

ASSESSMENT OF THE IMPLEMENTATION OF THE CURRICULUM OF MOTOR VEHICLE MECHANICS' WORK AT TECHNICAL COLLEGES LEVEL IN NIGER STATE, NIGERIA.

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Abstract

The study assessed the implementation of the curriculum of Motor Vehicle Mechanics' Work at technical college levels in Niger State. The descriptive survey research design was adopted for the study. Two research questions guided the study. The population for the study consists of 21 administrators of technical colleges and 28 motor vehicle mechanics work (MVMW) teachers in all the technical colleges in Niger State. A structured questionnaire was used for data collection. The reliability coefficient of the instrument was found to be 0.75. The data collected were analyzed using mean, standard deviation for the research questions. The findings of this study revealed that the objectives of motor vehicle mechanics work curriculum (MVMWC) were adequate in producing competent and enterprising motor vehicle mechanics; but instructions in technical colleges today remained more of theory than practical. Hence, it was recommended that both the teachers of MVMW and instructors should employ teaching strategies that engage students in high-level cognitive activities which stimulate thought, and practical work during curriculum implementation. Finally, it was also recommended that the curriculum of motor vehicle maintenance work should be revised and updated by National Board for Technical Education regularly.

Keywords: Objectives, Teaching Strategies, Technical Colleges, Self-reliance, Curriculum.

Introduction

Technical Education 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 (FRN, 2014), Technical education 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 technical education 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 impact the necessary skills to individual who shall be self-reliant economically. The technical colleges according to FRN (2014) is to offer training and impact the essential competences leading to the production of craftsmen and other categories of skills personal who will be enterprising and self-reliant upon graduation in various trade areas such as bricklaying, block laying and concreting, electrical installation and maintenance work, fabrication and welding, carpentry and joinery, painting and decorating, and motor vehicle mechanics work trade among others.

The objectives of Motor Vehicle Mechanic's Work (MVM), according to United Nations Educational Scientific and Cultural Organization (UNESCO) 2020) is to enable the craftsmen to

diagnose and repair faults, maintain and service vehicles, improve vehicle performance, endure safety and reliability, promote entrepreneurship, support economic growth among others. The following teaching strategies are used in the implementation of the contents of motor vehicle mechanics work curriculum, hands on training, demonstration method, project based learning, mentorship, simulation based learning, group work field trips, case studies and assessment and feedback (UNESCO, 2020).

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 of different types of motor vehicles. Motor vehicle graduates upon completion of one or more employability modules have the opportunity to set up independent automobile enterprises to 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 which are among the curriculum components of motor vehicle mechanics work.

These Curriculum components include: contents, teaching strategies, instructional facilities, and method of evaluation. The aim of the curriculum is to give insight and equip the students with knowledge, attitude and skills in automobile work that can enable them to be gainfully employed after graduation (Nigerian Educational Research and Development Council, NERDC, 2014). The general objectives of the course as embedded in the MVWC are for the learner to develop familiarity with the automobile, and the various changes in technologies that are applicable to the automobile, perform simple fault diagnosis and to effect simple routine automobile repairs (NERDC, 2014). Curriculum contents refer to the subject matter, and various topics (including skill, knowledge, attitude, among others), that help in achieving the objectives of programmes.

The contents of the MVMWC are designed and organized in modules for training of MVM students using appropriate teaching strategies on the following topics in MVMW: safety and maintenance, engine system, fuel system, cooling system, transmission and braking system, electrical systems (lighting system, ignition system), charging system, exhaust system, heating and ventilation system, steering and suspension system, lubrication system, and auto-air conditioning system (NERDC, 2014). Nwiyi and Okorie, (2014) stated that the MVMWC is very practical in nature and should ideally be taught through methods that maximize the active participation of the learner. This, according to Kumazhege and Egunsola, (2014) also result to students graduating with inadequate or complete lack of practical skills in the MVMW trade area. The term curriculum implementation has been defined in different ways by different scholars. In this study, curriculum implementation is the process of putting the planned MVMWC document into practice in the classroom/workshop; through the combined effort of the teachers/instructors, students, administrators and parents towards the realization of the set objectives.

However, administrators and MVMW teachers in these institutions play a vital role in the implementation of the motor vehicle mechanics work curriculum in technical colleges. Their responsibilities includes; curriculum development, resource allocation, instructor support, assessment and evaluation, industry partnerships, budgeting and funding, police implementation, and programme promotion (UNESCO, 2019).

The National Policy on Education was well structured and the contents were adequately defined but the implementation calls for question (Ayeni, 2016). Furthermore, several studies have revealed that despite the curriculum was well structured, products of the programmes still lacked the basic skills needed for gainful employment and self-sustenance in today's automobile

industry. Ayeni, (2016) stated that a poorly implemented curriculum will produce half-baked graduates. The preceding researches depict the situation experienced by graduates of technical colleges in Nigeria and revealed that there is an important link between the quality of MVMWC implementation and the graduates' sense of being effective and self-sustainable after school. Nyapson, (2015) observed that the MVMWC in Nigeria prepares graduates of technical colleges to have irrelevant and inadequate skills in MVMW, which has rendered most of them jobless and not able to contribute to the national economy, neither to set up their own workshops nor being employed by automobile industries in Nigeria. Hence, this situation calls for a critical assessment of the objectives of the MVMWC and strategies for the implementation of the curriculum at technical college level in Niger State.

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 carry out 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 (National Board for Technical Education NBTE, 2014). With advancement in technology, automobiles that are manufactured presently 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 motor vehicle mechanic graduates in the course of discharging their duties in the country (NBTE, 2014).. 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 curriculum content, and the quality of training received by graduates of MVMW in technical colleges.

This situation could be attributed to the deficiency of training facilities and equipments on modern automobile technology skills which has equally restricted MVMW graduates of technical colleges in skillfulness, efficiency, proficiency and productivity (Abuda, 2015). Based on this insight, the study assessed the objectives of the MVMW and curriculum implementation at technical college level in Niger State.

Purpose of the Study

The main purpose of this study was to assess the implementation of the curriculum of MVMW at the technical college level in Niger State. Specifically the objectives were to:

1. Examine the appropriateness of the objectives of MVMW in producing motor vehicle mechanics work craftsmen for gainful employment and self reliance.
2. Identify the teaching strategies used in the implementation of the contents of MVMWC in technical colleges in Niger state.

Research Questions

1. How appropriate are the objectives of the MVMW in producing motor vehicle mechanics work craftsmen for gainful employment and self reliance?
2. What are the teaching strategies used in implementation of the contents of MVMWC in technical colleges in Niger state?

Methodology

The study adopted the descriptive survey research design. The study was carried out in Niger State Government Technical Colleges and one Federal Science and Technical College: comprising of: Government Technical College Eyagi Bida, Government Technical College

Minna, Suleiman Barau Science and Technical College Suleja, Government Technical College Kotakora, Government Technical College New Bussa, Mamman Kontagora Technical College Pandogari and Federal Science and Technical College Shiroro, Kuta. The population for this study consisted of 21 administrators of technical colleges, 28 MVMW teachers in all the technical colleges in Niger State, making a total population of 49 respondents.

The study utilized quantitative techniques. A structured Questionnaire was used for data collection. The questionnaire answered the two Research Questions (RQs) of the study. The questionnaire was divided into three sections (A, B & C). Section A solicited information on demographic data of the respondents. Section (B) contains 8 items designed to elicit information on the objectives of the Motor Vehicle Mechanics' Work in producing motor vehicle mechanics students for self reliance after graduation. Section C contained 17 items, which were used to find out the teaching strategies adopted in implementing the curriculum contents of the MVMW. All the 25 items of the questionnaire were rated on a five-point Likert scale of strongly agree (5), agree (4), undecided (3), disagree (2), and strongly disagree (1). Cronbach Alpha (α) reliability Statistics was used to establish internal consistency of the instrument. The reliability coefficient for the instrument was 0.75. Meaning that a reliability coefficient is generally considered acceptable

Results

Research Question 1: How appropriate are the objectives of the MVMW in producing MVM Craftsmen for gainful employment and self reliance?

The data for answering this research question are provided in Table 1.

Table 1: Mean Responses of the Respondents on the Appropriateness of the objectives of the MVMW in producing MVMW Craftsmen for gainful employment and self reliance.

S/No.	Objectives of MVMW	\bar{x}_1	\bar{x}_2	\bar{x}_3	Remarks
1	Give technical college graduating students insight into the knowledge, attitude and skill in automobile work that can enable them be self-reliance	4.47	3.67	4.07	Agree
2	Equip technical college graduating students with knowledge, attitude and skill in automobile work that can enable them be enterprising and self-reliant	4.62	4.60	4.61	Strongly agree
3	Enable Students to familiarizes with the automobile components	4.48	3.90	4.19	Agree
4	Enable Students develop proper attitude towards automobile use	4.66	4.88	4.77	Strongly agree
5	Helps Students to appreciate the various development in technologies that are applicable to the automobile	4.42	3.99	4.36	Agree
6	Helps Students perform simple fault diagnosis	4.41	4.30	4.35	Agree
7	Makes Students effect simple routine automobile maintenance	4.44	4.10	4.27	Agree
8	Enables Students perform minor automobile repairs	4.47	4.33	4.00	Agree

Key:-

\bar{x}_1 = Means of the MVMW Teachers

\bar{x}_2 = Means of Administrators

\bar{x}_3 = Average Means

Analysis of mean responses of the respondents from Table 1 revealed that 2 items were strongly agree with their mean from 4.62 to 4.72, while 6 items were agree with their mean ranged from 4.42 to 4.48. This shows that the respondents agreed that the objectives of the MVMWC are appropriate in producing motor vehicle mechanics craftsmen for self-reliance after graduation.

Research Question 2: What are the teaching strategies used in implementation of the contents of the MVMWC in technical colleges in Niger State?

The data for answering this research question are provided in Table 2.

Table 2: Mean Responses of Respondents on the Teaching Strategies used in implementing the Curriculum Contents of MVMWC in Technical Colleges in Niger state.

S/No.	Teaching Strategies used	\bar{x}_1	\bar{x}_2	\bar{x}_3	Remarks
1	Lecture Method	4.60	4.70	4.65	Strongly agree
2	Simulation	1.60	1.32	1.46	Disagree
3	Tutorial	1.82	1.90	1.86	Disagree
4	Group discussion	4.23	4.30	4.26	Agree
5	Discovery or inquiry	2.00	2.11	2.05	Disagree
6	Use of brainstorming	1.80	1.77	1.79	Disagree
7	Fieldtrips/excursions	2.40	2.35	2.37	Disagree
8	Practical activity based approach	2.47	2.28	2.38	Disagree
9	Problem based learning	3.60	3.55	3.58	Agree
10	Demonstration	4.21	4.33	4.27	Agree
11	Use of prototype models for teaching practical lessons	2.45	2.43	2.44	Disagree
12	Using case studies	1.61	1.50	1.56	Disagree
13	Use of Computer Assisted Instructions	1.80	1.76	1.78	Disagree
14	Debates	2.00	1.99	1.99	Disagree
15	Cooperative Learning: The Jigsaw strategy	1.44	1.45	1.45	Strongly disagree
16	Employment of experts to teach some specialized areas	1.85	1.88	1.87	Disagree
17	Project method	2.20	2.11	2.15	Disagree

Key:-

\bar{x}_1 = Means of MVMWC Teachers

\bar{x}_2 = Means of Administrators

\bar{x}_3 = Average Means

The data presented in Table 2 above revealed that three (3) teaching strategies (lecture method, group discussion, and demonstration) were strongly agreed upon as being used in implementing the curriculum contents of the MVMWC in technical colleges in Niger state with their mean ranging from 4.60, 4.23, 4.21 and 3.60. Fourteen others with their mean ranging from 1.44 to 2.47 were disagreed upon by the respondents. This showed that respondents generally disagreed with the teaching strategies adopted in the implementation of the MVMWC curriculum. It is worth noting that, the teaching strategies that were disagreed and strongly disagreed upon are

actually those that engage the students in high level cognitive activities which stimulate thought, practical work, analysis, and reflection during curriculum implementation; while those that were agreed upon were predominantly theoretical.

Discussion of the Findings

The findings of the study showed that the aims and objectives of the motor vehicle work curriculum are appropriate in producing competent and enterprising motor vehicle mechanics for self-employment. The findings are in line with the view of Udogu, (2015) who posited that, MVM curriculum in Nigeria technical colleges is designed to produce competent motor vehicle craftsmen for Nigeria's technological and industrial development. Therefore, the aim and objectives of the curriculum are in cognizant of the nature and structure of modern motor vehicle mechanic work programme. It was also revealed that instructions in technical colleges are more of theory than practical, and predominantly the lecture method. Therefore, the above result revealed that teaching strategies by teachers and instructors are more of theory than practical. Hence, the strategies are not good enough for the implementation of the curriculum and acquisition of practical skills in technical colleges. This finding is in line with the views of (Kumazhege & Egunsola, 2014) who observed that, instructions in technical colleges today have remained essentially devoid of practical skills in the different trades.

Instructions are more of theory (Lecture) than practical (demonstration). Idris (2012) posited that, the lecture method being predominantly used in teaching automobile technology is based on the behavioral learning theories; which emphasized knowledge transmission from the teacher to passive students and encourage rote memorization of facts. More work needs to be done to let go of the outdated modes of knowledge accumulation, and adopt methods that engage the students in high-level cognitive activities which stimulate thought, practical work, analysis and reflection during curriculum implementation (Bandeke & Faremi, 2012). In another development, Federal Republic of Nigeria, (2014) maintained that 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.

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 the respondents agreed that the teaching methods employed in the teaching of motor vehicle mechanic programme at technical college level. The study concludes that the acquisition of emerging technological skills which 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.

Recommendations

Based on the findings of the study, it was recommended that;

1. Teachers and instructors should employ teaching strategies that engage students in high-level cognitive activities which would stimulate thought, practical work, during curriculum implementation.
2. Government through the NBTE and institutions should organized periodic seminars and conferences for MVMW teachers to update their knowledge in modern methods of teaching.

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