



The Expected role of Technologists in Electrical/Electronic Technology Workshops for Students' Effective Skill Acquisition in Oyo State Colleges of Education.

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Abstract

The researchers reviewed the expected roles of technologist in Electrical/Electronic Schools' Workshops for students' effective skills acquisition in Public Colleges of Education. The research design adopted for the study was descriptive survey. This is because the items sought for the views, opinions and information of the respondents. Three research questions guided the study. The population for the study was fifty (50) respondents. The whole population numbers were adopted due to its sizeable as samples which was drawn from Department of Technical Education in the two Government Colleges of Education in Oyo State (Emmanuel Alayande College of Education and Oyo State College of Education, Lanlate.). Stratified and ballot sampling technique was used for the selection which involves male and female Technologist. The instrument was tagged: Expected Roles of Technologists in Electrical/Electronic Technology Workshops for Skills Acquisition in Oyo State Colleges of Education Questionnaire (ERTEETWSACEQ). Five Likert rating scales were adopted for data collection. The questionnaire was validated by three experts in Electrical/Electronic technology unit of Technical Education Department of Tai Solarin University of Education, Ogun State considering face and content validity. The reliability of the instrument was determined with Pearson Moment Correlation Coefficient to obtain 0.70 reliability coefficients indicating that the study was appropriate and reliable for the study while a pilot test was conducted twice in Kwara State College of Education, Oro. An interval of two weeks was used to obtain the same value of reliability index. Mean and Standard Deviation alongside with percentages of response were used to analysis the data .Discussion of findings and recommendations were made among which is that students should develop the keen interest in technical colleges skills acquisition so as to make themselves available to acquire the practical aspect of the courses through self-dedication and self-denial. Also the philanthropists in the society and Old students

should come to the assistance of the college to provide necessary infrastructure and equipment that would aid to the improvement of physical practical practice among the students. The Technologist in the Colleges should made to attend seminars, conferences and workshops from time to time.

Keywords: Technologists, Electrical/Electronic Technology, School workshops, Skills Acquisition

Introduction

Education is an essential tool for skill acquisition and sustainability. Over the years, teacher-centered method otherwise known as traditional method is widely used in the classroom which is always centered to teaching and learning at tertiary institutions. Electrical/Electronic Technology courses in Oyo State Colleges of Education and any other Nigeria tertiary institutions is a fractional part of Technology Education courses offered at the colleges of education level which make the students to learn theory and practical that would enable them to be relevant to teaching and as well be useful to industrial needs. Thereby, the students contribute their quota to the society having obtained Nigeria Certificate in Education (NCE) and any other approved certifications in their respective fields indicating to be a double major in the certificates acquired (National Commission for Colleges of Education (NCCE), National University Commission (NUC), National Board for Technical Education (NBTE), (2020 & 2013) and the Federal Republic of Nigeria, National Policy on Education (FRN, 2013). Electrical/Electronic Technology Education curriculum guiding all the implementations of the courses in the colleges of education are embedded with the contents of Introduction to Electrical/Electronic Technology and as in many other courses outline required for the need of the students to offer and passed before the students can be effectively qualified as electrical/electronic Technology Education professional and as well be relevant in the field of technology.

In view of the documented curriculum contents in electrical/electronic technology education course of study, are tailored towards learning theory, practical demonstration that requires experience and competent lecturers and technologists capable of implementing the skills needed to be acquired by students for sustainable livelihood in the society and national development at large. Therefore, technologists are often called instructors in some institutions of higher learning saddle with responsibility of disseminating the skills or practical development across to the students' field of vocational and technology engineering programmes based on the instructions given by course work lecturers of that tertiary institution. Therefore, a technologist must possess

requisite Higher National Diploma qualification from reputable Polytechnics either in Nigeria or outside Nigeria as the case may be as it was enshrined in the National Board for Technical Education curriculum (NBTE, 2013). Technologists are knowledgeable and broadening the trends of development, specifically in technologies that will be used, as well on how to apply the technologies to specific users and project owners' goals. With this regards, there is need for the technologists to partner with lecturers based on their roles that can promote a sustainable and consistent narrative for developing nation. The technologists keep all stakeholders informed, invested, and engaged all around on how technology advances add to the goals for the spaces.

Technology from where the technologists are derived required the acquisition of scientific knowledge and skills required in polytechnics or any other allied institutions of higher learning where technologies are offered as course in respectful of the fields. The technology education is therefore, the application of scientific knowledge with the practical tasks acquired in industries for production of materials, goods and services for humans' consumption (UNESCO, 2010). Ezeji (2011) views technology education as a way of applying methods, tools, technical knowledge, machines and systems in providing solution to humans' problems. Again, Ogwo (2004), asserts technology as a transformed education to be of technological nature. Agbionu (1991) therefore pointed out that technology education means Vocational preparation that indicates combination of education and training based directly on experience at work in the formal school system setting. In addition, FRN in National Police on Education (2013) stated that industrial technology education is that form of education that leads to the acquisition of practical and applied skills as well as basic scientific knowledge that will enable individual to be self-reliance and be useful members of the society. This however, the societies in which individual recipients of technology education are expected to be self-reliance as well as to be useful to them. The expected usefulness of the technology education recipients are self-reliance in the states with the ability to create jobs and to earn living through application of skills acquired, leading to the development especially in electrical/electronic technology. A skill as Cole (2002) describes it is the capacity to apply knowledge in pragmatic demonstrable way.

Therefore, Technical skills or practical is the ability to do thing expertly to designs in accordance to set of standard or manufacturer's instructions. Okeke (2002), says that possessing a skill is to demonstrate the habit of acting, thinking and behaving in a specific activity in such a way that the process becomes natural to the individual through repetition on practices. More so, skill is a practical development and improvement that is

very important in harnessing a nation's natural resources for the benefit of every individual and nation. This is because; skills or practical acquisition and its improvement help in developing and advancing intrinsic potentials in individuals. In support of this, Osuala (2004) asserted that most technical skills training actually present great challenges to the learners by integrating practical work, theoretical knowledge, commonsense, observation ability and encouragement in an occupation through the technologists. All these exercise need to be practice and skillfully demonstrated by the combination of students and technologists in question in the electrical/electronics' workshops where tools, equipment and machines are available for the practical demonstration.

Statement of the Problem

Technologists in the field of engineering and related fields played a major role to the practical orientation acquisition apart from the theoretical skills acquired in the course of the study in tertiary institutions. In view of this importance, there is need for the acknowledgement and review of their roles from time to time due to innovation and new discovery as there are a lot of complaints from the labour markets that the engineering students particularly electrical/electronic are not performing up to the expectation.

This may be due to the fact that most of technologists have not acquired the basic qualifications required of them and where such acquired lack competency and even deficient in interaction with new products of the skills which might not have any positive effect on the practical skill transmitting to the students in the electrical/electronics' workshops. It may also due to the fact that tools equipment and machines are not obsolete and inadequate and where such are adequate, may not be modern nor not even be in good conditions. However, there is a need to examine the roles of technologists as its premium to the growth of well-beings of electrical/electronic technology education students or graduates that have major roles to play in the development of the nation.

Purpose of the Study

The main purpose of the study is to determine the expected roles of technologist in electrical/electronic technology education workshops for effective practical implementation in Oyo State Colleges of education.

Specifically the study will:-

- find out the skills possessed by the electrical/electronic technologists relevant to the needs of students after graduation.
- examine the skills impacted by the electrical/electronic technologists to students required in the labour markets after graduation.
- investigate adequate modern tools, equipment and machines available for students full participation in practical implementation along with technologist.

Research Questions

Three research questions were formulated for the study as follows:-

- ❖ Are the skills possessed by the electrical/electronic technologists relevant to the needs of students after graduation?
- ❖ Are the skills impacted by the electrical/electronic technologists to students required in the labour markets after graduation?
- ❖ Are there adequate of modern tools, equipment and machines available for students' full participation in practical implementations along with technologist?

Methodology

The research design adopted for the study was descriptive survey. This is because the items sought the views, opinions and information of the respondents. Three research questions were formulated for the study. The population for the study was fifty (50) technologist, drawn from Department of Technical Education in the two Colleges of Education of Oyo State (Emmanuel Alayande College of Education and Oyo State College of Education, Lalante) used for the study. The whole population was adopted as sample due to its manageable. The instrument for the study was questionnaire tagged:- Expected roles of Technologist in Electrical/Electronic

Schools' Workshops for Students' effective Practical Implementation in Oyo State Colleges of Education Questionnaire (ETEEWSACEQ). Five adopted rating scale of Very often = (5), Often = (4), Sometimes = (3), Rarely = (2) and Never = (1) was used for data collection. The questionnaire was validated by three experts in Electrical/Electronic technology education unit of Technical Education Department in University of Benin, Edo State using face and content validity to cross-check the study. The reliability of the instrument was conducted having used Pearson Moment Correlation Coefficient to obtain 0.70 reliability coefficients indicating that the study is appropriate and reliable for the study while a pilot test was also conducted twice in Kwara State College, of Education Oro for at an interval of two weeks. Mean and Standard deviation along with percentages of response were used to analysis the data. A cutoff point equal to or greater than 3.00 as Very often (VO) and below or equal to 0.50 as Never (N) for table 1 while table 2 and 3 were considered to be either Agreed or Disagreed on the remarks using SPSS Version 22 for the data analysis.

Results and Discussions

Research Question 1: Are the skills possessed by the electrical/electronic technologists relevant to the needs of students after graduation?

Table: 1 Mean values and Standard deviation response by the respondents towards the students need after graduation in Oyo State Colleges of Education.

S/N	Items	Very often (%)	Often (%)	Sometimes (%)	Rarely (%)	Never (%)	X	SD	REMARKS
1	Skills possesses by the technologists prepare students for future challenges	30 (60%)	10 (20%)	05 (10%)	03 (6%)	02 (4%)	4.00	0.65	VO
2	Skills possesses by the technologists are relevant to need of students	25 (50%)	15 (30%)	04 (8%)	04 (8%)	02 (4%)	3.85	0.63	VO
3	Skills possesses by the technologists train students towards repairs of electrical gadgets only	20 (40%)	15 (30%)	07 (14%)	05 (10%)	03 (6%)	3.75	0.60	VO
4	Skills possesses by the technologists train students towards repairs of electronic gadgets only	15 (30%)	20 (40%)	05 (10%)	05 (10%)	05 (10%)	3.65	0.57	VO

5	Skills possesses by the technologists train the students towards assemblages of electronic gadgets	22 (44%)	15 (30%)	08 (16%)	08 (16%)	07 (14%)	3.50	0.58	VO
6	Skills possesses by the technologists train the students towards the identification of electronic components	25 (50%)	18 (36%)	03 (6%)	02 (4%)	02 (4%)	3.95	0.62	VO
7	Skills possesses by the technologists train the students towards diagnosing the electronic faults	20 (40%)	17 (14%)	09 (18%)	07 (14%)	07 (14%)	3.86	0.58	VO
8	Skills possesses by the technologists train the students towards electrical installation	20 (40%)	10 (20%)	12 (24%)	10 (20%)	08 (16%)	2.45	0.50	VO
9	Skills possesses by the technologists train the students towards discovery in electronic gadgets	22 (44%)	12 (24%)	08 (16%)	05 (10%)	03 (6%)	3.58	0.55	VO
10	Skills possesses by the technologists train the students towards electronic innovation	25 (50%)	12 (24%)	08 (16%)	03 (6%)	02 (4%)	3.75	0.75	VO

Field Survey, 2022

Key: SD= Standard Deviation, X= Mean N= Never and VO= Very Often, %=Percentage

Table 1 responses of the skills possesses by the electrical/electronic technologists as relevant to the training need by the students in electrical/electronic workshops shows very often skills option were required by the students with the highest mean value of 4.00 on items 1 and standard deviation of 0.65 and 3.75 on item 10 with standard deviation of 0.75 while low mean ratings and standard deviation fell between 2.45 and 0.50 on items 8 indicating that all items based on the research study on question 1 were Very Often for the skills relevant to the training needed by the students to be functioning in their chosen careers.

Research Question 2: Are the skills impacted by the electrical/electronic technologists to students required in the labour markets after graduation?

Table: 2 Mean values and Standard deviation response by the respondent (instructors and lecturers) to the skills impacted by the technologists towards the students required in the labour markets after graduation in Oyo State Colleges of Education.

S/N	Items	Very often (%)	Often (%)	Sometimes (%)	Rarely (%)	Never (%)	X	SD	REMARKS
11	Skills imparted by the technologists help students to repair electronic gadgets	20 (40%)	15 (30%)	05 (10%)	05 (10%)	05 (10%)	4.00	0.65	VO
12	Skills impacted by the technologists help students to be relevant in industries	20 (40%)	10 (20%)	10 (20%)	05 (10%)	05 (10%)	3.85	0.63	VO
13	Skills impacted by the technologists enable students to be self-reliance in their chosen career	15 (30%)	20 (40%)	05 (10%)	05 (10%)	05 (10%)	3.75	0.60	VO
14	Skills impacted by the technologists help students to be employer of labour	15 (30%)	17 (34%)	08 (16%)	06 (12%)	04 (8%)	3.65	0.57	VO
15	Skills impacted by the technologists enable students to be improving economics of the state	10 (20%)	07 (14%)	14 (28%)	15 (30%)	04 (8%)	2.47	0.48	N
16	Skills impacted by the technologists to students are gears towards innovation	10 (20%)	12 (24%)	18 (36%)	05 (10%)	05 (10%)	2.45	0.43	N
17	Skills impacted by the technologists to students provide for curtain industries	20 (40%)	16 (32%)	05 (10%)	04 (8%)	05 (10%)	3.86	0.58	VO
18	Skills impacted by the technologists help students to handle modern tools	16 (32%)	05 (10%)	08 (16%)	16 (32%)	05 (10%)	3.45	0.45	N
19	Skills impacted by the technologists help students to handle modern equipment	15 (30%)	08 (16%)	17 (34%)	06 (12%)	04 (8%)	3.47	0.46	N
20	Skills impacted by the technologists help students to	10	08	12	14	06	2.44	0.42	

handle modern (20%) (16%) (24%) (28%) (12%) N
machines

Field Survey, 2022

Key: Key: X=Mean ratings, SD= Standard Deviation, % = Percentage, VO= Very Often and N=Never

Table 2: responses of the skills impacted by the electrical/electronic technologist' to students required in the labour markets after graduation by the respondents shows items of 11, 12,13,14 and 17 were in very often in the remarks with the high mean value of 4.00 and standard deviation of 0.65 on item 1 indicating that skills impacted help students to repair the gadgets while items of 15,16,18,19 and 20 with the lowest mean value and standard deviation fell within 2.44 and 0.42 on item 20 indicating that skills impacted will not assist students in handling the modern machines in either industries or somewhere else but only their services may not be needed because the training machines in the workshops are outdated and could not be serviced and meet the current industries' challenges.

Research Question 3: Are there adequate modern tools, equipment and machines available for students' participation in practical implementations along with technologist?

Table 3: Mean values and Standard deviation response by the respondents (instructors and lecturers) to the adequate modern tools equipment and machines for the students' participations in practical implementation in Oyo State Colleges of Education.

S/N	Items	Very often (%)	Often (%)	Sometimes (%)	Rarely (%)	Never (%)	X	SD	REMARKS
21	Adequate of modern tools are made available for the practical implementation	20 (40%)	15 (30%)	10 (20%)	03 (6%)	02 (4%)	4.00	0.65	VO
22	Adequate modern tools are made available to all varieties for used	14 (28%)	18 (36%)	10 (20%)	05 (10%)	05 (10%)	3.85	0.63	VO
23	Adequate modern tools are all in good condition for used	12 (24%)	15 (30%)	17 (34%)	04 (8%)	02 (4%)	2.45	0.44	N
24	Adequate modern equipment are made available for the use of practical	15 (30%)	18 (36%)	12 (24%)	03 (6%)	02 (4%)	3.65	0.57	VO
25	Adequate modern equipment available are not faulty	14 (28%)	14 (28%)	17 (34%)	02 (4%)	03 (6%)	3.46	0.45	N
26	Adequate modern equipment available are made to be varieties	10 (20%)	15 (30%)	10 (20%)	10 (20%)	05 (10%)	3.95	0.62	VO

27	Adequate modern equipment are capable of powering for practical use	15 (30%)	10 (20%)	09 (18%)	15 (30%)	0 (0%)	3.86	0.58	VO
28	Adequate modern machines are made available for the practical use	20 (40%)	15 (30%)	08 (16%)	05 (10%)	02 (4%)	3.55	0.50	VO
29	Adequate modern machines are capable of powering power for the use of practical	15 (30%)	10 (20%)	09 (18%)	14 (28%)	02 (4%)	3.68	0.55	VO
30	Adequate modern machines are not faulty	15 (30%)	13 (26%)	16 (32%)	03 (6%)	03 (6%)	3.47	0.45	N

Field Survey, 2022

Key: Key: Key: SD= Standard Deviation, %= Percentage, VO= Very Often and N=Never

Table 3: responses of the respondents to the adequate modern tools, equipment and machines for the students' participation in practical implementation in Oyo State Colleges of Education shows that items 21,22, 24,26,27,28 and 29 were very often to the questionnaire with the highest mean value and standard deviation of 4.00 and 0.65 of item 21 indicating that the adequate modern tools are made available for the practical participation of students in the electrical/electronic workshops while items of 23, 25 and 30 were never in remarks with the lowest mean value and standard deviation recorded 3.45 and 0.44 on item 23 respectively showing that most of the equipment are faulty which prevents the usages of the equipment for practical in the electrical/electronic workshop. This among others hindered the poor performance of the students after graduation in labour market.

Discussions of Findings

Table 1 mean value and standard deviation have recorded the highest of 4.00 on items 1 and 5 respectively, and 0.75 while the lowest mean value and standard deviation fell between 2.45 and 0.50 on item 08 for which all the above were within and also below cut off remarks of 2.50 and 0.50 of very often indicating that all the items must be thoroughly observed for the trade repairs skills development acquired by the graduate's students of electrical/electronic as really emphasized by FGN (2020) on minimum standard for Nigeria certificate in Education. Ezeji (2011) support the provision of technologist to cater for practical skill acquisition of the students.

Table 2 mean values and standard deviation have the highest of value of 4.00 and standard deviation of 0.65 on item 1 while the lowest mean values and standard deviation fell between 2 .44 and 0.42 on item 20 indicating that skills impacted will not only assist students in handling the modern machines in either industries or somewhere else but also their services may not have been needed because of outdated training machines in the workshops and that could not meet the current industries' challenges as stated by UNESCO (2010) for the TVET programme.

Table 3 mean values and standard deviation on the adequate modern tools, equipment and machines available shows the highest mean value and standard deviation of 4.00 and 0.65 on item 21 indicating that the adequate modern tools are made available for the practical participation of students in the electrical/electronic workshops while items of 23, 25 and 30 were never in remarks with the lowest mean value and standard deviation recorded 2.45 and 0.44 on item 23 respectively showing that most of the equipment are faulty which prevents the usages of the equipment for practical in the electrical/electronic workshops as the result findings of Agbionu, (1991), indicated on "The 6-3-3-4 System design expected to versa the actual" for the practical in the school workshop justified to the participations of skills through tools, equipment and machines made available for students constant participation practices in the schools' workshops.

Conclusion

The study concluded that the skills possessed and experiences of the technologists have a lot to do to with the relevance of students skills development impacted and to the development of society in general as you cannot give out what you don't have. This can only be achieved through the availabilities of modern tools, equipment and machines readily at the disposal of the school electrical/electronic workshops which provides a conducive environment for students' practical while at the time enable the students familiar with industrial attachment mode of skills acquisition that would enable them to be effective and useful in industries or either to be self –reliance based on needs of the society.

Recommendations

- Adequate tools, equipment and machines should be made available by the Government institutions where the courses are offered for the Electrical/Electronic students at any level of education development in the tertiary institutions
- The technologists should be encourage to attend workshops Seminars and Conference to be able to update students' skills for the need of industries and the society.
- The students should be encouraged to put interest and make themselves available to acquire the practical aspect of the courses.
- The philanthropists and alumina in the society should come together to the assistance of the Colleges to provide necessary facilities that would aid to the improvement of practical in electrical/electronic workshops

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