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IN-SERVICE TRAINING NEEDS OF TECHNOLOGY EDUCATION TEACHERS IN TECHNICAL COLLEGES OF NORTH CENTRAL STATES OF NIGERIA

By

AUDU, R.

Industrial and Technology Education Department
Federal University of Technology, Minna

Abstract

This study was designed to determine the in-service training needs of technical college teachers. Specifically the study was aimed at determining the in-service training needs of technical college teachers on practical skills with respect to general vehicle maintenance and auto-electrical work. A descriptive survey research design was adopted in carrying out the study. The total sample figure stands at 93 respondents, 47 motor vehicle mechanics teachers and 46 administrators. A structured questionnaire containing 35 items was used to collect the required data for the study. Data collected were analyzed using frequency count, mean, standard deviation and χ^2 -test. Based on the findings conclusions were drawn and recommendations made in order to provide in-service training to technical college teachers in motor vehicle mechanics who have deficiencies with respect to practical skills in general vehicle maintenance and auto-electrical work.

Introduction

The training given to individuals in any formal organization is very important. Training will help the individual to be equipped with the capacity to organize, plan or set goals and execute the necessary programmes in that society and to achieve the desired results. In order to ensure high degree of competence and sense of responsibility of individuals, both pre-service and in-service training of educators and administrative personnel is necessary to keep the person up-to-date with new techniques.

Training is recognized as a pre-requisite for man-power development and economic growth of a nation. The future of educational and technological development of Nigeria depends on the quality of teachers, because they teach the students who are expected to be productive workers and leaders of tomorrow. These technology education teachers need to be effective and efficient in order to teach students well. Stressing the importance of training Fafunwa (1995) remarked that the qualities of all other professions are influenced by the caliber of teachers because adequate training cannot take place without competent teachers.

Fafunwa (1990) had earlier observed that, professionalization of teaching will require

the introduction of in-service professional training programmes for teachers.

In-service education will give teachers the opportunity to improve their knowledge and skills and bring them abreast with the new development in their fields. Muhammed (1995) stated that technology education teachers need in-service training in some aspects of technical education curriculum because of the dynamic nature of technology education. This requires that teachers be exposed to new methodologies and curriculum innovation in their areas of specialization during the course of their in-service training programme. In-service training will enable the teachers to overcome the areas of inadequacies in terms of curriculum changes and innovations.

However, to achieve the objectives of technology education a teacher needs to be very knowledgeable in both the subject matter and the pedagogy of teaching. A competent teacher knows how best to derive the aims and objectives of a lesson, prepare the lesson plan, select teaching resources and methods, present the lesson, manage the classroom and evaluate the lesson. Apart from these competencies that are expected of the teacher, he should also be aware of the scope of present day research and development in instructional technology. Whenever possible he should participate in seminars, professional conferences, project work concerning teaching

and learning process in his area of specialization (Adigun, 1985).

In one of the surveys conducted, according to Okeke (1989) it was found that about 94% of teachers were not qualified for their teaching assignment in Anambra, Imo, Cross-river and Benue States of Nigeria. The importance of the teacher having both vocational/technical skills through training and knowledge about teaching methodologies, students' learning styles as well as being able to make effective use of both communication skills and instructional materials cannot be over-stressed. A bleak future, therefore, seems to await products of any programme which is faced with dearth of qualified manpower.

Statement of the Problem

The success of any educational system no matter how well it is planned depends to a large extent on the quality of teachers. The greatest obstacle encountered in Nigerian schools is the use of teachers who are inadequately prepared or who are not professionally skilled. Most technology education teachers in technical colleges have insufficient and inadequate knowledge of their subject matter which make them incapable to perform their functions of imparting knowledge to the learners efficiently and effectively

(Eyo, 1990; Gyallesu, 1992 and Fafunwa, 1995). It is also a common knowledge that graduates of technical colleges cannot fit into the world of work without being re-trained. Employers of labour are reluctant to engage the services of technical college graduates because such graduates are unusable in the labour market without further training (Auda, 2008). This is as a result of the fact that most technology education teachers are not having the requisite practical skills to impart to the learners.

Purpose of the Study

The purpose of this study was to identify the in-service training needs of technology education teachers in technical colleges in North Central States of Nigeria. Specifically the study sought to determine -

i) Practical skills in-service training needs of motor vehicle mechanics teachers in

technical colleges of North Central States of Nigeria with respect to general vehicle maintenance.

ii) Practical skills in-service training needs of motor vehicle mechanics teachers in technical colleges of North Central States of Nigeria with respect to auto-electrical work.

Research Questions

The following research questions were used to guide the study:

i) What are the perceived practical skills in-service training needs of motor vehicle mechanics teachers in technical colleges of North Central States of Nigeria with respect to general vehicle maintenance?

ii) What are the perceived practical skills in-service training needs of motor vehicle mechanics teachers in technical colleges of North Central States of Nigeria with respect to auto-electrical work?

Hypothesis

H₀: There is no significant difference between the mean responses of teachers and administrators on the practical skills in-service training needs of motor vehicle

mechanics teachers in technical colleges of North Central States of Nigeria with respect to general vehicle maintenance.

Methodology

A descriptive survey research design was adopted for this study. The study was carried out in all the technical colleges in North Central states of Nigeria. The target population for the study consists of all motor vehicle mechanics teachers and administrators (principals and vice principals) in all the technical colleges of North Central states of Nigeria. The choice of administrators is informed by the believe that as overseers of technical colleges they are in a good position to provide accurate and reliable judgments in terms of in-service training needs of staff of technical colleges for improved result. The teachers on the other hand are included because they are the beneficiaries of the programme and also they are very close to the existing conditions and practices in the technical colleges. The simple random sampling technique was used to select 3 states and Federal Capital Territory (FCT) Abuja. The states include Niger, Nasarawa and Kogi States and all the technical colleges in the 3 states and FCT.

Abuja were used as sample. The total sample size stands at 95, that is 47 motor vehicle mechanics teachers and 48 administrators. Since the number of motor vehicle mechanics teachers and the administrators is not large all of them were used as sample. A structured questionnaire was the instrument used for data collection. The response categories of the instrument used are Highly Needed, Moderately Needed and Not Needed, which were assigned numerical values 4, 3, 2 and 1 respectively. The instrument was subjected to face and content validation by 3 senior lecturers in the Department of Industrial and Technology Education, Federal University of Technology, Minna to attest the appropriateness of the instrument in measuring what it intended to measure. Their suggestions were used to refine the questionnaire to its present form. The instrument was trial tested using 8 motor vehicle mechanic teachers and 6 administrators from Government Technical College Ilorin and Government Technical College Patigi. This yielded a reliability coefficient of 0.85 using the Cronbach Alfa formula. Data collected were analysed using

descriptive statistics such as frequency count, percentage, mean, standard deviation and inferential statistics such as Z-test.

To determine the acceptance level the decision point is between the lower limit of 1 and upper limit of 4. Therefore, any item that falls between 0.5 - 1.49 were considered (Not Needed), 1.50 - 2.49 (Moderately Needed), 2.50 - 3.49 (Needed) and 3.50 - 4.49 (Highly Needed). The Z-critical value necessary for rejection or acceptance of the null hypothesis was at 0.05 level of significance, thus any value below the Z-critical value was considered accepted while those equal to or more than were rejected.

Research Question 1

What are the perceived practical skills in-service training needs of motor vehicle mechanics teachers in technical colleges of North Central States of Nigeria with respect to general vehicle maintenance?

Table 1
Mean Responses of Teachers and Administrators on the Perceived Practical Skills In-service Training Needs of Motor Vehicle Mechanics Teachers in Technical Colleges of North Central States of Nigeria with Respect to General Vehicle Maintenance

SNo	Items	\bar{X}_1	S.D ₁	\bar{X}_2	S.D ₂	\bar{X}_t	S.D _t
		N ₁ = 47		N ₂ = 48			
General Maintenance							
1	Check the radiator for leak, dirt or presence of oil in the radiator	3.45	0.28	3.73	0.24	3.59	0.26
2	Check and tighten clips or replace broken radiator hose.	3.28	0.30	3.82	0.21	3.55	0.26
3	Removal of brake drum, brake pads and brake shoes, repair and fix new ones.	3.38	0.31	3.73	0.24	3.56	0.28
4	Check under the body for possible repairs such as tightening bolts and nuts to suspension /spring, "U" bolts and exhaust system.	3.20	0.29	3.82	0.21	3.51	0.25

5	Change engine oil filter and change or clean spark plugs.	3.45	0.28	3.64	0.35	3.58	0.31
6	Check and set carburetor C.B point.	3.30	0.26	3.64	0.35	3.47	0.31
7	Servicing of carburetor.	3.30	0.30	3.73	0.24	3.52	0.27
8	Dismantle a model engine and clean the cylinder head gasket.	3.34	0.33	3.18	0.45	3.26	0.39
9	Check cylinder head for defects.	3.23	0.37	3.64	0.35	3.44	0.36
10	Remove and replace cylinder head gaskets.	3.30	0.30	3.45	0.40	3.38	0.35
11	Carryout tests on injectors for spray.	3.35	0.31	3.64	0.26	3.50	0.28
12	Setting of pressure and spray of injectors.	3.45	0.30	3.55	0.27	3.50	0.29
13	Servicing of SI engine.	3.43	0.30	3.55	0.27	3.49	0.29
14	Servicing of CI engine	3.43	0.28	3.73	0.24	3.58	0.26
15	Vulcanize tubes and tubeless tyres.	3.28	0.28	3.55	0.35	3.42	0.32
16	Carryout wheel balancing with appropriate equipment.	3.25	0.32	3.55	0.35	3.40	0.34
17	Carryout wheel alignment with appropriate equipment.	3.40	0.26	3.64	0.35	3.52	0.31
18	Check tyres for possible wheel distortion.	3.30	0.24	3.73	0.24	3.52	0.24
19	Repair or replace the distorted wheel	3.15	0.29	3.73	0.24	3.44	0.27
20	Dismantle of gear box and examine wear on the components.	3.43	0.26	3.55	0.35	3.49	0.31

21	Remove differential assembly, disassemble, clean and assess wear	3.33	0.29	3.45	0.48	3.39	0.39	N
22	Disassembling and assembling of clutch unit	3.40	0.23	3.55	0.35	3.48	0.29	N
23	Remove differential assembly, clean and assess wear	3.35	0.25	3.45	0.35	3.40	0.30	N
24	Remove propeller shaft, universal joint bearing and test for wear and straightness	3.45	0.26	3.36	0.48	3.41	0.37	N
25	Greasing of appropriate joints	3.45	0.28	3.64	0.26	3.55	0.27	HN

Key

\bar{X}_1 = Mean Responses of Teachers \bar{X}_2 = Mean Responses of Administrators

S.D₁ = Standard Deviation of Teachers S.D₂ = Standard Deviation of Administrators

\bar{X}_c = Average Mean of all Respondents S.D_c = Average Standard Deviation of all Respondents

N₁ = Number of Teachers

N₂ = Number of Administrators

HN = Highly Needed

N = Needed

The information contained in Table 1 revealed that out of 25 items on practical skills that are supposed to be acquired by motor vehicle mechanics teachers with respect to general vehicle maintenance, 12 items were rated highly needed whereas 13 items are needed by the technical college teachers. The items that are highly needed are item 1, 2, 3, 4, 5, 7, 11, 12, 14, 17, 18 and 25. While items that were needed are item 6, 8, 9, 11, 13, 15, 16, 19, 20, 21, 22, 23 and 24. The means of the two groups with their corresponding standard deviations indicated the degree of homogeneity of the groups.

Research Question 2

What are the perceived practical skills in-service training needs of motor vehicle mechanics teachers in technical colleges of North Central States of Nigeria with respect to auto-electrical work?

Table 2

Mean Responses of Teachers and Administrators on the Perceived Practical Skills In-service Training Needs of Motor Vehicle Mechanics Teachers in Technical Colleges of North Central States of Nigeria with Respect to Auto-electrical Work.

S.No	Item	\bar{X}_1 <small>N₁ = 17</small>	S.D. ₁	\bar{X} <small>N₁ + N₂</small>	S.D. ₂	\bar{X}_2	S.D. ₂	Remarks
26	Dismantling, servicing and assembling starter motor.	1.53	0.24	1.73	0.24	1.63	0.24	HN
27	Dismantling, servicing and assembling of alternator.	1.48	0.24	1.64	0.26	1.56	0.25	HN
28	Removal and repair of fuel gauge and switches.	1.43	0.25	1.64	0.35	1.54	0.31	HN
29	Removal and repair of oil gauge and switches.	1.48	0.26	1.64	0.35	1.56	0.31	HN
30	Checking of auxiliary lights.	1.35	0.29	1.55	0.35	1.45	0.32	N
31	Top up battery electrolyte for correct specific gravity.	1.43	0.35	1.64	0.35	1.54	0.35	HN
32	Check, clean and replace battery terminals.	1.20	0.24	1.73	0.24	1.47	0.30	HN
34	battery with hydrometer Drain discharged electrolyte, refill with correct one and charge the battery.	1.25	0.30	1.45	0.42	1.35	0.36	N

Key

\bar{X}_1 = Mean Responses of Teachers
S.D.₁ = Standard Deviation of Teachers

\bar{X} = Mean Responses of Administrators

S.D.₂ = Standard Deviation of Administrators

\bar{X}_2 = Average Mean of all Respondents
S.D.₂ = Average Standard Deviation of all Respondents

N₁ = Number of Teachers

N₂ = Number of Administrators

HN = Highly Needed

N = Needed

The analysis of the result contained in Table 2 revealed that out of 9 items on practical skills that are supposed to be acquired by motor vehicle mechanics teachers with respect to auto- electrical work 6 items were rated highly needed whereas, 3 items are needed by the technical colleges' teachers. The items that are highly needed are item 26, 27, 28, 29, 31 and 32 while items that were needed are item 30, 33 and 34.

The means of the two groups with their corresponding standard deviations indicate the degree of homogeneity of the groups.

Respondents	N	Means	SD	df	P	Z-cal	Z-Crit	Remarks
Teachers	47	9.96	3.23	93	0.05	-1.04	1.96	Accept
Administrators	48	10.03	4.63					

Table 3 shows that the mean responses of both teachers and administrators were 3.23 and 4.63. Z - Calculated was -1.04 and the Z - critical table value was at 0.05 level of significance ± 1.96 . Therefore, since the calculated value was less than the table critical table value, the null hypothesis was accepted. This implies that there is no significant difference between the mean responses of teachers and administrators with respect to their perception on in-service training needs of motor vehicle mechanics teachers in technical colleges of North Central States of Nigeria.

Discussion of Findings

The analysis of Table 1 indicated that out of 25 items on practical skills needed by motor vehicle mechanics teachers in technical colleges with respect to general vehicle maintenance 17 items (representing 48%) were adjudged as highly needed by the teachers teaching motor vehicle mechanics trades in technical colleges whereas the remaining 18 items (representing 52%) were rated as needed by the teachers. This is

Hypothesis

H₀: There is no significant difference between the mean responses of teachers and administrators with respect to their perception on the practical skills in-service training needs of motor vehicle mechanics teachers in technical colleges of North Central States of Nigeria with respect to general vehicle maintenance.

Table 3

Z-test for Perceived Practical In-Service Training Needs of Motor Vehicle Mechanics Teachers in Technical Colleges of North Central States of Nigeria with Respect to General Vehicle Maintenance.

consistent with the objectives of technology education according to the Federal Republic of Nigeria (2004)

which recognizes technology education as that part of the total educational system which leads to the acquisition of practical and applied skills as well as basic scientific knowledge. Stressing the importance of skill development in the life of individuals and the nation at large Okorie and Ezeji (1988) maintained that skill is a political tool, because with it, the political stability of a nation may be maintained. Okorie and Ezeji emphasise the fact that when young people are equipped with requisite skills, their financial and psychological security are guaranteed; the employers (industries) received productive workforce, the society at large receives continuous supplies of skilled labour and quality goods. The researcher observed that possession of skill is important in preventing youth from becoming misfits in the society. Acquisition of skills through proper technical training will enable individuals to be gainfully employed or become self-reliant. Inline with this Ndomi (1998) stressed that possession of skill helps to arrest some social ills such as armed robbery in

the society.

The result contained in Table 2 revealed that out of 9 items on the practical skills needed by motor vehicle mechanics teachers in technical colleges with respect to auto-electrical work 6 items (representing 67%) were rated highly needed by the technical college teachers whereas 3 items (representing 33 %) are needed by the technical college teachers. The need for educational systems to be relevant to the economic and social development of the nation has never been so strongly stressed in Nigerian literature than is done in present time. The reason for this concern becomes peculiar as million of youth are roaming on streets without the necessary skills required for gainful employment (Enemali, 1993). In the same vein Atsumbe (1997) noted that technical college graduates are unemployed not because the industries are saturated but because these graduates lack saleable practical skills and hence shy away from jobs that will require them using their hands. Sharing similar opinion is Sarakin (1994) who lamented that the existing practices in technical education programmes are not adequately equipping students with technical competencies, knowledge and work habits needed for entry level employment in their respective occupations. The researcher is of the view that the existing practice in most technical colleges is that emphasis is placed most on the theory rather than the practical aspect of the curriculum, this renders the students

incapable of carrying out practical in their areas of specialization and hence they cannot fit into the world of work without being re-trained.

Conclusion

The perceived practical skills training needs of motor vehicle mechanics teachers in technical colleges identified in this study represent a list of what teachers may need to

function effectively and efficiently in their classrooms. It is expected that adequately planned and implemented in-service training programmes or based on the findings of the study will equip technical college teachers with necessary practical skills to teach effectively. As a result students' standard of achievement in their studies will improve. Since the teachers' respective identified skill, the curriculum planners should take cognizance of them in the planning, organization of in-service training programmes for the teachers. This will lead to improve standards and learn in technical colleges in North West States of Nigeria.

Recommendations

Based on the findings the following recommendations were made:

- The federal and state ministries of education should through the senior technical schools management board in motion a machinery for implementing findings of this study with respect to providing in-service training to motor vehicle mechanics teachers who have deficiencies in their practical skills in motor vehicle mechanics.

- The federal government should through the National Board for Technical Education (NBTE) and National Business and Technical Examination Board (NABTEB) set in motion a machinery for implementing the findings of this study with respect to incorporating some of the identified skills or competencies into the curriculum of technical colleges.

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