

The State of Workshop Facilities on Students Acquisition of Electrical Installation Skills in Technical Colleges in Rivers State

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Abstract

This study was carried out to assess the state of workshop facilities available on students' acquisition of electrical installation skills in Technical Colleges in Rivers State. The research design was descriptive survey. A structured questionnaire was used to collect data for the study. Data collected were analyzed using mean, percentages and frequency. The findings revealed that the workshop facilities for the acquisition of electrical installation skills are adequately available in Technical Colleges, that workshop facilities in electrical installation are well equipped and effectively functioning, that students usually performs practical exercise in electrical installation practices and that the technical teachers in electrical installation are highly skilled and effectively capable of developing practical knowledge into the students. It was recommended that all broken down equipment including the obsolete ones be repaired and for replaced to promote effective skill acquisition and training in all the colleges. Special orientation on the operation and maintenance of the procured workshop facilities should be organized as at when due to update the instructors and workshop technicians about proper handling of the facilities. Donor agencies such as PTA, UNDP, UNESCO etc, should be encouraged to assist in equipping the colleges.

Introduction

Teaching is an interaction that exists between a teacher and learners in a given context (classroom/workshop). A technical teacher cannot teach effectively without the used functional, required tools, equipment and machines in the workshop. The environment in which the teaching/learning would take place must also be conducive. Puyate (2004) pointed out that effective vocational and technical training would require instructional facilities. This indicated that the availability and effective utilization of facilities for training in any technical college enhances the vital process of the skills to be acquired. Effective teaching also empowers trainees/students to be productive and contribute positively to the development of every nation. Inadequate facilities for teaching/learning technical trades have been observed by a number of scholars/researchers in technical and vocational education. Some of them noted the gross inadequate unavailability and non-functional state of the facilities (Okorie and Ezeji, 2000, Basse, 2000) respectively. Others observed that the out dated nature of the mounted machines and the lack of proper maintenance culture to promote life expectancy of the workshop facilities (Puyate 2004; Bello, 2004) this could however be attributed to the fact that most of the essential tools, equipment and the heavy machines used for instructional purposes in technical colleges are imported product and consequently apart from being scarce are certainly very expensive.

In a Technical College where facilities such as workshop or laboratory, equipment, tools and instructional materials are lacking, no significant practical teaching can be passed on to the learners. This will no small way affect the student's acquisition of electrical installation skills. Technical and vocational education facilities in this study involve all the infrastructural and physical facilities in the workshops laboratory, studios. This includes all the tools, equipment, machines, and the consumable materials that are being used from time to time for teaching/learning the trade, these facilities are required to be available, adequate and functional in order to satisfy the needs of the curriculum, while these needs cannot be overemphasized for effective teaching/learning to take place. Chado (2004) observed that many institutions that are offering technical and vocational education programs in Nigeria are experiencing gross inadequacy of facilities for teaching/learning and those that are available are either outdated, broken down or out of use due to one reason or the other. Some of these reasons are attributed to lack of consumable materials and electricity supply for operating the machines and equipment, in a similar vein, Emah (2003) observed that expendable materials for practices and for carrying out students' project in Technical and Vocational programs are lacking in schools thereby denying students and teachers the opportunity to use the facilities as at when due.

The global trends in teaching and learning of Technical and Vocational Education now requires the use of computers and other related communication facilities which are not available in adequate quantity and quality for use by the teachers, administrators and the students in most Nigeria schools. This unavailability and inadequate of appropriate facilities have restricted Technical and Vocational Education teachers from meeting the desired goals of the educational system.

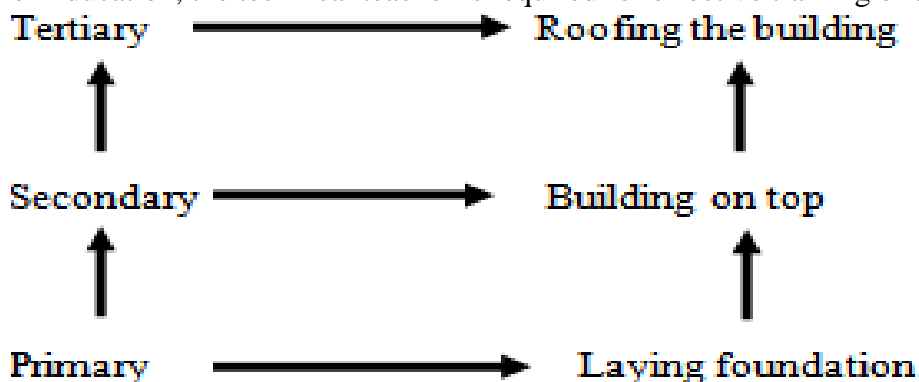
Most administrators of technical colleges in the past are not technically inclined nor do they have much awareness in the technology of acquiring electrical installation skills, they belong to the predominantly liberal arts, humanity and education specialization. They are what Plato (1993) referred to as an aspect of education known as the "Thinking Head" since those in authority are not technically inclined, they treat vocational education with levity, frivolity and lack of commitment and vigor.

As Awotunde (2003) states that some technical colleges lack not only workshop facilities and laboratory where they are available they are ill-equipped with tools, materials and equipment. He further suggested that institution that are responsible for training all categories of technical man power should be equipped with machines, tools and recurrent items. Skill acquisition course in electrical installation needs repeated practice so as to gain the necessary skill. This assertion cannot be realized in a school without adequate tools and machines. It was in line with this fact that Aghotor (2002) draw the attention of policy makers in education to note that opportunities have to be provided to children in science to learn by doing.

The available workshop facilities for acquisition of Electrical Installation would be considered as the provision of physical facilities was observed not to be conducive for effective learning. It is either the facilitates are not there or they are in a deplorable condition. Speaking in the same view, Ayodele cited Aderalegbe (2003) that the quality of education a student receives has direct on availability or the lack of workshop facilities and the general atmosphere the learning or training takes place. Awotunde (2002) noted that huge sum of equipment in technical colleges. Many technical colleges have not built enough workshops to accommodate the equipment nor mount them he noted.

To ascertain if technical teachers are highly skilled, Ezechora (2002) described an effective science and technical teacher as someone who is knowledgeable, skillful and possesses the

competence necessary for teaching electrical installation skills. She further emphasized that an effective teacher should be able to manage the human and physical materials so as to effectively train a professional technician for the industries in the country. From the primary to tertiary level of Education, the technical teacher is required for effective training of the technician.



Fafunwa (2000) made the government to be acquainted with this in addition to the need for better trained technical teacher in the nation's technical colleges, there is need for the provision of more and better instructional workshop facilities, teaching aids, audio- visual materials and textbooks which will enhance realization and actualization of national goals in education. Lewin (2000) postulated that all humans operate in a dynamic field. And all behaviour is a function of two interdependent variables, that is, the person and the environment. This goes to say that some individual or succeed technologically because of the people in the society and their influences in creating technological awareness, education and planning.

Statement of the Problem

Efforts made by successive Governments in the past to promote Technical Education such that technical teachers could impart the necessary Electrical Installation skills to students without much difficulty have been crippled by lack of necessary courage on the part of the leadership to back up words with action.

Most vocational/technical institutions involved in preparing students to become self-reliant operate using damaged, obsolete tools, equipment and machineries coupled with inadequate funding, poor maintenance culture, etc. the poor state of workshop facilities has negative effects in the skill acquisition and competencies of the students, which has led to the production of half-baked technicians, craftsmen, vocational and technical education teachers (Oluteji 2007). The problem of this study therefore is to determine the state of workshop facilities on students' acquisition of electrical installation skills in technical colleges in River State.

Purpose of the Study

The study is aimed at determining the state of workshop facilities on student's acquisition of electrical installation skills in technical colleges in Rivers State. Based on this, the specific objectives of the study are:

1. To determine the availability of workshop facilities for the acquisition of Electrical Installation skills in Technical colleges in Rivers State.
2. To determine the functionality of the available workshop facilities in Electrical Installation in Technical Colleges in Rivers State.
3. To ascertain how often students do practical exercise in Electrical Installation in Technical Colleges in Rivers State.

4. To ascertain that technical teachers should be highly skilled in imparting knowledge in Electrical Installation practice in Technical Colleges in Rivers State.

Research Questions

In carrying out the study, the following research questions were answered.

1. What are the available workshop facilities for the acquisition of electrical installations skills in technical colleges in Rivers State?
2. What are the levels of functionality of the workshop facilities in electrical installation in technical colleges in Rivers State?
3. How often do students do practical exercise in electrical installation in technical colleges in Rivers State?
4. How highly skilled are technical teachers in imparting knowledge in electrical installation practice in technical colleges in Rivers State?

Significance of the Study

Frequent reports of electrocution, shocks, electric fires and incessant equipment breakdown abound in various domestic commercial and industrial sectors and concerns due to ineffective state of workshop facilities for training students in technical colleges thereby raising the question as to whether technical college personnel are incompetent in their choosing technical trade.

The findings of this study will serve as a reminder to the government and private individuals that are in the field of vocational and technical education to provide functional workshop facilities and personnel for teaching electrical installation skills in technical colleges in Rivers State.

Finally, the funding and recommendations of this research will help to balance and enhance the learning and acquisition of electrical installation skills, techniques and good theoretical background of electrical installation programmes and to alleviate some of the problems that exist in the teaching and learning of electrical installations skills in technical colleges in Rivers State.

Delimitation of the Study

This study was restricted to government technical colleges in Rivers State. It was not carried out in private technical colleges.

Review of Related Literature

Theoretical Framework

Theory of social constructivism

Albert Bandura (1997): develops the social learning theory based on the theory of personality. He posits that people learn from one another, via observation, imitation and modeling. His theory has often been called a bridge between behaviourist and cognitive learning theories because, it, encompasses attention, memory and motivation. He defined self- efficacy as the “beliefs in one’s capability to organize and execute the courses of action required to manage prospective situations.

Constructivist learning theory

Jean Piaget (1983): constructivist learning theory surrounds the cognitive development of children. Piaget believed children undergo stages of cognitive development that allows them to grow and develop as individuals.

This theory is absolutely related to state of workshop facilities in the students' acquisition of electrical installation skills since it is being broken down into different stages of cognitive development from the simple to the complex method of administering practical concepts and disciplines to students for them to grow from cognitive knowledge to psychomotor knowledge.

Conceptual Framework

Technical education as Fafunwa (2004) observed, has never been taken seriously in this part of the world. The reason for this could be either the administrators of education are not technically inclined or they don't have national pride and patriotism towards living in a technological advance country.

Okoro (2003) observed that, the level of learning in our technical college is scanty and poor. As such, lack moral content

Many technical colleges in Rivers State are having or practicing the normal technical training on the surface. The descriptions and uses of tools and machines are limited to the class text they are handicapped due to unavailability of equipment in the school.

Olorunselu (2000) put it that concepts should be translated into practice through student's activities. The national policy on education (2001) also described vocational education as primarily a practical course of study.

Development in technology had eluded most third world nation in spite of their numerous programmes and investments for technology transfer which had continued to be a mirage. Technology can never be transferred as advanced nations would want to remain as masters and lords to the under-developed world. Oluwatoyin (2005).

Mbaiorga (2002) did not mix words when he said that the vocational institutions in Nigeria face serious financial problems. The reason for this he attributed to the nonchalant attitude of the private sectors and individuals at supporting and financing vocational programmes and projects.

METHODOLOGY

The design of this study was a descriptive survey. It identified and described the state of workshop facilities on students' acquisition of electrical installation skills in technical colleges in Rivers State. This study was carried out in Rivers State, whose geopolitical zone is South-South, which is one of the 36 states of Nigeria. It is bounded on the south by the Atlantic Ocean, to the North by Imo and Abia State, to the East by Akwa Ibom State and to the West by the Bayelsa State. Its capital Port Harcourt is the largest city and is economically significant as the centre of Nigeria's oil industry. Rivers state currently consists of 23 local government areas. There are 23 Local Governments in Rivers State and the four (4) Government Technical Colleges was used for the study. The population of this study was consists of all vocational two students of the four Government Technical Colleges in Rivers State. A total number of 743 students in the four Technical Colleges. With this study, a stratified random sampling technique was employed by the researcher. The sample size for the study was 150: 20 respondents from Ahoada; 100 respondents from Trans-Amadi; 10 respondents from Tombia and 20 respondents from Ele-Ogu.

For the purpose of this study, data were collected through an administered structured questionnaire as the research instrument. The instrument was divided into four sections section A information on the available workshop facilities for the acquisition of electrical installation skills. Section B, information on the level of functionality of the workshop facilities in electrical

installation. Section C, information on how often do student do practical exercise in electrical installation. Section D, information on how highly skilled are technical teachers imparting knowledge in electrical installation practice. The items of four (4) section of the questionnaire were 20 in numbers. A four (4) point Likert scale rating was used for the study, ranging from Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD), with values from 4,3,2, and 1 respectively. The instrument was validated by the project supervisor she scrutinized the items and suggested appropriate corrections, which were strictly followed by the researcher. The reliability of the instrument was established by a test retest method, the scores were compared using Pearson product moment correlation coefficient (PPMCC) and the reliability coefficient of 0.85 was obtained. A total of 150 copies of the instrument were administered to the student at their various schools by the researcher on separate days. One hundred copies were retrieved from the respondents. This represents 67% return. In other to analyze the data obtained with respect to the specific research question of the study.

Results and Discussion

Table 1: What are the available workshop facilities for the acquisition of electrical installation skills in technical colleges?

S/N	ITEM	SA	A	D	SD	N	$\sum fx$	\bar{x}	DECISION
1.	Availability of workshop tools e.g multimeter, screw driver, tester, plier, hammer and soldering fits enhances the acquisition of electrical installation skills.	340	30	4	3	100	377	3.77	Accepted
2.	Availability of workshop equipment e.g bread board, view board, meter board, electrical installation board and tables are adequate for enhancing the acquisition of electrical installation skills.	176	75	18	22	100	291	2.91	Accepted
3.	A conducive environment creates enough room for improving the acquisition of electrical installation skills.	244	75	20	5	100	344	3.44	Accepted
4.	A well illuminated workshop facility is important for acquisition of electrical installation skills.	100	87	64	18	100	269	2.69	Accepted
5.	The presence of enough useable and re-useable materials in the workshop enhances the acquisition of electrical installation skills.	200	87	22	10	100	319	3.19	Accepted

Source: Researcher's field survey, 2016

Table 1: Responses of Students on the available workshop facilities for the acquisition of electrical installation skills in Technical Colleges. There are available workshop facilities for the acquisition of electrical installation skills in technical colleges. It was accepted by the students with a mean response of 3.77. The available workshop facilities are well equipped and proficient in enhancing the development and acquisition of technical installation skills.

Table 2: What are the levels of functionality of the workshop facilities in electrical installation in technical colleges?

S/N	ITEM	SA	A	D	SD	N	$\sum fx$	\bar{x}	DECISION
6.	Electrical installation equipment are functional.	260	93	10	2	100	365	3.65	Accepted
7.	The workshop facilities like tools are functional	132	48	48	31	100	259	2.59	Accepted
8.	A functional power supply is needed for practical, testing and evaluating the result of electrical installation practical.	316	54	8	1	100	379	3.79	Accepted
9.	Functional workshop useable and re-useable materials expose trainees to real life applications and relevant practical experience.	300	60	4	4	100	368	3.68	Accepted
10.	There are enough functional workshop accessories for electrical installation workshop practice in Technical colleges.	140	90	26	21	100	277	2.77	Accepted

Source: Researcher's field survey, 2016

Table 2: which has 5 items for the respondents indicates that the levels of functionality of workshop facilities in electrical installations in technical colleges. The respondents accepted the items with a mean response of 3.82. This indicates that students do not treat workshop facilities carelessly but contributed to its high level of its functionality.

Table 3: How often do students do practical exercise in electrical installation practice in technical colleges?

S/N	ITEM	SA	A	D	SD	N	$\sum fx$	\bar{x}	DECISION
11.	Students often do practical in Basic Electricity class.	216	81	18	13	100	328	3.28	Accepted
12.	Students do practical exercise often during Domestic Installation class.	320	57	4	2	100	383	3.83	Accepted
13.	Students do practical exercise often during Industrial Installation class.	236	93	18	2	100	349	3.49	Accepted

14.	Cable Jointing, Battery Charging, winding of Electrical Machine and Solid State Devices and Circuits classes always have practical.	112	57	44	31	100	244	2.44	Rejected
15.	Acquisition of electrical installation skills is enhanced by repeated exercise and comprehension of Electrical/Electronic Drawing.	208	63	20	16	100	307	3.07	Accepted

Source: Researcher's field survey, 2016

Table 3: which is made up of 5 items indicates that students do practical exercise as dictated by the school curriculum and that meaningful and relevant practical skills are being attained through repeated conducted practice, which was accepted by the student with a mean response of 3.28 in all the items in the questions but except item 14 ranked in the table with a mean response of 2.44 and was rejected by the students which indicated that Cable Jointing, Battery Charging, winding of Electrical Machine and Solid State Devices and Circuits practical classes are not often.

Table 4: How highly skilled are technical teachers in imparting knowledge in electrical installation practice in technical colleges.

S/N	ITEM	SA	A	D	SD	N	$\sum fx$	\bar{x}	DECISION
16.	There are highly skilled Basic Electricity teachers in imparting knowledge.	244	93	6	5	100	348	3.48	Rejected
17.	There are highly skilled Domestic Installation teachers.	236	60	6	15	100	317	3.17	Accepted
18.	There are highly skilled Industrial Installation teachers.	352	36	0	0	100	388	3.88	Accepted
19.	Cable Jointing, Battery Charging, winding of Electrical Machine and Solid State Devices and Circuits teachers are highly skilled.	116	75	34	1	100	226	2.26	Rejected
20.	Impartation of Electrical Installation skills is enhanced by the highly skill Electrical/Electronic Drawing teacher.	308	48	8	3	100	367	3.67	Accepted

Source: Researcher's field survey, 2016

Table 4: Which is made up of 5 items reveals that the technical teachers in technical colleges are highly skilled in imparting and developing knowledge in electrical installation practice on the students. Item 19 with 2.53 mean score indicated Cable Jointing, Battery Charging, winding of Electrical Machine and Solid State Devices and Circuits teachers are not highly skilled in imparting knowledge.

Conclusion

Based on the findings, the followings were deducted from the study, due to the unavailability of these workshop facilities in technical colleges, their goal and objectives will be a mirage. Where these workshop facilities are not functioning or well-equipped, the students' interest to learn and the teacher enthusiasm to teach will all be dampened. Repeated electrical installation practice, the environment, the school curriculum will manifest a high performance of technical "know how" in the students. The quality of teachers in the school can improve the students' performance to a very large measure by up- to- date skill acquisition techniques and the use of effective instructional materials during instruction.

Recommendations

From the findings above the following recommendations are made:

- All broken down implement including the obsolete ones be repaired and or replaced to promote effective skill acquisition and training in all the colleges.
- Modern workshop facilities should be procured to prevent outdated facilities.
- Special orientation on the operation and maintenance of the procured workshop facilities should be organized as at when due to update the instructors and workshop technicians about proper handling of the facilities.
- Donor agencies such as PTA, UNDP, UNESCO etc, should be encouraged to assist in equipping there modern facilities for necessary learning to take place.
- Provisions of regular instructional materials to schools to aid practical lesson
- Technical educators and engineers should be encouraged to write modern textbooks on electrical installation
- The public and private individuals should assist the government in the provision of infrastructures in the schools through donations.

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