whiteboards
- Computer(s) in each learning room for various uses
- Use of web pages for storing and accessing learner work
- Multi-media learning
- Moodle – modular object-oriented dynamic learning environment, providing and organised interface for e-learning, or learning over the internet
- E-learning through applied packages and on-line learning
- M-learning – learning on the move including use of mobile phones
- It based packages for self-assessment
- Computer generated quizzes and games
- Internet research
- Pod-casts
- Mobile phone technology
- Computerised tracking.

Strategies to develop learning skills

Assisting learners to become more effective learners, to ‘learn how to learn’, enables them to learn knowledge and skills more efficiently and is a valuable skill in itself for life. Active control over the thinking processes involved in learning is referred to as metacognition. Activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress toward the completion of a task are metacognitive in nature. Because metacognition plays a critical role in successful

learning it is important for both learners and teachers. Metacognition is often referred to as ‘thinking about thinking’ and can be used to help learners ‘learn how to learn’. In some interviews teachers explicitly described their intention to develop higher order thinking skills. If the culture of the organization in which learning takes place systematically cultivates habits and attitudes that help learners to be confident of their own learning ability and to be creative, then learners are likely to learn faster, concentrate more, be resourceful, imaginative, collaborative and find learning more enjoyable. Activities that encourage effective learning and higher order thinking include:

- Questioning that encourages the development of imagination
- Evaluation activities
- Research in preparation for an assignment, particularly with peers
- Tasks in which learners need to reason and apply learning in a way that requires higher-order thinking
- Considering new information and making sense of it
- Investigative and experimental tasks
- Role playing sessions – looking at it from another person’s point of view
- Simulations to give experience of work situations
- Step by step approaches – building one step at a time cumulatively.

2.1.6 Factors that influence MVM programme in technical colleges

Implementation of MVM in Nigerian Technical colleges, various factors influence MVM programme implementation. Some of which include;

- i. MVM Teachers
- ii. MVM Students

- iii. MVM Teaching Resources
- iv. MVM Institutions' Infrastructural Facilities.
- v. Culture and Ideology
- vi. MVM Institution/School Environment
- vii. Parents of MVM students
- viii. Availability of Funds
- ix. The state of the Nation's Economy

2.1.7 Challenges of implementing MVM programme in Technical Colleges

The challenges of implementing MVM programme in technical colleges are synonymous with the problems of MVM in Nigeria and also that of general education in Nigeria. Egwu (2009) posited that some of the major challenges of Nigerian technical school system includes;

- i. Inadequate and obsolete infrastructure and equipment, for example poor equipped MVM workshop and libraries, dilapidated classroom blocks.
- ii. Inadequate capacity in the institutions for internal/peer quality assessment.
- iii. Weak support structure for students Industrial Work Experience Scheme (SIWES)
- iv. Brain drain, human capital flight
- v. High incidence of cultism, examination malpractice and social and academic vices.
- vi. Unstable academic calendar
- vii. Staff shortages across board
- viii. Unattractive conditions of service for teachers
- ix. Inadequate funding of technical colleges.

- x. Inadequate collaboration between technical colleges and organized private sector.

However, Udoka (2010) opined that the major challenge is funding. In the same vein, Yusuff and Soyemi (2012) also posited that inadequate financing is one of the problems of implementing MVM programme in MVM institutions. Furthermore, Okoroafor (2010) also noted that; some of the problems of implementing MVM programme include;

- i. Lack of sponsorship: Management of technical colleges find it difficult to sponsor the MVM lecturers to seminars, conferences, and short courses claiming that there is lack of fund. This has reduced the rate, the MVM lecturers are upgraded.
- ii. Inadequate infrastructure: MVM lecturers do not have the opportunity to act what they have learnt into practice due to lack of infrastructure.
- iii. Inadequate Timing: Time should be provided on MVM lecturers to go and upgrade themselves. Work load should not be so demanding that they preclude MVM teachers form research and time to develop new skills, abilities and knowledge through research and innovation.
- iv. Lack of reward for excellence. However, the challenges of MVM are numerous, which include; lack of skilled manpower acute shortage of MVM teachers, and poor funding of MVM.
- v. Consequently, Odu (2011) posited that the following challenges confronted the implementation of MVM Teacher Training Programme in Nigeria. These include:
 - i. Insufficient Material Resources for Training
 - ii. Death of Qualified MVM Educators

- iii. Use of the Quota System for Selection of Students in MVM Teachers Training Programme.

In same vein Odu (2011) stated that, some of the challenges of Human Capital Development includes: inadequate funding, poor workshop organization and inadequate instructional materials.

Others challenges include:

- i. Teachers inadequacies
- ii. Funding Inadequacies Gross Inadequacies in facilities
- iii. Harsh and Intimidating Classroom.
- iv. Poor Quality Preparation of Lesson by MVM teachers
- v. Resource inadequacy
- vi. Unhealthy classroom
- vii. Shortage of equipment
- viii. Social vices

2.1.6 Evaluation of motor vehicle mechanic's work programme

MVM Evaluation: Functions and Applications

MVM evaluation has numerous functions and application. Some of the most important functions and applications as follow:

- Diagnose: MVM evaluation can be used in learning contexts; this function can help teachers to determine the factors affecting learners' learning process which in turn may eliminate learning problems.
- Syllabus Revision: MVM evaluation can be really helpful in syllabus design and revision.

- Comparison: It can be used to compare syllabus, teaching methods and other aspects of education such as management.
- Needs Analysis: Needs analysis means gathering quantitative data to find out the need of a certain group of learners, education employees and the people in the society

Bazargan (2006) enlists the most important functions and applications of MVM evaluation as what follows:

1. Paying close attention to goals and what should be achieved through education procedure;
2. Supporting the determined syllabus and eliminating its flaws to achieve MVM goals;
3. Emphasizing solidarity of the participants and therefore achieving MVM goals;
4. Paving the way for improving system, atmosphere and expanding the appropriate human resources and therefore improving and developing the society, economy and culture within the country.
5. Feeling responsible for MVM procedures and ensuring individuals and the society of these activities;
6. Announcing the MVM procedures. Bazargan (2006) also states that MVM evaluation involves the reflection of activities of a unit or MVM phenomenon in order to push the predetermined goals forward. He holds that MVM evaluation can respond to four questions.
 1. How good is the MVM goal quality?
 2. How good is the syllabus quality?

3. How good is the quality of procedural issues for the predetermined schedules?
4. How good is the quality of schedule functions?

Curriculum evaluation refers to the collection of information on which judgment might be made about the worth and the effectiveness of a particular programme. It includes, of course, actually making those judgments so that decision might be made about the future of programme, whether to retain the programme as it stand, modify it or throw it out altogether. Stocked approaches curriculum evaluation through a conceptual analysis of the term “Evaluation”, in his analysis, he identifies four central features of evaluation given under:

1. Evaluation is appraisal in which we make judgment.
2. Such judgments are made in the light of criteria.
3. Criteria issue from, and are appropriate in respect of particular contents.
4. Such Criteria embody human resources, and evaluation model, therefore, inform decisions.
5. The important methods and techniques employed in curriculum evaluation include discussion, experiments, interviews (group and personal) opinion of various agencies stakeholders, observation – procedures, questionnaires, practical performance and official record.

Guba and Stufflebeam (2014) identify four types of decision which are involved in curriculum evaluation certain features of their work are useful as an organizing framework for examining curriculum evaluation. These types include the decision about:

1. Planning intention, for example, which objectives to select.

2. Planning procedures, for example, which personnel, methods and material employ.
3. Implementing procedure, for example, whether to continue, modify or abandon a procedural plan.
4. Outcomes, for example, which intentions are realized, to extent and by whom.

Evaluation conceived in this manner is an integral part of curriculum development, beginning with the concern about objective and ending with assessment of their attainment.

2.2 Theoretical Framework

2.2.1 Social Constructivist Theories

The theory of social constructivism was developed by Soviet psychologist Lev Vygotsky (1896-1934). Social constructivist theories focus on the creation of reality and how individuals view the world. The theories are related to the humanistic theories, in that they were influenced by phenomenology as well as philosophical ideas of what is real and what is socially constructed. The basis of the modern social constructivist theories stems from Berger (2014), who explored reality creation and the influence of individual meaning based on life experiences, societal and cultural expectations, rules and norms, which they termed 'social constructionism. Since then, several theorists have refined social constructionism into three more specific theories, which emphasize either individual or social forces in reality construction (Teater, 2014). Social constructionism holds that reality is constructed through the use of language in interactions with others and is primarily influenced by history, society, and culture.

Social constructivist theories have underpinned several theories often used within social work practice. Symbolic interactionism focuses on three core principles of meaning,

language, and thought. The theory proposed that people use symbols (words, rules, roles) to give meaning and to make sense of the world. The meanings are transmitted to others through language. People are believed to interact with others and society, and assign meaning and symbols to these types of interactions and relationships (DeLamater & Myers, 2011). Future interactions are, therefore, dependent on the types of meanings and symbols one has attributed to that relationship or situation, thus, individuals act on what they believe versus what is objectively true.

Social constructivism maintains that students can better build their knowledge when it is embedded in a social context. Thus, the interaction between teacher and students is enhanced when it involves a broader community of learners--that is, students working together. Students help one another create richer meanings for new practical content. A type of social constructivism that applies specifically to Motor vehicle mechanic programme maintains that Motor vehicle mechanic programme should be taught emphasizing practical; that interaction should take place (a) between teacher and students and (b) among students themselves; and that students should be encouraged to create their own strategies for practical situations.

Constructivist philosophies focus on what students can do to integrate new knowledge with existing knowledge to create a deeper understanding of the motor vehicle mechanic programme. Each philosophy identifies the student as an active participant in the teaching and learning process. What a teacher does to foster the integration and extension of knowledge among students can and should vary. Constructivism is an approach in education that claims humans have a better understanding of information they constructed themselves. According to constructivist theories, learning is a social advancement that involves interaction and collaboration. One of the primary goals of

using constructivist based learning method is that students learn how to learn by giving them the training to take initiative for their own learning experiences which were adopted by Mastery (practical) learning strategies.

2.2.2 Behaviorists learning theory

Behaviourism focuses on how pupils act and what impacts upon and changes how they act (Collins, 2012). Furthermore, in this theory, there is consideration of thought processes in the mind as the mind is viewed as a tabula rasa (blank slate), largely irrelevant. In the behaviourist paradigm, learning is viewed to be best facilitated through the reinforcement of an association between a certain stimulus and a response (Naismith *et al.*, 2015). Smearing this to the use of evaluation of the implementation in motor vehicle mechanics program in education, Naismith *et al.* (2015) stated that evaluation is the expected outcome of a problem (stimulus) followed by the contribution on the part of the pupil of the solution (response). Also, the feedback from the system provides reinforcement. Collins, (2012) explains that behavioural learning theory lent itself to instructional design based on very specific and discrete learning steps. In addition, the evaluation is the instructional process through new forms of learning technologies such as programmed instruction.

2.3 Review of Related Literature

Onweh (2014), conducted a study on the Instructional Design for the Practical Components of Building Technology for the Nigeria Certificate in Education (Technical) Curriculum. The purpose of the study was to develop an instructional design for the practical components of building technology for the Nigeria Certificate in Education (Technical) Curriculum. Five research questions and 4 hypotheses guided the study. The research and development (R and D) was adopted for the study. The study only adopted the first 3 stages of R and D design which are Analysis, design,

development and implementation and evaluation for the avoidance of raising bias by the researcher. 72 building technology teachers (lecturers and instructors) of NCE (T) programmes in 16 Colleges of Education (Technical) offering Building Technology at the NCE level constitute the population for the study. There was no sampling. The instrument for data collection was a structured questionnaire which was developed and administered. It was found among others that practical test / demonstration is preferred to other methods of evaluating students learning outcomes.

The study is similar to the present study in technical colleges used but differs on the evaluation of the implementation of motor vehicle mechanic programme at technical college level in Niger State.

Malik (2015) conducted a study that involved 26 senior instructional design students who were taking courseware development and evaluation. Specifically, each student were asked to develop Learning Object (LO) bearing in mind design principles of interface clarity, consistency of naming, and interactivity) and against these, validate a learning object review instrument (the Lori v 1.5 by Nebslt and LI, 2004) with teacher and student users of Los in a variety of K-12 contexts. The students in their previous courses, had learnt and completed instructional design and development project in computer-based instruction (CBI) and each of them had programmed and produced CBI product. Each student designed and programmed LO based on their specification using the MM flash platform. The results indicated that half of the LOs showed statistically significant difference in helping students to improve learning in the units that the LOs covered and differences between the post and the pre-test scores in twenty-one LOs were positive. There were negative post-pre-test score differences in three LOs. However, the study used Los which were judged to be well designed under LORI criteria and which also achieved high and consistent ratings on usability measures from

teachers and students. But, although generally showing positive benefits and significant learning benefit in half of the LOs, the students' achievement were uneven. The study use the LOs in the fashion of self-directed exploratory study with little input or interaction from the supervising teacher.

The study of malik (2015) is related to the study on students and teachers but differs in other areas in evaluation of the implementation on motor vehicle mechanic programme at technical college level in Niger State.

Iloje (2017) developed and tested block patterns for female youths in tertiary institutions in Enugu state of Nigeria. The main purpose of this study was develop block patterns for female youths in tertiary institutions in Enugu state of Nigeria for use in large scale garments constructed and to test the fit of the garments from the blocks. The Research and Development (R and D) design was employed in carrying out this study. The study was carried out in 3 phases. The first phase determined the body measurements of the subjects of the study. The second phase is the development of blocks for the subjects in three sizes – small, medium and large. The third phase involved the testing of the fit of the garments constructed from the blocks and the modification of the blocks. Two sets of population were used for phase I and II of the study, 17,083 females students and 119 judges comprising lecturers, students and seamstresses. A multi-stage sampling techniques was used to select 900 female youths from the female students population. Purposive sampling was used to select 30 judges comprising 10 Home economics lecturers, 10 Home economics students and 10 garment producers (seamstresses) from the judges population. Two sets of instruments were used for data collection phase I and II of the study. The first, a body measurement guide (BMG) was adopted for use in taking the body measurement of subjects. The second instruments of fire point rating scale was used for scoring the fit of garments

constructed from the developed blocks. The data generated by the research questions were analyzed using the mean while one-way ANOVA and the Duncan's New Multiple Range Test (DNMRT) were used to test the hypotheses at 0.05 level of significance. The major findings include 21 pieces of block patterns were developed for the three sizes; the fit of the garments were rated very satisfactorily by the three groups of judges ; there were no significance difference in the fit mean ratings of the judges for most of fit.

Iloje (2017) study is related to the current study on tertiary institutions but differs in methodology and area of study.

Babasola (2016) developed and utilized a Computer Assisted Instruction (CAI) package for teaching Quadratic Equation in Secondary School in Ogun state. The main purpose of this study was to develop and utilize CAI package in teaching quadratic equations in secondary schools in Ogun state. The study adopted Research and Development (R and D) design. Quasi- experimental study was used to find out the efficacy of CAI package for teaching the quadratic equations. The study was conducted in Abeokuta North educational zone of Ogun State of Nigeria. Two groups of students participated in the study. Before the treatment began, subjects were given a pre-test. A posttest was also conducted at the end of the study. The experimental treatment lasted for six weeks. The results indicated that there was a significant difference in the students' achievement between the experimental and control groups. The findings of the study showed that the use of CAI package in teaching quadratic equations was more effective in helping students and are responsible for the learning. It is evident from the various studies reviewed that Intelligent Tutor instructional strategy has greatly expanded the potential of computer application in the classroom and added new dimension to the teaching and learning process. Meanwhile, the development of software in the field of Auto-

Mechanics was reported in the literature to have been carried out outside the country and it has not been carried out to the best knowledge of the researcher in Nigerian educational institutions. As a consequence, exigency demands for designing and developing computer-based software that best suited the peculiar needs of Nigerians immediate environment in order to fill the gap created in the literatures. More so, These reviewed empirical studies will impact positively on this study as most of the intelligent Tutors, research and development as well as evaluation techniques reviewed will assist in carrying out the study. Considering the growing complexity and the influence of ICT technologies on the field of automotive technology, the need to undertake a design and validation of an Intelligent Tutor on the students' performance and retention of learning in Auto-Mechanics trade programmes of Nigerian Technical Colleges becomes inevitable.

2.9 Summary of Literature Review

An extensive review of related literature on evaluating the implementation of Motor Vehicle Mechanic's Work programme in Niger State of Nigeria was carried out. The conceptual framework of the study covered the following sub-headings: Technical college education in Nigeria, Motor vehicle mechanic's work programme in Nigerian technical colleges, Teaching methods employed in Motor Vehicle Mechanic work programme, Infrastructural facilities in Motor Vehicle Mechanic work programme, Implementation strategies of motor vehicle mechanic work programme, Evaluation of Motor Vehicle Mechanics work programme. The literature review showed that MVMW in Nigerian technical colleges is a vocational trade designed to produce competent vehicle mechanics with sound theoretical knowledge and who should be able to diagnose and carryout repairs and/or maintenance on all types' of motor vehicles. The successful completion of this programme enables its recipients the opportunity to secure

employment either at the end of the whole course or after completing one or more modules of employable skills; Set up their own enterprises and become self-employed and be able to employ others; Pursue further education in advanced craft/technical institutions such as polytechnics, or colleges of Education (Technical) and Universities. However, it has been observed that technical college graduates of MVMW in Niger State of Nigeria possesses little or none of the technological skills required to perform as graduates of MVMW programme. The literature reviewed has shown that MVMW programme in technical colleges in Nigeria needs to be reviewed by National Board for Technical Education (NBTE) for the integration of adequate curriculum for effective learning of technical and technological skills in the training of enterprising graduates.

Constructivist and behaviourist theories was used in the study. The theories focus on what students can do to integrate new knowledge with existing knowledge to create a deeper understanding of the motor vehicle mechanic programme. Each philosophy identifies the student as an active participant in the teaching and learning process.

A few related empirical studies were also reviewed in order to guide the researcher in selecting appropriate methodology for this study. Many of the empirical studies which were found relevant, presented some empirical works on curriculum improvement of motor vehicle mechanic work programme in technical colleges in Nigeria, but no empirical study known to the researcher has been conducted to evaluate the implementation of Motor Vehicle Mechanic's Work programme in Niger State of Nigeria. This study is therefore timely as it is intended to close this critical gap.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

The research design adopted for this study was a survey research design where questionnaires will be used as source for opinions of respondents on the evaluation of implementation of motor vehicle mechanic work programme in technical college level in Niger state. The survey research design will be chosen as an appropriate method for the research as it seeks the views of people about a particular issue that concerns them, give room for researcher to study the group of people and items to source for information from the respondents.

3.2 Area of the study

The study was carried out in all the seven Technical Colleges in Niger State which are Government Technical college, Minna, Government Technical college Eyagi Bida , Federal Science and Technical college, Shiroro, Government Technical college,

Kontagora. Government Technical college, New Bussa. Mamman Technical college, Pandogari and Suleiman Barau Technical College Suleja.

3.3 Population of the study

The total population for this study is one thousand two hundred and thirty eight (1238) which consist of one thousand two hundred and five (1205) students and thirty three (33) teachers in Technical colleges in Niger State.

3.4 Sample and Sampling Technique

A simple random sampling technique was used to sample hundred (100) students and twenty (20) teachers from five technical college in Niger State.

Table 3.1: Sampled Distribution

S/N	Technical Colleges	Students	Teachers
1	Government Technical college, Minna	20	4
2	Government Technical college, Eyagi Bida	20	4
3	Federal Science and Technical college, Shiroro	20	4
4	Government Technical college, Kontagora	20	4
5	Government Technical college, New Bussa	20	4
	Total	100	20

Source: Author's work (2022)

3.5 Instrument for Data Collection

The questionnaire is the main instrument used by the researcher for the data collected for the study. The questionnaire is structured under four sections. Section A consisting of respondents personal data, while Section B, C and D consists of respondents view on items of questionnaire which are 28 items, the items are grouped into B, C and D. section B contains 10 items which deal with the teaching methods and techniques in improving motor vehicle mechanic work programme implementation.

Section C contains 10 items which deal with the adequacy of infrastructural facilities and techniques that could be used to enhance implementation of motor vehicle mechanic work programme in technical college level in Niger state. Section D contains 8 items which deal with the strategies that could be adopted to improve or enhance motor vehicle mechanic work programme in technical college level in Niger state.

3.5 Validation of the instrument

The instrument was validated by three lecturers in the Department of Industrial and Technology Education, Federal University of Technology Minna. The validator's suggestions and correction will be incorporated in the final draft of the instrument in order to ensure that the instrument will be capable of eliciting necessary information that needed for the study

3.6 Reliability of the Instrument

The instrument was administered to 25 respondents who were five (5) Teachers and twenty (20) students in Lokoja L.G.A, Kogi State, which were not part of the study sample to ensure the reliability after modification. The responses will be used to calculate the reliability coefficient. A reliability consistency of 0.796 approximately

80% was obtained which implied that the internal consistency of the instrument was high.

3.7 Method of Data Collection

An introductory letter was collected from the Department of Industrial and Technology Education and submitted to various technical colleges to notify and request for their approval before administering the questionnaire. The questionnaire will be administered by the researcher with two other trained research assistants.

3.8 Method of Data Analysis

The data collected was analyzed using mean and standard deviation. The null hypotheses were tested using t-test at 0.05 level of significance.

3.9 Decision Rule

In order to determine the level of acceptance or rejection of any items, a mean score of 2.50 was used. Therefore any item with a mean responses of 2.50 and above was accepted and any item with a response of 2.49 and below will be rejected.

The mean of each item was computed by multiplying the frequency of each response mode with appropriate nominal value and divided by the sum obtained under each item with the number of the respondent to an item.

CHAPTER FOUR

4.0 RESULT AND DISCUSSION

This chapter involves the result and discussion with regard to the research questions compiled and critically examined for this study, the result of this data analysis for the research questionnaire are presented as follows.

4.1 Result

Research Question 1

What are the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level?

Table 4.1

Mean responses of the students and teachers regarding the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level

$N_1 = 100, N_2 = 20$

Key

S/N	ITEMS	X_1	X_2	SD_1	SD_2	X_T	Remarks
1	Lecture method	2.62	2.75	0.59	0.74	2.66	Agreed
2	Field trip method	3.13	3.14	0.39	0.40	3.13	Agreed
3	Assignment method	2.19	2.22	0.55	0.50	2.20	Disagreed
4	Using individualized instruction technique	2.23	2.02	0.49	0.32	2.76	Agreed
5	Practice and Drill method	2.50	2.24	0.54	0.51	2.51	Agreed
6	Project method	2.12	2.00	0.48	0.49	2.08	Disagreed
7	Questioning method	2.32	2.14	0.53	0.45	2.26	Disagreed
8	Role-play and Simulation method	3.26	3.08	0.59	0.48	3.20	Agreed
9	E-learning	2.19	2.08	0.49	0.34	2.15	Disagreed
10	Experienced teachers will explain MVM operations in a better way to the student for easier comprehension	2.79	2.77	0.54	0.76	2.78	Agreed

Keys: N_1 = Number of Students

SD_1 = Standard deviation of Students

N_2 = Number of Teachers

SD_2 = Standard deviation of Teachers

X_1 = Mean of Students

X_2 = Mean of Teachers

X_t = average mean of Students and Teachers

The result presented in table 4.1 above revealed that the groups of respondent agreed with the items 1,2,4,5,8,10 with the average mean ranging from 3.20 -2.51 and disagreed with items 3,6,7 and 9 with mean scores ranging between 2.08- 2.26, on the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level.

4.2 Research Question 2

How adequate are infrastructural facilities in motor vehicle mechanic programme at technical college level?

Table 4.2

Mean response of teachers and student regarding the adequacy of infrastructural facilities in motor vehicle mechanic programme at technical college level.

N₁ = 100, N₂ = 20

S/N	ITEM	X ₁	X ₂	SD ₁	SD ₂	X _T	Remarks
1.	Auto electric system instructional chassis	3.33	3.00	0.65	0.90	3.10	Agreed
2.	Cylinder boring machine with accessories	2.92	2.54	0.67	0.75	2.65	Agreed
3.	Bottle jacks (hydraulic)	2.67	2.43	0.89	0.79	2.50	Agreed
4.	Inspection pits	2.83	2.43	0.72	0.74	2.55	Agreed
5.	Dynamometer	2.83	2.68	0.72	0.95	2.73	Agreed
6.	Comfortable chairs, tables/lockers and work benches in the automobile classroom and workshops	2.92	2.54	0.67	0.69	2.65	Agreed
7.	Valve spring compressor kit	2.92	2.96	0.67	0.79	2.95	Agreed
8.	Motor scope (engine analyzer)	2.50	2.32	0.67	0.72	2.38	Disagreed
9.	Mechanical tool box trolley	2.67	2.36	0.89	0.56	2.45	Disagreed
10.	Fire extinguishers, hand Gloves	2.83	3.21	0.94	0.83	3.10	Agreed

Key

- N₁ = Number of Students
- SD₁ = Standard deviation of Students
- N₂ = Number of Teachers
- SD₂ = Standard deviation of Teachers
- X₁ = Mean of Students
- X₂ = Mean of Teachers
- X_t = average mean of Students and Teachers

The result presented in table 4.2 above revealed that the groups of respondent agreed with some of the items with the average mean ranging from 3.20 – 2.51, except item 8

and 9 with the mean score 2.38-2.45 on the adequacy of infrastructural facilities in motor vehicle mechanic programme at technical college level

4.3 Research Question 3

What are the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level?

Table 4.3

Mean responses of teachers and students regarding the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level.

N₁ = 100, N₂ = 20

S/N	ITEMS	X ₁	X ₂	SD ₁	SD ₂	X _T	Remarks
1.	Making the MVM syllabus to be more practical oriented	2.99	3.14	0.58	0.75	3.04	Agreed
2.	<u>Reskilling of MVM teachers</u>	3.09	3.33	0.47	0.55	3.17	Agreed
3.	Provision of e-library	2.97	2.86	0.41	0.69	2.93	Agreed
4.	Review of curriculum module for teaching automobile in technical colleges	3.06	3.22	0.28	0.50	3.11	Agreed

5.	Encourage e-learning	3.04	3.06	0.20	0.47	3.05	Agreed
6.	Availability of internet facilities	2.97	2.96	0.44	0.53	2.97	Agreed
7.	Collaborating with auto-industries to assist with students practical learning	3.18	3.10	0.58	0.67	3.15	Agreed
8.	<u>Encourage the use of e-studio</u>	3.01	3.02	0.39	0.58	3.01	Agreed

Key

N_1 = Number of Students

SD_1 = Standard deviation of Students

N_2 = Number of Teachers

SD_2 = Standard deviation of Teachers

X_1 = Mean of Students

X_2 = Mean of Teachers

X_t = average mean of Students and Teachers

The result presented in table 3 above revealed that the groups of respondent agreed with all the items with the average mean scores ranging from 3.17 – 2.93, on the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level.

4.4 Hypotheses One

There is no significant difference between the mean responses of teachers and students on the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level

Table 4.4

T-test analysis of Students’ and Teachers regarding the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level

S/N	RESPONDENT	N	\bar{x}	SD	d.f	t-cal	t-critical
1	Students'	100	2.54	0.52	98	-0.68	1.98
2	Teachers	20	2.44	0.49			

Key

- N₁ = Number of Students'
- SD₁ = Standard deviation of Students'
- N₂ = Number of Teachers
- SD₂ = Standard deviation of Teachers
- t = t-test value of Students' and Teachers
- Df = degree of freedom
- NS = Not significant

In table 4.4, the t-calculated (-0.68) does not exceed the t-critical of (1.98) necessary for acceptance of null hypotheses at 0.05 level for 98 degree of freedom, the hypotheses were accepted, hence there was no significant difference between the mean rating of teachers and students on the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level

4.5 Hypotheses Two

There is no significant difference between the mean responses of teachers and students on the adequacy of infrastructural facilities in motor vehicle mechanic programme at technical college level.

Table 4.5

T-test analysis of Students and Teachers regarding the adequacy of infrastructural facilities in motor vehicle mechanic programme at technical college level.

S/N	RESPONDENT	N	\bar{x}	SD	d.f	t-cal	t-critical
1	Students'	100	2.84	0.75	98	-1.15	1.98
2	Teachers	20	2.65	0.77			

Key

- N₁ = Number of Students'
- SD₁ = Standard deviation of Students'
- N₂ = Number of Teachers
- SD₂ = Standard deviation of Teachers
- t = t-test value of Students' and Teachers
- df = Degree of freedom
- NS = Not significant

In table 4.5, the t-calculated (-1.15) does not exceed the t-critical of (1.98) necessary for acceptance of null hypotheses at 0.05 level for 98 degree of freedom, the hypotheses were accepted, hence there was no significant difference between the mean rating of teachers and students on the adequacy of infrastructural facilities in motor vehicle mechanic programme at technical college level.

4.6 Hypothesis Three

There is no significant difference between the mean responses of teachers and students regarding the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level

Table 4.6

T-test analysis of Students' and Teachers regarding the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level

S/N	RESPONDENT	N	\bar{x}	SD	d.f	t-cal	t-critical
1	Students'	100	3.04	0.42	98	0.31	1.98

2	Teachers	15	3.09	0.59
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Key

- N₁ = Number of Students'
- SD₁ = Standard deviation of Students'
- N₂ = Number of Teachers
- SD₂ = Standard deviation of Teachers
- t = t-test value of Students' and Teachers
- S = Significant
- NS = Not significant

In table 4.6, the t-calculated (0.31) does not exceed the t-critical of (1.98) necessary for acceptance of null hypotheses at 0.05 level for 98 degree of freedom, the hypotheses were accepted, hence there was no significant difference between the mean rating of teachers and students on the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level

4.7 Findings of the study

The following were the findings of the study. They are highlighted based on the research question framed for the study.

1. Most of the respondents agreed on the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level
2. Most of the respondents agreed on the adequacy of infrastructural facilities in motor vehicle mechanic programme at technical college level
3. Most of the respondents agreed on the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level
4. There was no significant difference between the mean responses of teachers and students on the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level

5. There was no significant difference between the mean responses of teachers and students on the adequacy of infrastructural facilities in motor vehicle mechanic programme at technical college level

There was no significant difference between the mean responses of teachers and students regarding the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level

4.8 Discussion of findings

The discussion of findings is based on the research question and hypotheses formulated for the study. Finding on the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level. According to Federal Government of Nigeria, (2004), Technical Colleges are saddled with the task of providing, imparting or teaching practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economy and social life. As such, it should provide training on the acquisition of relevant and needed skills to meet the demand of modern commerce, technologies, related sciences and industries. In the opinion of Adegbile (2003), Technical Colleges are institutions where scientific knowledge and practical skills required for specific trade; employment or professionals, craftsmen, technician, technologist, scientist or similar levels of manpower are imparted or taught.

Ho₁:- The table of hypotheses one clearly shows the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level. This indicates that there is no significant difference between the mean response of students and teachers. This accepted because the calculated t- test in this table does not equal or exceed t- critical value 1.98.

The findings of the study revealed the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level. The Federal Government of Nigeria (FGN) in her National Policy on Education (FRN, 2004) stated that the curricula activity for Technical Colleges is structured in foundation and trade modules, with the trade modules consisting of five components. These five components or elements include: General Education; Theory and Related Courses; Workshop Practice; Industrial Training/Production Work and Small Business Management and Entrepreneurial Training.

Ho₂:- the table of the hypotheses two shows the adequacy of infrastructural facilities in motor vehicle mechanic programme at technical college level. This indicates that there is no significant difference between the mean response of students and teachers. This is accepted because the calculated t-test in this table does not equal or exceed t-critical value 1.98.

Good quality and standard institution of learning depend largely on the provision, adequacy, utilization and management of educational facilities. Akinsolu (2004) asserted that educational curriculum cannot be sound and well operated with poor and badly managed school facilities. From all indication, facilities in schools are physical resources that facilitate effective teaching and learning. They include blocks of classrooms, laboratories, workshops, libraries, equipment, consumables, electricity, water, visual and audio-visual aids, tables, desks, chairs, playground, storage space and toilets. .In Nigeria, Technical school enrolment has continued to increase without a corresponding increase in facilities for effective teaching and learning. As a result of underfunding of education in Nigeria, the government has been encouraging maintenance of available facilities in schools (Asiyai, 2012). Maintenance of facilities in schools entails ensuring that the facilities are kept near their original state as possible.

This involves keeping the school sports and football field clean, periodic renovation of the buildings, servicing the school bus and generator sets, repairs etc. for the purpose of restoring the facilities to optimum working condition.

The findings under the research question 3 indicated the the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level. Implementation strategies: While implementation frameworks provide the 'big picture' for the conceptualization of implementing science and practice, they contain few immediately actionable steps that can be directly translated into practice. This situation began to change with the development of the concept 'implementation strategies'. They have been defined as 'methods or techniques used to enhance the adoption, implementation, and sustainability' of a programme or practice. Teaching strategies are the tools that teachers have at their disposal to engage learners and enable learning objectives to be met via effective teaching and learning and teaching skills are how they select and use these strategies. Teaching strategies are differentiated from teaching models by using the definition of a model as the sequence of steps or phases (the syntax) used to achieve particular types of learning outcomes.

H₀₃:- the table of hypotheses 3 shows that the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level. This indicates that there is no significant difference between the mean response of students and teachers. This was accepted because the calculated t-test in this table does not equal or exceed t- critical value ± 1.98 .

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Motor Vehicle Mechanic Work (MVMW) is designed to produce competent automobile craftsmen for the technological and industrial development of Nigeria. The study revealed that most of the respondents agreed on the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level and also most of the respondents agreed on the adequacy of infrastructural facilities in motor vehicle mechanic programme at technical college level. The study concludes that the acquisition of emerging technology skills will enable MVMW graduates to become self-reliant, self-employed and employers of labour. These skills will also enable MVMW graduates to acquire new competencies for servicing and repair of modern vehicles in order to remain relevant in the automobile industry.

5.2 Recommendations

This study made the following recommendations:

1. Government should provide adequate MVM tools to students during practical
2. Government should provide high technology equipments for testing and repair of automobiles
3. Adequate funding of MVM department by management board
4. The institution should organize excursion and field trips for students
5. Government should provide modern textbooks in MVM for students in line with the curriculum modules.

6. Government should provide enough comfortable classrooms for lectures, chairs and lockers

5.3 Contribution to Knowledge

This study contributed to provide information to Automobile servicing companies when incorporated into the curriculum content of MVMW in technical colleges as it will produce a pool of highly skilled automobile graduates (craftsmen) who will be versatile and adaptable to the dynamic nature of MVMW, thereby enhancing the performance and productivity of the automobile industry towards the sustenance of Nigeria's economic and industrial growth.

This study will contribute to provide information to sensitize the government on the performance gap between technical and technological proficiency acquired by graduates of MVMW in technical colleges and the requirements of automobile industries. Hence, the government will be encouraged to organize retraining programmes and skill improvement workshops for instructors of MVMW whose responsibility it is to impart technical and technological skills on students for gainful employment upon graduation.

5.4 Suggestion for Further Studies

The following suggestions are made for further research.

1. Evaluation on the implementation of motor vehicle mechanic programme at technical college level in North Central
2. Assessment of the implementation of motor vehicle mechanic programme at Federal Universities in North Central.

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APPENDIX

QUESTIONNAIRE FOR THE EVALUATION OF THE IMPLEMENTATION OF MOTOR VEHICLE MECHANIC PROGRAMME AT TECHNICAL COLLEGE LEVEL IN NIGER STATE

FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE

SCHOOL OF SCIENCE AND TECHNOLOGY EDUCATION

DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION

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

SECTION A

PERSONAL DATA

Student :

Teacher:

Note: A four point scale is used to indicate your opinion, tick the option which best describe your agreement as shown below.

Strongly Agree = S.A, Agree = A, Disagree = D, Strongly Disagree= SD

SECTION B

Respond options for this section are:

Strongly Agree = S.A, Agree = A, Disagree = D, Strongly Disagree = S.D

RESEARCH QUESTION ONE

What are the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level?

<u>S/N</u>	<u>ITEMS</u>	<u>SA</u>	<u>A</u>	<u>D</u>	<u>SD</u>
<u>1</u>	Lecture method				
<u>2</u>	Field trip method				
<u>3</u>	Assignment method				
<u>4</u>	Using individualized instruction technique				
<u>5</u>	Practice and Drill method				
<u>6</u>	Project method				
<u>7</u>	Questioning method				
<u>8</u>	Role-play and Simulation method				
9	E-learning				
10	Experienced teachers will explain MVM operations in a better way to the student for easier comprehension				

SECTION C

Respond options for this section are:

Highly Adequate = H.A, Adequate = A, Moderately Adequate = M.A, Not Adequate = N.A

RESEARCH QUESTION TWO

How adequate are infrastructural facilities in motor vehicle mechanic programme at technical college level?

<u>S/N</u>	<u>ITEM</u>	<u>HA</u>	<u>A</u>	<u>MA</u>	<u>NA</u>
<u>1</u>	Auto electric system instructional chassis				
<u>2</u>	Cylinder boring machine with accessories				
<u>3</u>	Bottle jacks (hydraulic)				
<u>4</u>	Inspection pits				
<u>5</u>	Dynamometer				
<u>6</u>	Comfortable chairs, tables/lockers and work benches in the automobile classroom and workshops				
<u>7</u>	Valve spring compressor kit				
<u>8</u>	Motor scope (engine analyzer)				
<u>9</u>	Mechanical tool box trolley				
<u>10</u>	Fire extinguishers, hand Gloves				

SECTION D

Respond options for this section are:

Strongly Agree = S.A, Agree = A, Disagree = D, Strongly disagree = S.D

RESEARCH QUESTION THREE

What are the strategies that could be used to improve the implementation of motor vehicle mechanic programme at technical college level?

<u>S/N</u>	<u>ITEMS</u>	<u>SA</u>	<u>A</u>	<u>D</u>	<u>SD</u>
<u>1</u>	Making the MVM syllabus to be more practical oriented				
<u>2</u>	<u>Reskilling of MVM teachers</u>				
<u>3</u>	Provision of e-library				
<u>4</u>	Review of curriculum module for teaching automobile in technical colleges				
<u>5</u>	Encourage e-learning				
<u>6</u>	Availability of internet facilities				
<u>7</u>	Collaborating with auto-industries to assist with students practical learning				
<u>8</u>	<u>Encourage the use of e-studio</u>				