ASSESSING THE FACILITIES FOR TEACHING ELECTRICAL/ELECTRONIC TECHNOLOGY IN KWARA STATE GOVERNMENT TECHNICAL COLLEGES FOR ENTREPRENEURIAL SKILL DEVELOPMENT

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Abstract
This paper assesses the facilities for teaching electrical/electronic technology in government technical colleges for entrepreneurial skill development in Kwara State, Nigeria. It examined the state of electrical/electronic facilities, and the problems encountered by both the teachers and students. Four technical colleges in Kwara State were purposively selected for the study. Sixty students and eighteen electrical/electronic teachers were constituted the sample for the study. The instrument was a researchers-designed questionnaire titled "Teachers' and 'Students' Electrical/electronic Facilities Questionnaire'. Four research questions were answered using mean square. The findings revealed that all the technical colleges in Kwara State have electrical/electronic workshop but the workshops are ill-equipped. Based on the findings and conclusions, it was recommended among others that: Government and other stakeholders in education should intensify effort in the provision of facilities for teaching electrical/electronic.

Keywords: Electrical/Electronic; Entrepreneurial Skills; Technical Colleges; Workshop

Introduction

Education remains an instrument of change and national development. It is a social process and the medium for the acquisition of relevant knowledge, skills and attitudes for survival in a changing world. In the Nigeria education continuum, basic education as the foundation requires a sound knowledge of science and technology. According to National Policy on Education (FRN, 2013) a nation cannot achieve greatness unless she directs her efforts in technology to develop the resources in the country. Because of its importance, many nations of the world introduce technology early to children in developing countries such as Nigeria, science and technology is taught in schools for general literacy and as preparation for future activities in related fields.

Technology is the application of knowledge to the practical aims of human life or to changing and manipulating the human environment. Technologies include the use of materials, tools, techniques, and sources of power to make life easier or more pleasant and work more productive. Technology is a way and manner through which human beings produce the basic needs of life such as such as food, clothing, shelter, communication, transportation, sound health, security and so on, in order to ease their daily activities. Technology involves a practical engagement, that is, the act of doing. Integration of technology in teaching and learning is a means of attracting the attention of students whose concentration spans are so short due to their television and video game background; they may react better to visually stimulating material (Martinez, 2009).

Therefore, training of citizenry through technical education in Nigeria would lead to self-reliance and sustainability and as such mounts direct impacts on the welfare of the entire citizenry. Perhaps, more than any other aspect of educational system and in line with the economic realities of our time, the roles and importance of vocational and technical education as a catalytic agent to the overall growth of economy and national development cannot be under estimated. With vocational and technical education, possession of skills and knowledge mastery implies a substantial benefit to every individuals and the society at large. It therefore implies that technical education can serve as change agents both in the field of technology and other societal needs.

Technology plays vital responsibility in transforming human living and its entire environment, which has resulted in more meaningful living standard. In addition, it has a power to transform the teaching and learning process. Technology can be described as the entire use of human and non-human resources by means of technique to ease the burden of daily activities in human endeavours. Technology is used to support communication with learning and instructional materials. It makes students to be active rather than inactive participants as receivers of information

conveyed by the teacher, textbook, video-based instruction, internet, and so on (Fajemirokun, 2003).

Technology courses have the advantageous impact on the skills' acquisition. This influence is even more vital in realizing the vocational and technical programme, which take into consideration the demands of the development of the nation at large. The inadequacies of the current dearth in the learning and instructional facilities are relatively accounted for the students' poor performances in technical subjects at all levels of education. Technical college programme is concerned with trades, such as mechanical trades, building trades, wood trade and so on. The learners involved in these trades are expected to acquire practical skills, as well as basic scientific knowledge such as mathematics, physics, chemistry, and technical drawing.

Margot, Diao, and Gosper (2011) reported that students' use of technologies for their learning and in other aspects of their lives is mainly conservative, with a predominance of well-known and easy-to-use tools such as e-mail, video-based instruction, text and mobile phone. Amosa (2013), instructional material is the entire material, which teachers utilize in teaching and learning to achieve meaningful and productive learning. In other words, instructional materials are vehicles through which information are moved from the sender to the receiver.

Vocational and Technical Education (VTE) is any form of education whose primary purpose is to prepare persons for employment in recognized occupations. Uwaifo (2010) however explains that the objectives of vocational and technical education among others are to reduce the unemployment and increased job opportunity; become a competent worker in the job market; enhance the productivity of the country; become a skill manpower and self-sustainability; and facilitate learners in acquiring skills for economic development for themselves and for the society as well as for the country. The content of vocational and technical education must be related to the requirements of the labour market (FRN, 2013).

Electrical Electronic Technology is one of the most important aspects of vocational technical education (VTE) courses. However, students interest in electrical electronic technology is very low compared to other VTE courses. Lack of interest in the subject is one of the major reasons, which could be traced to the fact that adequate facilities for teaching the subject are not provided. The future of the developing countries like Nigeria depends on continue technological development, and this can only be achieved when our technical colleges students show keen interest towards technological subjects and the motivation of these students' rest mainly on the quality of the facilities and teachers/. The future development of Nigerian as a nation depends on the scientific and technological strengths for advancement and this can only be implemented by improving the standard of science and technology teaching in our technical colleges.

The national policy on education (FGN, 2013) emphasizes equal distribution of essential resources to our schools yet many of our schools are under equipped or not equipped at all. The electrical electronic technology equipment is still kept in their various containers in some technical colleges without being installed while other schools have no workshops. According to Fakomogbon, Ibrahim and Gegele (2007), a teacher must be up-to-date in what to teach and how to use all available resources. The teacher should be interested in increasing his own knowledge and should remember that a teacher will never know everything about teaching. There should be continuation on the improvement of teaching methods by reading and discussing with fellow teaching professionals.

Fakomogbon, Ibrahim and Gegele (2007) reported that most of some modern machines to teach technology are not installed for the benefit of teaching-learning processes. The researchers stressed further that many equipment could not be operated without the supply of electricity, which most schools in the cities and villages do not have. In the teaching and learning Basic technology students are exposed to the world of science and technology to have a deep knowledge of intellectual career choices.

The goals of vocational and technical as enshrined in the Nigeria Policy on Education (FRN, 2013) further include the following:

a. Provide the trained manpower in the applied sciences and business particularly at craft, advance and technical levels;
b. Provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development; and
c. Give training and impart the necessary skills to individuals who shall be self-reliant economically.

It is expected that trainees completing technical college programmes shall be able to:

1. Secure employment either at the end of the whole course or after completing one or more modules of employable skills.
2. Set up their own business and become self-

employed and be able to employ others; and
3. The graduates should be able to proceed to tertiary technical institutions such as polytechnics or colleges of education (technical) and universities (FGN, 2013).

The responsibility of the preparation of the teachers of technical education lies on the various programmes designed to achieve the aims and objectives of technical education, in other to achieve the stated aims and objectives of technical education as enshrined in the National Policy on Education (FRN, 2013). The mission for the development of any nation calls for the emphasis on technical education. According to Ogbu (2015), technical education refers to the form of training for engineering, manufacturing and technical occupations. Technical education involves innovations of student preparations, in such trades as welding, carpentry and joinery, painting and decoration mechanics, machining, electronic, among others.

The Federal Republic of Nigeria (FRN), (2013) explains that technical and vocational education is used 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 economy and social life (Federal Republic of Nigeria (FRN, 2013). Thus, vocational and technical education is regarded as a form of education for acquisition of skills or training that would be used for earning living.

Methodology

The target population for the study comprises of all technical colleges students and teachers in Kwara state. Four technical colleges in Kwara State that offer electrical/electronic technology subject in their schools were purposively selected for the study. Sixty students and eighteen electrical/electronic teachers were constituted the sample for the study. The instruments for this study was a researchers-designed questionnaire titled ''Teachers' and 'Students' Electrical/electronic Facilities Questionnaire', which consisted twenty items for both teachers and students. The respondents were to tick the appropriate column on the questionnaire. The analysis and interpretation of data obtained from the instrument were analyzed using mean score for the research questions.

Results

Decision Rule: To determine the acceptance, a mean score of 2.5 was selected as the deciding point between agree and disagree. In other words, any response with a mean of 2.5 and above is considered as acceptable while response below 2.5 was considered rejected.

Research Question 1: Are there adequate facilities for teaching electrical/electronic technology?

Table 1: Response on the adequate facilities for teaching electrical/electronic technology

S/No.	Item	HA	A	IA	HIA	Mean	Decision
1.	There is electrical/electronic workshop in the school for conducting practical work	11	4	1	2	3.3	Agree
2.	The electrical/ electronic workshop is adequately equipped with tools and equipment for practical	5	4	2	7	2.4	Disagree
3.	The machines in the electrical/electronic workshop are functioning to provide practical skills	3	4	2	9	2.1	Disagree
4.	The time allocated for practical teaching of electrical/electronic is adequate	4	2	8	4	2.3	Disagree
5.	There is provision for the use of electricity in the workshop	0	0	0	18	4.0	Agree
6.	The electrical/electronic workshop has adequate basic hand tools for skills acquisition	0	4	3	11	1.6	Disagree

Key**:** Highly Adequate (HA); Adequate (A); Inadequate (IA); Highly Inadequate (HIA)

Table 1 shows that with a computed mean of 3.3 of the respondents as agreed majority of technical colleges in Kwara State are provided with electrical/electronic workshop while is quite obvious that all the workshops

are ill-equipped with the mean score of 2.4 that the electrical/ electronic workshop is adequately equipped with tools and equipment for practical, also revealed that the machines in most of the schools under survey are not functioning with mean score of 2.1. Item 4 exposed that the poor time allocation for practical teaching of electrical/electronic technology in technical colleges in Kwara State. Majority of the respondents which represent a mean score of 2.3 agreed to it, while very few respondents are of the opinion that there is enough time allocation for teaching of electrical/electronic practical. It is noted from the table that, all the technical colleges in the state under study, have source of power to their school workshops with mean score of 4.0 which can enhance practical skills. Finally, the table shows that the electrical/electronic technology workshops are not equipped with adequate hand tools. The above analysis therefore indicated that there is no adequate equipment and facilities for teaching electrical/electronic technology in technical colleges in Kwara State for enhancing entrepreneurial skill development after graduation as a source of earning a living.

Research Question 2: Are the facilities available adequately used for teaching electrical/electronic technology.

Table 2: Response on the adequately used of the available facilities for teaching electrical/electronic technology

S/No.	Item	HA	A	IA	HIA	Mean	Decision
7.	Principal always make fund available for the purchase of practical materials	4	2	3	9	2.0	Disagree
8.	You have access to the available equipment whenever they are needed for practical	8	4	2	4	2.8	Agree
9.	The parent teachers' association (P.T.A) shows much concern on the provision of electrical/electronic facilities the subject in my school	9	3	4	2	3.1	Agree
10.	The available facilities are always put into use whenever electrical/electronic workshop practice is on	7	4	4	3	2.8	Agree

Key**:** Highly Adequate (HA); Adequate (A); Inadequate (IA); Highly Inadequate (HIA)

From Table 2 above, it can be seen that majority of the respondents disagreed that principal always make fund available for the purchase of materials for practical. There were no adequate funds for electrical/electronic workshop practice like other areas. The little allocation provided by the ministry is shared between all the departments to purchase priority items. This can be seen in the mean response of 2.0. The table also revealed that the respondents have access to the available equipment in the workshop whenever they need them with mean score of 2.8. However, some respondents disagreed with the statement, with the following reasons. Item 9 shows a computed mean of 3.1 that, the parent teacher Association (PTA) always show concern on the provision of electrical/electronic technology equipment and materials. Finally, the table revealed that the available equipment, tools and instruments are used whenever the need arises with the mean score of 2.8. Hence, the analysis showed that, principals are handicapped in providing materials for the teaching of the subject. However, the parents always show their concern for the provision of the materials and facilities. The analysis also shows that equipment and facilities are available for teaching of electrical/electronic technology in Kwara State Technical colleges.

Research Question 3: What is the influence of electrical/electronic facilities on students' performance in electrical/electronic technology?

Table 3: Response on the influence of electrical/electronic facilities on students' performance in electrical/electronic technology?

S/No.	Item	HA	A	IA	HIA	Mean	Decision
11.	Lack of facilities affect students' performance In electrical/electronic in my school	8	5	3	2	3.0	Agree
12.	Shortage of qualified electrical/electronic teachers affect the teaching and learning of practical in my school	9	1	4	34	2.8	Agree
13.	Teachers are more interested in teaching electrical/ electronic when equipment and facilities are adequately made available	6	8	1	3	2.9	Agree
14.	Teachers perform better when they are well equipped with the necessary equipment and facilities	5	6	4	2	2.7	Agree

Table 3 shows that respondents agreed to the opinion that lack of facilities affects the students' performance in learning electrical/electronic subject. They also agreed that shortage of electrical/electronic teachers affects the teaching and learning of the subject with mean score of 2.9 and 2.7 respectively. The table also revealed that teachers are more enthusiastic in teaching electrical/electronic with equipment and facilities being made available. The table also revealed with mean score of 2.9 that teachers are more enthusiastic in teaching electrical/electronic technology with equipment and facilities being made adequately available, and that teachers performed better when they are well equipped with necessary equipment, a mean score of 2.7 justify to the statement. From the table 3 above, it can be analyzed that inadequate facilities and shortage of qualified teachers affects both performance of the students and teaching of the subject. Also, teachers are stimulated towards teaching of electric/electronic and performed better when they are well equipped with the necessary facilities for skills acquisition and entrepreneur development

Research Question 4: What is the influence of the facilities for teaching electrical/electronic technology on teachers' performance in the teaching of the subject?

Table 4: Responses on the influence of the facilities for teaching electrical/electronic technology on teachers' performance in the teaching of the subject

S/No.	Item	HA	A	IA	HIA	Mean	Decision
15.	Teachers are more interested in teaching electrical/electronic technology	40	7	4	9	3.3	Agree
16.	Teachers perform better when they are well equipped with the necessary equipment and and facilities	32	14	9	5	3.2	Agree
17.	The school authority is usually concerned on the provision of electrical/electronic facilities	13	9	29	9	2.4	Disagree
18.	The parent teachers' association shows much concern on the provision of electrical/ electronic equipment and facilities	29	12	14	5	3.0	Agree
19.	The absence of electrical/electronic technology facilities make many students to fail their NABTEB Examination	18	24	13	5	2.9	Agree
20.	A well-equipped electrical/electronic technology enhances the teaching and learning of the subject in my school	19	22	12	7	2.8	Agree

The Table 4 revealed that teachers show much interest in teaching electrical/electronic technology when the equipment and facilities are adequately available with a mean score of 3.3 Also with a mean

score of 3.2 the respondents agreed that teachers perform better when they are well equipped with the necessary equipment and facilities. The table 4 also revealed that the school authority is not usually responsible for the provision of electrical/electronic technology equipment and facilities with a computed mean of 2.4 that, however, the Parent Teachers Association shows much concerns on the provision of electrical/electronic technology facilities and equipment. A mean score of 3.0 justify the statement. Majority of the respondents agreed that absence of electrical/electronic technology facilities contribute a lot the failure of students in the subject in their final NABTEB examination also with mean score of 2.9. Finally, the table shows that a well-equipped electrical/electronic technology workshop with adequate facilities enhances the teaching and learning of the subject mean score of 2.8. This, indicates the respondents' agreement. The analysis, clearly shows that availability of electrical/electronic technology facilities and equipment stimulate teachers' performance in the teaching of the subject as well as students in learning the subject.

Summary of findings

Based on the analysis of responses of the students, it was revealed that:

1. Majority of the technical colleges in Kwara State have electrical/electronic workshop. And it is ill-equipped, that is facilities are not adequate.
2. Time allocation for teaching of the subject is inadequate. In some colleges, teachers have no free access to the available equipment and facilities.
3. It is also revealed that absence of the equipment and facilities is a militating factor against students, performance in the subject.
4. The Parent Teachers Association always contribute their quota to the success of the subject.
5. Principals remain passive in the provision of teaching materials on the ground that ministry of education does not provide allocation for the purchase of such materials
6. Also, lack of qualified teachers in the schools under study affect the teaching and learning of the subject.

Discussion of findings

The discussion for this study is based on the preceding results obtained in table 1, 2, 3 and 4. From the results of the survey it has been revealed that, all the technical colleges in Kwara State have electrical/electronic technology workshop. However, the survey also indicates that the workshops are ill-equipped. The survey revealed that in spite of the inadequate source of power supply, the available machine in the workshop are not functioning and that time allocated for practical teaching of electrical/electronic technology are not sufficient for the effective and efficient teaching of the subject. The findings also indicated that there are no adequate tools for the electrical/electronic technology.

The survey reveals that principals are handicapped in making funds available for the purchase of materials for practical teaching. However, the PTA shows much concern on the provision of electrical/electronic technology equipment and facilities. It also reveals that the available equipment, tools and facilities if adequately used will enhance teachers' performance and that teachers perform better when they are well equipped with the necessary equipment and facilities. Why lack of it and shortage of qualify electrical/electronic technology teachers hinder the effective teaching and learning of the subject. Finally, the survey indicates that absence of electrical/electronic technology facilities is a contributing factor to the failure of students in the subject. It can therefore be concluded that electrical/electronic technology workshop, equipment and facilities are of great importance in imparting technological concepts to the students. Hence the provision of the equipment and facilities for the technical colleges is imperative and the necessity cannot be over emphasized.

Conclusion

The study showed that there are many factors militating against teaching and learning of electrical/electronic technology in technical college in Kwara State. Some of these factors include lack of equipment and facilities, for teaching electrical/electronic technology, inadequate time allocation for teaching of the subject, inaccessibility to the available equipment and facilities in some schools. While in some schools the PTA shows it concern for the provision of electrical/electronic technology equipment and facilities, parents of few other colleges developed poor attitudes towards the subject. Though all the schools under survey have source of power, but not all machines have been installed. Some machines were still kept in the shipping containers.

Recommendations

Based on the findings and conclusion in this study, the following were recommended:

(i) Government should intensify efforts in the provision of equipment and facilities for teaching of electrical/electronic technology so that

students can benefit greatly from laudable programme of 6-9-4 which is the basis for the nation technological development as well as skill acquisition for self-reliance.

(ii) Parents, the entire community and industries who enjoy the output of the schools must be involved in the provision of electrical/electronic technology equipment and facilities in technical colleges, so that the graduates would be more productive to the society.

(iii) Enough time should be allocated for the teaching of both theoretical and practical aspect of the subject to acquire skills for entrepreneur development.

(iv) Electrical/electronic technology workshop should be made available and functioning to all students and teachers for practice and skill acquisition.

(v) Electrical/electronic technology teachers should be given free access to the available equipment and facilities to improve themselves on the practical before impacting to the students.

(vi) Workshops/seminars should be organized regularly for principals, parents and teachers to create awareness of the importance of electrical/electronic technology as the bases for entrepreneur skill development.

(vii) Efforts should be intensified in building standard electrical/electronic technology workshop in technical colleges that have no workshop and install all the machines kept in containers.

(viii) More qualified electrical/electronic technology teachers should be employed.

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