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Strategies for Improving the Implementation of Motor Vehicle Mechanics Programme in Technical College in Niger State and FCT Abuja

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Abstract

The study was designed to identify the strategies for improving the implementation of Motor Vehicle Mechanics programme in technical colleges. Specifically the study was aimed at identifying the teaching techniques employed by motor vehicle mechanics teachers and the motivating factors to motor vehicle mechanics teachers in technical colleges. Two (2) research questions and two (2) hypotheses were formulated to guide this study. A descriptive survey research design was adopted for the study. A structured questionnaire containing 24 items was developed by the researcher and used to collect the required data for the study from 59 respondents. Data collected were analysed using Frequency count, Mean, Standard Deviation and t-test. The findings of the study revealed that motor vehicle mechanics teachers in technical colleges employed teaching strategies such as the use of demonstration method in teaching practicals, encouraging active participation of students during practical etc. motivating factors such as promotion of motor vehicle mechanics teachers to the next rank as at when due and provision of regular in-service training for motor vehicle mechanics teachers to update and upgrade their knowledge are required. Based on these findings conclusions some recommendations made.

Introduction

The technological development of any country depends to a large extent on its manpower development. Manpower development encompasses all efforts made to provide experienced, skilled and competent workforce through the acquisition of knowledge in a well designed programme. Okorie (2001) stated that the workforce of a nation subsumes all the industrial and factory workers as well as any person or group of persons in a country whose productive work or services satisfy some aspects of human needs. It is evident that a deliberate effort to develop various skills needed in diverse facets of the economy is necessary. Changes occasioned by technological development obviously demand a commensurate skill adjustment.

However, for a country to develop economically, socially and technologically professional and technical know how are needed. In other words, more qualified teachers, scientists, technicians, technologists mechanics and maintenance workers of all kinds must be trained by a well designed programme. The major thrust of the National Policy on Education (FRN, 2004) was to increase the quality and quantity of the nation's stock of trained technical personnel at technical colleges and other similar colleges, and at the same time prepare individual students for gainful employment and useful living within the society. The policy according to Atsumbe (2005) is a radical departure from the inherited colonial system of education; which placed undue emphasis on liberal education. This policy was aimed at

making education at all level functional and responsive to the socio-economic and technological development of the country.

The Federal Republic of Nigeria (2004) defines Technical Education which takes place in technical colleges as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge. Technical colleges provide technical and vocational training in quite a number of occupations including Metalwork, Woodwork, Building, Auto-mechanics (Motor Vehicle Mechanics), Radio and Television Servicing, Electrical Installation etc (Olaitan, 1996).

Therefore, motor vehicle mechanics teachers teaching in technical colleges need to be very efficient in methods of teaching for effective learning to take place in the classroom. Silvius and Bohn (1976) in Imarhiagbe (1994) described teaching methods as orderly procedure which direct learners in developing competencies such as skills and habits acquiring specific knowledge and developing positive attitude. In his own contribution, Okoro (1993) stated that lecture, Discussion, Questioning, Demonstration, Project, Experiment, Guest lecture and Field Trip are the basic teaching methods that should be employed in technology education programmes.

Inline with the strategies for improving the implementation of motor vehicle mechanics programme in technical college teachers need to be motivated to work harder and become more efficient in their work when given necessary incentives. Mbiti (1974) and Edem (1982) in their views on how incentives can influence efficiency, maintained that some of the methods are attractive salaries, adequate teaching facilities, promotion from one rank to the other, staff development through in-service training aimed at equipping the technical teachers with modern techniques of performing their duties.

Statement of the Problem

There are a number of problems that have been identified as impediments to the effective implementation of the curriculum of Motor Vehicle Mechanics programme in Nigeria. Students performance and achievement in Motor Vehicle Mechanics has not shown any remarkable improvement due to poor teaching strategy adopted by the teachers (Ajewole, 1990). However no empirical study was available to verify this. Okoro (1993) observed that inappropriate use of teaching techniques by the technical college teachers, particularly motor vehicle mechanics teachers reduces the learning of technical subjects.

Another problem that leads to poor performance of technical college students is lack of motivation of the teachers in the form of attractive salaries, in-service training to upgrade and update their knowledge, promotion to the next rank and many others which are vital spring board that can make technical college teachers put in their possible best in order to deliver effective teaching. Mbiti (1994) explained that failure to motivate technical college

teachers hinder their prospects of giving qualitative teaching. Also no empirical evidence was available to support this. Against this backdrop a need existed for empirical evidence on these.

Purpose of the Study

This study was designed to identify the strategies for improving the implementation of motor vehicle mechanics programme in technical colleges. Specifically, the study was aimed at identifying:

i. The teaching techniques employed by motor vehicle mechanics teachers in technical colleges of Niger State and FCT Abuja.

ii. The motivating factors to motor vehicle mechanics teachers in technical colleges of Niger State and FCT Abuja.

Research Questions

The following research questions were formulated to guide the study

i. What are the teaching techniques employed by motor vehicle mechanics teachers in technical colleges of Niger State and FCT Abuja?

ii. What are the motivating factors to motor vehicle mechanics teachers in technical colleges of Niger State and FCT Abuja?

Hypotheses

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

Ho_1 There is no significant difference between the mean responses of administrators and motor vehicle mechanics teachers with respect to their perception on the teaching techniques employed by motor vehicle mechanics teachers in technical college in Niger State and FCT Abuja.

Ho_2 There is no significant difference between the mean responses of administrators and motor vehicle mechanics teachers with respect to their perception on the motivating factors to motor vehicle mechanics teachers in technical college in Niger State and FCT Abuja.

Methodology

A Descriptive Survey Research Design was adopted for the study. The study was carried out in all the technical colleges of Niger State and FCT Abuja. The target population for the study comprised of school administrators (principals and vice principals) as well as motor vehicle mechanics teachers in all the technical college in the area of the study. The total population figure stands at 59, that is 27 administrators and 32 motor vehicle mechanics teachers. Since the number of administrators and motor vehicle mechanics teachers was not

large, all the 9 technical colleges in the area of the study were used; therefore there was no sampling.

A 24 items structured questionnaire was developed by the researcher and used for the collection of the data for the study. The response categories of the instrument used for the 2 sections of the instrument are Highly Employed, Employed, Not Employed, Highly Not Employed and Highly Motivating, Motivating, Not Highly Motivating and Not Motivating, which were assigned numerical values of 4, 3, 2 and 1 respectively. The instrument was subjected to content validation by 3 senior lecturers in the Department of Industrial and Technology Education, Federal University of Technology, Minna. Their suggestions were used to refine the questionnaire to its present form. A pilot test of the instrument was carried out with 12 respondents randomly selected from 3 technical colleges in Nassarawa State. This yielded a reliability coefficient of 0.89 using the Cronbach Alpha formula.

Data collection was done by the researcher and 2 research assistants. Thus the entire questionnaire administered to the respondents were duly completed and returned. Data collected were analysed using Frequency count, Mean, Standard Deviation and t-test. Any item that attracted up to 2.45 and above were considered accepted and equal to or below 2.44 were rejected. The hypotheses were tested at 0.05 level of significance ± 1.96. Thus any calculated t value below the t-critical value was considered accepted while those equal to or more than were considered rejected.

Results

Research Question 1

What are the teaching techniques employed by motor vehicle mechanics teachers in technical colleges of Niger State and FCT Abuja?

Statements relating to the teaching techniques employed by motor vehicle mechanics teachers in technical colleges were stated in the questionnaire to which the respondents were asked to express their level of employment and non-employment.

Table 1

Mean Responses of Motor Vehicle Mechanics in Teachers and Administrators on Teaching Techniques Employed

S/No	Items	$\bar{X}_1$ $N_1 = 32$	$\bar{X}_2$ $N_2 = 27$	$\bar{X}_t$	Remark
1	Encourage assignment methods of teaching students	2.85	2.75	2.80	Employed
2	Demonstration of every step of the practical to students first before they carryout the practical	1.99	1.88	1.94	Not Employed
3	Encourage active participation of students during practical	2.81	2.63	2.72	Employed
4	Encourage students in designing and construction of parts using bar metals	2.68	3.20	2.94	Employed
5	Encourage school-industry relationship	3.00	2.90	2.95	Employed
6	Encourage students in the fabrication of parts using sheet metal	2.61	2.50	2.56	Employed
7	Encourage assignment method of teaching in working out practical	2.74	3.12	2.93	Employed
8	Employ demonstration method in teaching of practical	2.90	2.80	2.85	Employed
9	Introduction to the students the way of using instructional sheets in carrying out practical exercise	2.09	2.00	2.05	Not Employed
10	Illustrate new ideas in designing and construction using electronic teaching aid	2.02	1.98	2.00	Not Employed
11	Evaluation of students during and after a given job to correct mistakes	2.07	2.77	2.42	Not Employed

Key:

$\bar{X}_1$ = Mean of Teachers

$\bar{X}_2$ = Mean of Administrators

N_1 = Number of Teachers

N_2 = Number of Administrators

$\bar{X}_t$ = Average Mean of Teachers and Administrators

Analysis of the mean responses of the 2 group of respondents from Table 1 reveals that out of the 11 items only 7 items were adjudged as Employed by motor vehicle mechanics teachers. The items are 1, 3, 4, 5, 6, 7 and 8 with an average mean ranging between 2.71 – 3.12 while items 2, 9, 10 and 11 indicate that the items were Not Employed. Therefore, for motor vehicle mechanics teachers to teach effectively in the classroom different techniques of instruction must be employed by the teachers for effective teaching and learning to take place in the classroom or workshop.

Research Question 2

What are the motivating factors to automobile technology teachers in technical colleges of Niger State and FCT Abuja?

In order to ascertain the motivating factors which Niger State government and FCT Abuja can provide to motor vehicle mechanics teachers to improve their efficiency, certain statements relating to the motivation of the teachers were stated in the questionnaire to which the respondents were asked to express their level of agreement.

Table 2

Mean Response of Motor Vehicle Mechanics Teachers and Administrators on the Motivating Factors

S/No	Items	$\bar{X}_1$ $N_1 = 32$	$\bar{X}_2$ $_2 = 27$	$\bar{X}_t$	Remark
12	Provision of prizes for the best automobile teachers	2.91	3.02	2.97	Motivating
13	Provision of safety gadgets to motor vehicle mechanics teachers	2.52	2.89	2.71	Motivating
14	Encouragement of healthy competitions of practical in other subject areas such as metal work and electrical/electronics technology	3.01	2.85	2.93	Motivating
15	Provision of first aid material to all workshops	2.40	2.51	2.46	Not Motivating
16	Making funds available for practical training	3.25	3.40	3.33	Motivating
17	Allot free period to motor vehicle mechanics teachers for excitement	2.33	2.24	2.29	Not Motivating
18	Provision of motor cycle, car and housing loans	3.34	3.46	3.40	Motivating
19	Promotion of motor vehicle mechanics teachers to the next rank as at when due	3.50	3.35	3.43	Motivating
20	Prompt payment of salary	3.78	3.69	3.74	Motivating
21	Provision of accommodation to motor vehicle mechanics teachers far away from school	1.92	2.50	2.21	Not Motivating
22	Provision of motor vehicle mechanics teachers with hazard allowance	2.45	2.30	2.38	Not Motivating
23	Encouragement of motor vehicle mechanics teachers to attend exhibition related to their field	3.12	3.25	3.19	Motivating
24	Provision of regular in-service training for motor vehicle mechanics teachers to update and upgrade their knowledge and enhance skills acquisition	3.81	3.55	3.68	Motivating

Key:
$\bar{X}_1$ = Mean of Teachers
$\bar{X}_2$ = Mean of Administrators
N_1 = Number of Teachers
N_2 = Number of Administrators
$\bar{X}$ = Average Mean of Teachers and Administrators

The result presented in Table 2 revealed that out of the 13 items on motivating factors to be provided to motor vehicle mechanics teachers to improve their efficiency 9 items were adjudged as motivating with an average mean ranging between 2.71 – 3.74, the items are item 12, 13, 14, 16, 18, 19, 20, 23 and 24; while the remaining 4 items were rated as Not Motivating, with an average mean ranging between 2.21 – 2.46, the items are item 15, 17, 21 and 22.

Hypotheses

Ho_1 There is no significant difference between the mean responses of administrators and motor vehicle mechanics teachers with respect to their perception on the teaching techniques employed by motor vehicle mechanics teachers in technical college in Niger State and FCT Abuja.

Table 3

t-test Analysis of the Respondents on the Teaching Techniques Employed by Motor Vehicle Mechanics Teachers in Technical Colleges

S/N	Items	$\bar{X}_1$ N_1 = 32	$S.D_1$	$\bar{X}_2$ N_2 = 27	$S.D_2$	t-cal	Remark
1	Encourage assignment methods of teaching students	2.85	0.75	2.75	0.68	0.82	* *
2	Demonstration of every step of the practical to students first before they carryout the practical	1.99	0.53	1.88	066	2.97	*
3	Encourage active participation of students during practical	2.81	0.75	2.63	057	0.80	* *
4	Encourage students in designing and construction of parts using bar metals	2.68	0.80	3.20	0.88	-2.01	*
5	Encourage school-industry relationship	3.00	0.75	2.90	0.73	-1.93	* *

S/N	Items	$\bar{X}_1$ $N_1 = 32$	$S.D_1$	$\bar{X}_2$ $N_2 = 27$	$S.D_2$	t-cal	Remark
6	Encourage students in the fabrication of parts using sheet metal	2.61	0.79	2.50	0.75	0.80	* *
7	Encourage assignment method of teaching in working out practical	2.74	0.78	3.12	0.81	1.12	* *
8	Employ demonstration method in teaching of practical	2.90	0.84	2.80	0.61	0.91	* *
9	Introduction to the students the way of using instructional sheets in carrying out practical exercise	2.09	0.53	2.00	0.71	2.97	*
10	Illustrate new ideas in designing and construction using electronic teaching aid	2.02	0.54	1.98	0.66	2.99	*
11	Evaluation of students during and after a given job to correct mistakes	2.07	0.68	2.77	0.70	-2.77	*

Key:

$\bar{X}_1$ = Mean of Teachers;

$\bar{X}_2$ = Mean of Administrators;

N_1 = Number of Teachers;

* * = Not Significant

* = Significant

SD_1 = Standard Deviation of Teachers

SD_2 = Standard Deviation of Administrators

N_2 = Number of Administrators

$df = N_1 + N_2 - 2 = 32 + 27 - 2 = 57$

The result presented in table 3 shows that significant difference exists in the t-test analysis of administrators and motor vehicle mechanics teachers in only 5 items, item 2, 4, 9, 10 and 11 whose calculated values are greater than the t-table value therefore the items were rejected. The remaining items; 1, 3, 5, 6, 7, 8 and 12 have their individual 't' calculated less than the t-table value therefore their null hypotheses were accepted.

Ho_2 There is no significant difference between mean responses of administrators and motor vehicle mechanics teachers with respect to their perception on the motivating factors to motor vehicle mechanics teachers in technical college in Niger State and FCT Abuja.

Table 4

t-test Analysis of the Respondents on the Motivating Factors to Motor Vehicle Mechanics Teachers in Technical Colleges

S/N	Items	$\bar{X}_1$ $N_1 = 32$	S.D$_1$	$\bar{X}_2$ $N_2 = 27$	S.D$_2$	t-cal	Remark
12	Provision of prizes for the best automobile teachers	2.91	0.75	3.02	0.68	0.82	* *
13	Provision of safety gadgets to motor vehicle mechanics teachers	2.52	0.89	2.89	0.70	-1.89	* *
14	Encouragement of healthy competitions of practical in other subject areas such as metal work and electrical/electronics technology	3.01	0.70	2.85	0.73	-0.88	* *
15	Provision of first aid material to all workshops	2.40	0.79	2.51	0.88	0.79	* *
16	Making funds available for practical training	3.25	0.74	3.40	0.77	-0.89	* *
17	Allot free period to motor vehicle mechanics teachers for excitement	1.98	0.73	2.24	0.81	-2.11	*
18	Provision of motor cycle, car and housing loans	3.34	0.69	3.46	0.68	0.75	* *
19	Promotion of motor vehicle mechanics teachers to the next rank as at when due	3.50	0.58	3.35	0.60	-0.73	* *
20	Prompt payment of salary	3.78	0.71	3.69	0.70	-0.69	* *
21	Provision of accommodation to motor vehicle mechanics teachers far away from school	1.92	0.78	2.50	0.71	-2.70	*
22	Provision of motor vehicle mechanics teachers with hazard allowance	2.45	0.79	2.30	0.82	0.78	* *
23	Encouragement of motor vehicle mechanics teachers to attend exhibition related to their field	3.12	0.60	3.25	0.71	0.90	* *
24	Provision of regular in-service training for motor vehicle mechanics teachers to update and upgrade their knowledge and enhance skills acquisition	3.81	0.78	3.55	0.76	-0.73	* *

The result presented in Table 4 indicated that significant difference exist in t-test analysis of the respondents in only 2 items; item 17 and 21 whose calculated values are greater than the t-table value, therefore, the items were rejected. The remaining 11 items;

Item 12, 13, 14, 15, 16, 18, 19, 20, 22, 23 and 24 have their individual t-calculated less than t-table value therefore, their null hypotheses were accepted.

Discussion of Findings

The discussion of findings for this study were organized and presented in line with the research questions for the study.

Analysis of mean responses of the two group of respondents (motor vehicle mechanics teachers and administrators) from Table 1 reveals that out of 11 items, only 7 items were adjudged as Employed, where as the remaining 4 items indicated that the items were not employed. This implies that school administrators and heads of department should supervise the activities of both teachers and students during instruction. They also agree that practical exercise can be taught by encouraging students in designing and construction of parts using bar metals and also encouraging students in the fabrication of parts using sheet metal. The respondents were of the view that demonstration method of teaching should be employed while teaching practical. Demonstration is an instructional method which enables students to observe procedures and techniques that illustrate specific skills, principles and concepts. Leighbody and Kidd (1966) in Nneji (2003) stated that demonstration is one of the best methods in teaching practical skills. Miller and Rose (1975) in Nneji (2003) supported this claim by saying that demonstration gives best result when given at the time the students feel a need to learn new content, which demands that the knowledge content of a practical lesson be taught first before the practice is demonstrated.

Further analysis on the motivation factors to automobile technology teachers in technical colleges. Table 2 indicated that the respondents agree with provision of prizes for best motor vehicle mechanics teachers, provision of motor cycle, car and housing loans and promotion of motor vehicle mechanics teachers to the next rank as at when due among the incentives or motivating factors that will energize teachers to put in their best for efficient output. Maslow (1970) observed that if an individual is adequately satisfied at the right time he will yield a positive and efficient result. Sani (2000) added that for a teacher to be motivated, an inducement allowance must be attached to his salary. In other words, attractive salaries, promotion opportunities, teaching facilities and in-service training opportunities must be allowed motor vehicle mechanics teachers in order to enable them discharge their duties and responsibilities efficiently and effectively.

Recommendations

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

1. Since technical education is that form of education that leads to the acquisition of practical and applied skills motor vehicle mechanics teachers should employ different techniques of instruction with particular emphasis to demonstration method in teaching practical lessons.
2. School authorities should create school-industry relationship to enable students to observe and connect abstract thinking with reality under constant supervision of instruction.
3. Niger State government and FCT Abuja ministries of education should provide motivating factors such as car, motor cycle, housing loans, promotion to the next rank as at when due, prompt payment of salaries among others to motor vehicle mechanics teachers in technical colleges.
4. Niger State government and FCT Abuja ministries of education should provide in-service training to motor vehicle mechanics teachers in order to update and upgrade their knowledge for them to be able to teach efficiently and effectively.

Conclusion

For a country to develop economically, socially and technologically professional technical know how are needed. In other words more qualified teachers, particularly motor vehicle mechanics teachers must be trained through a well designed programme. Teachers teaching in technical colleges need to be very efficient in methods of instruction for effective teaching to take place in the classrooms or school workshop. Technical college teachers need to be motivated by way of giving them the necessary incentives such as attractive salary, promoting one rank to the other, provision of in-service training which is aimed at equipping the technical college teacher with modern techniques of performing their duties, to mention but a few. When technical college teachers are adequately motivated they work harder and become more efficient in their work so that effective teaching and learning will take place in schools, thereby producing graduates who can contribute positively to the development of their society and the nation at large.

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