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SKILL IMPROVEMENT NEEDS OF LECTURERS FOR EFFECTIVE TEACHING OF AUTOMOBILE TECHNOLOGY EDUCATION IN NORTH CENTRAL NIGERIA.

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Abstract

The study is designed to identify the areas of skill improvement needs of lecturers for effective teaching of automobile technology education (ATE) in north central (Federal University of Technology Minna, Niger State, Federal University of Ilorin, Kwara State, Federal University of Jos, Plateau and Benue State University Benue.) Nigeria. Three research questions were used to guide in the conduct of the study. The lecturers of ATE programme in north central, constitute the respondents of the study. A 22 item questionnaire was used to collect data for the study. The data was analysed using frequency counts, mean and standard deviation. The analysis of the data revealed that ATE lecturers in the institution need skill improvement training in terms of repairing and maintaining starting and ignition system, automatic wheel balancing and alignment as well as engine diagnostic and turn up areas in ATE. Base on the finding the following recommendations were made; immediate skill improvement training need in 41 innovations including Automatic wheel balancing and alignment, engine diagnostic and turn up as well as repairing and maintaining starting and ignition system for the ATE lecturers with emphasis in the areas of instructional and technical skills. There should be collaboration between the lecturers and the industries to enable the ATE lecturers to acquire the needed skills to impart to the learners so that upon graduation the students can be employable to contribute to the development of their immediate society and the nation at large.

Introduction

Skill is the ability and capacity that is acquired through deliberate, systematic, and sustained effort to smoothly and adaptively carryout complex activities or job functions involving Ideals (cognitive skills), things (technical skills) and / or people (interpersonal skills). According to Speelman (2005), a skill is seen as ability to do something well, usually gained through training and experience. Skill is often acquired after a training session or after practical exposure. Skills in the view of Etonyaku (2010) refers to as ability to put into use, acquired competencies, attitudes and behaviour after an exposure to theories and practices inherent in the field of study. It was further stated that skill is the capacity of a person to accomplish a task with desired precision and certainty to make a productive business or enterprise. Farlex (2013)

postulated that a skill is a proficiency, facility or dexterity that is acquired or developed through training or experience. Improvement is considered as attaining a better state from the identified former state, through some action intended to bring about measurable achievement. Improvement in general, means "gradual, piecemeal but cumulative betterment" which can be to both individual and society as a whole.

Automobile technology remains an area which involves the application of scientific knowledge in its design, selection of materials, construction, operation and maintenance of the automobile (Mohammed, Mamoh, Jorish Raymond, 2017). According to (Giri (2011) Automobile is a self-propelled vehicle used for transportation of goods and passengers on land. Automobile is also used to transport people and goods from one place to another (Garman, 2004). Automobile technology education is an aspect of educational programme offered at higher education of learning which prepares students for career in automobile enterprises (Tahir, Sutaptha, Baji, Gabriel, Jya, Koko & Adu, 2016).

The need for improving training skills (in service training) in institutions is getting more attention for lecturers and instructors to be equipped with new knowledge and skills for them to face new challenges and reformation in educational field. Skill improvement training can enhance the professionalism of teachers who can contribute to the organization to achieve its goals. Skill improvement training is a professional and personal educational activity for teachers to improve their efficiency, ability, knowledge and motivation in their professional work. According to Kazmi, Pervez and Mumtaz (2011), the training for teachers enables the teachers to be more systematic and logical in their teaching style. Skill improvement training is a planned process whereby the effectiveness of teachers collectively or individually is enhanced in response to new knowledge, new ideas and changing circumstances in order to improve, directly or indirectly the quality of learners' education. Studies by Elgoh, Oswald and Victoria (2013) shows that, teachers who attend re-training programmes perform effectively in their work concerning knowledge of the subject, classroom management, teaching method and evaluation of students. Studies by Jahangir, Saheen and Kazmi (2012) also shows that training plays a major role to improve the teachers' performance in school.

According to Frederick & Stephen (2010), during the training, teachers with schools management skills, evaluation techniques and mastery deliver on content of their areas of subject matter. For this reason, teachers and educational experts should increase their effort in learning and implementing and continuous training in institutions so as to improve the effectiveness in the delivery of the required content. Ronald (2004) postulated that it is literally impossible today for any individual to take on a job or enter a profession and remain in it without any changes.

Therefore, it is not only desirable but also an activity to which every technology institution must commit human and fiscal resources if it is to maintain a skilled and knowledgeable staff" (Ronald, 2004:170) The importance of skill development should be looked in various perspectives. It promotes a very flexible environment and allows lecturers to adapt with the working situation and it is also one form of motivation for employees or employers and it will continue to increase creativity in teaching and learning process. It also enables teachers to acquire new understanding and instructional skills to develop their effectiveness in the classroom. Skill development for lecturers should have a positive effect on their knowledge and communication, with their involvement in planning instructional activities and also it increases the students' motivation. Besides, the lecturer needs to improve their skills in automobile

technology in order to provide them with ample opportunities to learn new concepts, methods, skills and approaches through professional development. Skills improvement needs of lecturers also change their attitudes and further increase the performances of students.

The purpose of this study is to improve the skill needed by the lecturers for effective teaching of Automobile Technology Education in North Central Institutions offering ATE courses in Nigeria.

Statement of the problem

The automobile technology education lecturers have complex role and have more demands on them in order to be able to impart knowledge and skills to the students. Therefore, the lecturers need to acquire new knowledge, skills and attitudes for them to function effectively on the job. One of the major challenges facing Technical and Vocational Education Training (TVET) today in Nigeria is that, most of the technology teachers especially ATE lecturers lack appropriate facilities and partially lack practical (Udofia, Etal., 2012). It is also the belief of many educators that pre-service training of lecturers is not sufficient to prepare teachers for life (Okobia, 2013). It has been argued that only through the growth of training and retraining that the gap between advancing knowledge and practice can be bridged. It was on the basis of this that the Federal Republic of Nigeria (FRN) in the National Policy on Education (FRN, 2004) emphasizes that training and re-training of Lecturers shall be developed as an integral part of continuing teacher education and shall also take care of all inadequacies. The acceptance of such responsibility by the government is a right step to ensure effectiveness and quality teaching and learning. However, quality education depends on the quality of the teachers. Skill development of lecturers ensures that they are kept up to date and adequately empowered to provide effective teaching and learning to the students.

The pre-service training might not perfectly prepare them for effective job performance. Therefore, many reasonable teachers sought the opportunity for skill improvements as a means of further professional development. It is against this background that this study was aimed at determining the skill improvement needs of lecturers for effective teaching of automobile technology education at North Central of Nigeria.

Objectives of the study

Specifically the objective of the study are to determine the skills improvement needs of lecturers;

- iii. in repairing and maintaining automobile system such as starting and ignition system.
- iv. in automatic wheel balancing and alignment.
- v. In engine diagnostics and tune up.

Research question

- > What are the skill improvement needs of lecturers in repairing and maintaining starting and ignition system?
- > What are the skill improvement needs of lecturers with respect to automatic wheel balancing and alignment?
- > What are the skill improvement needs of lecturers and with respect to diagnostics and tune up?

Methodology

The study adopted a descriptive survey research design to elicit information from automobile technology lecturers in north central universities offering ATE in Nigeria. Descriptive survey

research design in the study of Ibrahim (2006) is the study which aims at collecting data on, and describing in a systematic manner the characteristics, features or facts about a given phenomenon. The design was deemed appropriate since data was collected to identify areas of skill improvement needs of lecturers for effective teaching of ATE at university level. The study was conducted in North Central of Nigeria. The population of the study consists of 25 ATE lecturers in north central of Nigeria in the area of the study. The choice of the population was based on the fact that they are knowledgeable and therefore, in a very good position to give accurate information on the skill improvement needs of lecturers for effective teaching of ATE at university level. A structured questionnaire was the instrument utilized to elicit the required data from the respondents for the study. This was developed by the researchers from extensive search of literature and based on the objectives of the research. The instrument was first piloted by three experts from the Department of Industrial and Technology Education, Federal University of Technology Owerri, Imo State Nigeria. To determine the reliability of the instrument, it was pilot tested on three (3) respondents from department of Science and Technology Education in Bayero University Kano, that were not part of the study. Then, Cronbach alpha was used to determine the internal consistency and it yielded a coefficient of 0.81 for research question one (1) (What are the skill improvement needs of lecturers in repairing and maintaining starting and ignition system) , 0.75 for research question two (2)(What are the skill improvement needs of lecturers with respects to automatic wheel steering and alignment?) and 0.65 for research question three (3)(what are the skills improvement needs of automobile lecturers with respects to diagnostics and turn up) Thus the instrument was considered appropriate for use by the researcher, the overall reliability coefficient of the instrument is 0.81. The questionnaires were administered by the researchers and the entire instruments were retrieved and analysed. A five (5) point rating scale was used to determine the level of which competence is needed. The decision rule was based on theory of five class limits of numbers with numerical values ranging between 4.50 -5.49 = Very Highly needed (VHN); 3.50 - 4.49 =Highly Needed (HN); 2.50 - 3.49= Needed (N); 1.50 - 2.49 = Moderately Needed (MN) and 0.50 - 1.49= Not Needed (NN). Therefore, the mean responses

Presentation and analysis of data

The data were presented and analysed based on the research questions posed in the study.

Interpersonal skills requirement

Research question 1: What are the skill improvement needs of lecturers in repairing and maintaining starting and ignition systems?

The mean ratings for items on the required skills are given in Table 1.

Table 1: Mean rating and standard deviation of the respondents on the skill improvement needs of Lecturers in repairing and maintenance of starting and ignition system.

No	Item statement	X	SD	Remarks
1	Assembling starter motor components appropriately	4.55	0.77	Very highly needed

2	Determine the serviceability of components e-g armature on the growler, starter motor s.l.c	3.50	0.72	Highly needed
3	Bench test starter motor.	4.00	0.65	Highly needed
4	Diagnosing of common coil ignition system faults.	3.33	0.66	Needed
5	Faults tracing in transistorized ignition system.	2.65	0.70	Needed
6	Rectification of transistorized ignition system	4.60	0.55	V. highly needed
7	Dismantling of starter motor.	3.00	0.51	Needed
8	Servicing of starter motor	3.04	0.56	Needed
9	Assembling of starter motor	4.55	0.60	Very highly needed

Analysis of the result presented in Table 1 indicates the respondents' opinion on the skill improvement needs of lecturers in repairing and maintaining starting and ignition systems. The result of the data presented above revealed that all the 9 items are needed by the lecturers to improve effective teaching and learning of automobile technology programs in north central universities offering ATE in Nigeria with mean value ranging between 2.65-4.60. This showed that the mean value of each item was above 2.50 is the mean cut off point for the competencies needed by ATE Lecturers. The table also showed that the standard deviations (SD) of the items are within the range of 0.51 to 0.77; this indicated that the opinions of the respondents were not far from one another in their responses.

Table 2: mean rating and standard deviation of respondents on the skill improvement needs of lecturers with respect to automatic wheel balancing and alignment.

No	Item statement	X	SD	Remarks
		6		
1	Carryout wheel balancing with appropriate equipment.	4.70	0.65	Very highly needed
2	Carryout wheel alignment with appropriate equipment	4.30	0.71	Highly needed

3	Check all wheel nuts are fully tightened following the correct sequence alternating opposite sides of the wheel	2.82	0.52	Needed
4	Repair or replace the distorted wheel	4.51	0.50	Very highly needed
3	Gauge the pressure of the tyres	3.32	0.61	Needed
6	Check the tyres for possible distortion	4.02	0.55	Highly needed
7	Identifying the position where the weight will be fit to make the tyre to be balance using automatic wheel balancing machine	4.05	0.64	Highly needed

The information presented in Table 2.0 reveals the respondents' view on the skill improvement needs of lecturers with respect to automatic wheel balancing and alignment. The respondents are of the believed that ATE lecturers need skills improvement in almost all the items listed in the table with mean value ranging between 2.85- 4.70. This indicated that the mean value of each item was above the 2.50. The table also shows that the standard deviations (SD) of the items are within the range of 0.50 to 0.71; this indicated that the opinions of the respondents were not far from one another in their responses.

Table 3: mean rating and standard deviation of respondents on the skill improvement needs of lecturers with respect to engine diagnostics and turn-up.

No	Item statement	X	SD	remarks
		6		
1	Discovering of under the hood noise	4.20	0.82	Highly needed
2	Carryout cylinder leakages test	4.83	0.67	Very highly needed
3	Carryout cylinder compression test	4.00	0.59	Highly needed
4	Carryout cylinder power balance test	2.52	0.52	Needed
5	Carryout oil pressure test	3.79	0.63	Highly needed
6	Carryout engine vacuum test	3.42	0.72	needed
7	Carryout troubles and time up	4.21	0.76	Highly needed

The information presented in Table 3.0 reveals the respondents' view on the skill improvement needs of lecturers with respect to engine diagnostics and turn up. The respondents are of the believed that ATE lecturers need skills improvement in almost all the items listed in the table with mean value ranging between 2.52- 4.83. This indicated that the mean value of each item was above the 2.50. The table also shows that the standard deviations (SD) of the items are

within the range of 0.52 to 0.82; this indicated that the opinions of the respondents were not far from one another in their responses.

The respondents totally agreed that ATE lecturers need improvement in all the items highlighted in the tables. Consequently, the summary of the analysis only suggest strongly that ATE lecturers need further professional skill improvement in the institutions with respect to practical skills. Based on the findings from the study the discussion is made.

Discussion

The acceptance of the fact that all the competencies highlighted in Tables are needed by ATE lecturers did not come as a surprise. This only confirms the views of Fafunwa (1995) who noted that most Technical Vocational Education (TVE) teachers, especially ATE lecturers have insufficient and inadequate knowledge of their subject matter which render them incapable to perform their functions of imparting knowledge to the learners efficiently and effectively. Gyallesu (1992) also asserted that, the success of any educational system no matter how well it is planned depends to a large extent on the quality of teachers. The researcher observes that the greatest obstacle encountered in the institution especially in the Industrial technology education department is the use of lecturers who are inefficiently prepared or who are not professionally skilled. Lecturers must have an in-depth knowledge of pedagogy of teaching to be able to bring about desirable learning in the student entrusted to him, his knowledge notwithstanding.

As deduced from Muhammad (1995) ATE lecturers in the automobile technology education need continuous skill improvements in new innovation in automobile technology and consequent inclusion in the automobile technology curriculum. This requires that lecturers be exposed to new methodologies and curriculum innovation in their areas of specialization during the course of their training and continuous personal development programme. Continuous improvement of the lecturers will enable them overcome the areas of inadequacies in terms of curriculum changes and innovation. The fact that most ATE lecturers are ill-equipped professionally makes it very difficult for the objectives of the programme to be realized. In-line with this Okeke (1989) stressed that, teacher's knowledge of the above objectives and the necessary experiences will go a long way to helping him select the learning experiences capable of developing skills, abilities, understanding, habit, attitude and appreciations among students, which they will need to meaningfully, enter and progress in employment. Where the lecturers and instructors lack such basic knowledge, his students are likely to be ill-equipped. This seems to be the situation in our institution today.

In order to achieve the objectives of technology education a teacher needs to be very sound in both subject matter and the pedagogy of teaching. A competent teacher show 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 present day research and development in instructional technology and should whenever possible participate in seminars, professional conferences, project work concerning teaching and learning process and problems relating to his area of specialization (Adigun, 1998). On this note, the teacher should keep an open mind for all new ideas and examine them critically and he should also realize that his task is not merely to teach but also help students to acquire skills, attitudes, habits of thoughts and qualities of character that will enable them function effectively in the society.

Conclusion

This study sets out to determine the skills improvement that are required by ATE lecturers in North central based on the current occupation demand perceptions. The data support the conclusion that lecturers are not equipped with adequate interpersonal, instructional and practical skills. As a result of the above revelation, the following implications arise. Lecturers of ATE programme in the institutions needed continuous skill acquisition to enable them to perform their professional responsibilities in their practice. The pre-service training received by the lecturers was found to be rickety and completely defective, which might not perfectly prepare them for effective job performance. The ATE lecturers need to be developed in order to update their knowledge, skills and competencies with respect to skills improvement to be able to teach the learners efficiently and effectively, so that the learners can graduate as competent craftsmen, technicians and technologist.

Recommendations

Based on the findings of the study, the following recommendations are made in order to improve lecturers' skills for them to be able to perform effectively on the job.

- There should be linkage programme between the lecturers and the automobile industries by using some of the experienced supervisors in the industries as lecturers in order to train the ATE lecturers to be able to acquire needed practical skills so that they can teach the students effectively.
- The Nigerian universities and polytechnics offering courses in TVET especially automobile technology programme could play a vital role in the retraining exercises especially during long vacations.
- A systematic programme in the universities and the polytechnics should be drawn for the retraining of A TE lecturers for a period of three years, utilizing the vacation periods, for serving lecturers which will go a long way to equipping them qualitatively.
- The emphasis in retraining should be in the areas of practical skills in the deficient areas as well as the requisite instructional skills.
- The institutions and local automobile industries should collaborate to organize seminars and workshops where they will share information on the changing trends in the automobile industries with respect to practical and how these changes can be incorporated into the curriculum of the schools.

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