AJVAH
e-ISSN: 2735-1165
DOI: https://doi.org/10.53797/ajvah.v3i2.1.2022

Skill Improvement Needs of Electrical Installation Teachers for Productive Skill Development in Ondo State Technical Colleges Students

Oke, Jonathan. O[1] & Oluwatayo, Benson Toyin[2*]

[1]Department of Vocational and Technical Education, Ekiti State University, Ado – Ekiti, NIGERIA

[2*]Department of Vocational and Technical Education, Adekunle Ajasin University Akungba Akoko, Ondo State, NIGERIA

*Corresponding author email: oluwatayobenson001@gmail.com

Available online 25 December 2022

Abstract: The study carried out an investigation on skill improvement needs of electrical installation teachers for productive skill development in Ondo State technical colleges students. A descriptive research of the survey type was adopted for this study. The population for the study are teachers teaching electrical installation in technical colleges in Ondo State. The sample for the study is the entire population of teachers teaching electrical installation. The instrument used for the data collection was a questionnaire tagged Electrical Installation Skills Questionnaire (EISQ). The instrument was face validated by three lecturers who are experts in Technology and vocational Education in Ekiti State University, Ado-Ekiti. The reliability of the instrument was established using Cronbach Alpha Reliability technique which yielded the reliability coefficient of 0.86. This was considered a high reliability. After the data collection, the mean and standard deviation were employed to analyze the data at 0.05 level of significance. The findings of the study revealed that electrical installation trade teachers training background lack quality in terms technical skills required of them that were not sufficiently possessed by them which gives rise to low skills with which they train students of electrical installation trade in Technical colleges in Ondo State of Nigeria. Based on the findings of this study, it was recommended that Teachers of electrical installation in technical colleges should be given in-service training to enable them continuously updating their teaching skills in planning for effective teaching of skills, instructional implementation and instructional evaluation among others.

Keywords: Skill, electrical installation, teachers, skills development and technical colleges students

1. Introduction

Vocational and technical education (VTE) is an integral part of educational system responsible for the production of low-level manpower such as (skilled labour) artisans, craftsmen and master craftsmen. According to Federal Government of Nigeria (FGN, 2014), vocational and technical education is that part of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge. Vocational and technical education is designed to prepare students for industry, agriculture, commerce, and home economics (Comfort, 2012). Vocational and technical education courses are taught at Universities, Polytechnics, Colleges of Education, and Technical Colleges. Technical college is one of institutions established by the Federal Government of Nigeria to provide individuals with practical skills, basic scientific knowledge and attitude that enables them to live successfully in the world. Technical college provides technical training in a number of courses which include General education, Automobile trade, Building and Woodwork trade, Business trade, Computer trade, Hospitality trade, Mechanical trade, Printing trade, Textile trade and Electrical/Electronic trade. Electrical/Electronic Trade is subdivided into Appliance Maintenance and Repairs; Electrical Installations and Maintenance Works; Instrument Mechanics; and Radio, Television and Electronics Work (FGN, 2014).

The conspicuous importance of equipping young Nigerians with productive employable skills made the Federal Government to emphasize the effective implementation of Technology and Vocational Education system. The

*Corresponding author: oluwatayobenson001@gmail.com

significance of Technology and vocational education includes the recipients possessing the abilities through training to create jobs and to earn living through application of the acquired practical skills especially in Electrical installation technology (Hanif et al., 2017). Okeke (2005) is of the view that to possess 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 purposeful repetition or practice in that occupation. Oke & Olakotan (2017). Skills acquisition development and sustained improvement give credence to advancement of intrinsic individual potentials. The students need sustained ability and encouragement to rise to this level by overcoming the challenges inherent in skills acquisition processes. To this effect, Osuala (2016; 2004) pointed out that most technical skills training actually present challenges to the learner by integrating practical work, theoretical knowledge, common sense, observation ability and encouragement in an occupation.

The foundation of technical skills acquisition lies in technical colleges. The Federal Government (2014) in the National policy on education stressed that technology education through which practical technical skill is acquired start from technical colleges. In Ondo State the students that wish to acquire technical skills normally enroll in the available technical colleges. Okoro (2018) and Oke & Olakotan (2017) asserted that technical colleges are the principal vocational institutions in Nigeria which is designed to prepare the individual to acquire practical skills, knowledge, and aptitude required of technicians at sub-professional level. This implies that technical colleges are designed to give full craft man training intended to prepare students for entry into various occupations of their interests (Oke & Olatilu, 2018). Among the occupations that students are given training in the technical college include Electrical installation (repair, maintenance and installation). Technical colleges are expected to perform in offering the youth saleable skills. However, the present conditions of the technical colleges with respect to the available technical teachers that operate the system are in deplorable conditions.

1.1 Problem Statement

The National Policy on Education, Federal Republic of Nigeria (2014) noted sadly that from all indications, there is a lack of quality in technology teacher training, including electrical installation teachers serving in the technical colleges. Technical colleges in Ondo State are no exempts as students graduating lack the requisite skills needed to install or diagnose faults in electrical installation systems, domestic, industrial or overhead installations. The insufficient Technical college skills training in the various occupations in electrical installation trade culminated to deprivation of the graduates from securing paid employment or self-reliant job in the occupation. The graduates of technical institutions do not have the knowledge and skills that will enable them to take up the available jobs. No educational enterprise can rise above the status of the teachers that operate it. Hence, technical teachers present skills call for every Nigerian to strive towards self-reliance and self-dependent through productive skill development. The training of the students to be self-reliant needs well-trained teachers that would be capable of imparting the right skills effectively. The teachers need to possess relevant skills for teaching electrical installation to enable technical college students receive proper saleable skills training for proper adaptation to the world of work. It is therefore clear that every society needs proficient and well trained work force. A well train electrical installation worker will be capable of designing, installing and repairing or maintaining electrical work (Pratama et al., 2022). It is in lieu of this that this study investigated skill improvement needs of electrical installation teacher in technical college for productive skill acquired by students in technical colleges in Ondo State, Nigeria.

1.2 Purpose of The Study

The purpose of the study was to investigate skill improvement needs of electrical installation teachers for productive skill developing among technical colleges students in Ondo State, Nigeria. The study will specifically;

a. Examine the teaching skills needed by electrical installation teachers to impart the modern Electrical Installation technology skills in technical colleges for productive employment; and
b. Investigate the methods for acquiring the requisite skills for improvement by electrical installation teachers.

1.3 Research Questions

a. What are the teaching skills needed by Electrical installation teachers to impart modern electrical installation skills in technical colleges?
b. What are the methods for acquiring the required skills for improvement by Electrical installation teachers?

2. Literature Review

A study conducted by Gella (2019) on improving technical teachers on the use of maintenance of technical equipment in secondary schools in Adamawa and Taraba States. The main purpose of the study was to find out those problems that technical teachers had which prevailed them from effective utilization and maintenance of technical equipment. The specific purposes of the study are as follows: The essential skills in maintenance needed by technical teachers or effective teaching and training students in maintenance course, the maintenance skills technical teachers acquired while

training, the level of skill possessed by technical teacher in operation of technical equipment, some limiting factors that prevent technical teachers from carrying out effective maintenance on the technical equipment and ways of solving these problems. A structured questionnaire used for data collection; three hundred and fifty (350) copies of the questionnaire were administered. Three research questions were raised and three hypotheses were tested at (P>0.05) level of significance. The findings of the study shows that the skill possessed by the technical teachers in the operation of technical equipment they work is very low, some other problems found out by the survey is non availability of spare part and lack of basic maintenance knowledge.

Mamman (2018) conducted a research on workshop practice management skill improvement needs of electricity/electronic teachers in technical colleges in Adamawa, Bauchi, Gombe State. The study made use of survey research design. Five research questions formulated, survey instrument of 75 items and reliability co-efficient of 0.98. His findings revealed that the respondents need planning as it is the bedrock on which all other management skills are laid. Organization and skill needs among others, with population of 81 Electrical/Electronic teachers, all questionnaires administered correctly completed and returned 100 percent with 19 items were found to be needed. This study is relevant to the present study because it involves skill improvement needs of electrical/electronic teachers in technical colleges.

Ogbuanya & Fakorede (2009) conducted a study that sought to identify the technical skill improvement needs of metal work Technology Teachers for entrepreneurship in response to MDG for quality assurance. Structured questionnaire was used to collect data from the respondents. The population for the study consisted of 110 metalwork Teachers. No sampling made because of the relative small size of the population. Data were analyzed with mean and standard deviation. The findings of the study revealed that Metalwork technology teachers in technical colleges need modern metalwork technology skills for quality training of metalwork students in technical colleges for occupation in metalwork industry and productive self-employment. Finally, the study identified the pedagogical skills needed by metalwork technology teachers in the technical colleges in Lagos and Ogun State to enable them teach for entrepreneurship. Entrepreneurial skills identified by this study aimed at improving/eradicating poverty and hunger as well as to develop a global partnership for development. This is in line with the current study in the aspect of skill improvement needs but defer in the aspect of subject contain of metal and entrepreneurship.

Wei et al. (2022) and Dimelu (2010) conducted a study that focused on identification of competency improvement needs of teachers of home economics in the use of ICT for effective teaching in technical colleges of education in southeastern Nigeria. Three research questions guide the study. Descriptive survey research design adopted for the study. The population was 105 teachers of home economics. A structured questionnaire used for data collection. The questionnaire was divided in to two categories of needed and performance. The needed category was assigned a four point response scale. High, needed four averagely, needed three slightly, needed two and not needed one, while the performance category was assigned a four point response scale. of highs performance four, average performance three low performance two and no performance one The questionnaire was face validated three experts from department of vocational teacher education, university of Nigeria, Nsukka. Split half technique and Cronbach Alpha method were used to determine the internal consistency of the item with a co-efficient of 0.8. The difference between the mean the questionnaire was administered to the respondents with a return rate of 100%. The data was analyzed using weighted mean of each of the items in each category constitute the gap that needed improvement i.e XN XP =PG (performance gap). It was found out that teachers of home economics in colleges of education needed improvement in 16 competency item in word processing; 13 competency items in internet usage and 15 competency items in presentation (power point). It was therefore, recommended that teachers of home economics should be improved in areas of their deficiencies identified by the study through short courses (in service) workshops and personal effort. Even though this study conducted on competency, it involves improvement needs of teachers relevant to this study and no evidence of sample so the study will be generalized with caution.

Atsumbe, Saba, & Abdullahi (2019) conducted a study on work-skill required for training of secondary school dropouts in Niger State. The purpose of this study was to develop a work-skill required for training of secondary school dropouts in Niger states. Specifically the study was designed to develop a programme of train in domestic wiring, battery charging and repairs and winding of electrical machines adequate for making dropout students self –reliant. The study made use of survey research design. Three research questions were raised and three hypotheses were tested at (P>0.05) level of significance. The population of this study comprised of 38 respondents, 28 Electrical Technical School teachers selected from all the seven technical colleges and 10 tertiary school lecturers that offer training for vocational and technical teachers. The data collected from the population was analyzed using mean, standard deviation and the t-test. Based on the findings, it is recommended that the training should be replica of the training environment where the trainees would subsequently work. And adequate repetition of training in experience from the training areas should be given to the trainees. Thus, these enable the right habits of doing and thinking to the degree necessary for employment. This study is relevant to the present study owing to the fact that it involves work skill relevant to that of technology teachers but the work of the study deals with Niger state not in my study area.

Abdullahi (2010) conducted a study which was motivated by a great concern about the future and continuity of Electrical installation in all tiers of society and our education system particularly in technical colleges. The concern stemmed from poor performance, low and declining skill practice in performance and in National Business and

Technical Education Board (NATEB) Examination. Pertinent questions and doubts were raised on the required competencies of Electrical/Electronic Teachers currently teaching Electrical installation in technical colleges. The study therefore focused on the Electrical installation competencies required by Electrical/Electronic teachers in technical colleges using Bauchi and Gombe States of Nigeria as a frame of reference. Four objectives were stated, research questions asked, and hypotheses formulated and tested at 0.05 level of significance. A questionnaire, titled Electrical Installation Competencies Required by Electrical/Electronic Teachers in Technical Colleges (EICRETC), consisting of 112 items was structured, based on the four broad Electrical installation areas: Domestic installation, Industrial installation, Cable jointing and Winding of Electrical machines administered to 47 Electrical/Electronic teachers in Bauchi and Gombe States. Data thus collected were analyzed using the mean and t-test statistics. Respondents rated items as required in 112 competencies. The study has implication for re-training, in-service training for Electrical/Electronic teachers and therefore recommend involving continuous training not one but regular basis through workshops, seminars were made towards the implementation of the finding of the study. This study is relevant to the present study because it is concerned with electrical installation and declining of skill by electrical/electronic teachers.

3. Methodology

A descriptive research of the survey type was adopted for this study. A survey research design is one which involves the assessment of public opinion using collection of detailed descriptions of existing phenomena with the intent of using the data to justify current conditions and practices or to make better plans for improving phenomenon. This design was deemed appropriate in carrying out this study because it used a questionnaire to seek information directly from the teachers teaching of skills and are in the best position to provide reliable and relevant information to authenticate the research. There are four technical colleges in the State, one in each zone. The technical college that offer electrical installation trade were used for the study. The population for the study are teachers teaching electrical installation in technical colleges in Ondo State. The sample for the study is the entire population of teachers teaching electrical installation. The instrument used for the data collection was a questionnaire tagged Electrical Installation Skills Questionnaire (EISQ). The instrument was face validated by three lecturers who are experts in Technology and vocational Education in Ekiti State University, Ado-Ekiti. The reliability of the instrument was established using Cronbach Alpha Reliability technique which yielded the reliability coefficient of 0.86. This was considered ahigh reliability. After the data collection, the mean and standard deviation were employed to analyze the data at 0.05 level of significance.

4. Results

4.1 Question 1: What are the teaching skills needed by electrical installation teachers to impart electrical installation skills in technical colleges?

Table 1: Mean and standard deviation of responses of electrical installation teachers on the teaching skills needed to impart electrical installation skills in technical colleges

S/N	Teaching skills on instructional planning	MEAN	SD	Remark
1	Examine the electrical installation curriculum program module	3.51	0.48	Significant
2	Properly establish instructional objectives	3.25	1.06	Significant
3	Determine from the module the instructional content	3.41	0.55	Significant
4	Provide performance feedback to the students	3.66	0.58	Significant
5	Objectively assess students' performance	3.30	0.52	Significant
6	Promptly correct learners' error.	3.20	0.57	Significant
7	Specify instructional concepts in the learnable units for students in the workshop during practice	3.45	0.67	Significant
8	Properly Arrange instructional contents in order of presentation.	3.40	0.53	Significant
9	Identify adequate learning experiences for instruction	3.36	0.74	Significant
10	Emphasize appropriate technique of instructional delivery teaching skills on instructional implementation.	3.43	0.60	Significant
11	Arrange selected content in sequential instructional delivery order	3.45	0.64	Significant
12	Use of appropriate questioning technique to determine learning outcome.	3.91	0.53	Significant
13	Timely presentation of learning materials to boost instruction.	3.22	0.98	Significant
14	Introduce learners' instructional activities at the appropriate time.	3.12	0.64	Significant
15	Select evaluation techniques to be employed	3.13	0.49	Significant
16	Develop evaluation strategies to be employed	3.20	0.57	Significant
17	Provide performance feedback to the students	3.71	0.57	Significant

18	Timely grade the learners	3.87	0.67	Significant
19	Objectively assess students' performance	3.22	0.52	Significant
20	Supervise the learners' independent performance in tests	3.91	0.62	Significant

Table 1 indicates that the teachers need all the twenty (20) items on teaching skills for imparting skills on Electrical installation trade students in technical colleges. The mean scores for each item were above 2.43 cut off point.

4.2 Question 2: What are the methods for acquiring the required skills for improvement by Electrical installation teachers?

Table 2: Mean and standard deviation of responses of the teachers on methods for acquiring the required skills for improvement on electrical installation by Electrical installation teachers

S/N	Teaching skills on instructional planning	MEAN	SD	Remark
1	Work based learning in form of on the job	3.63	0.58	Significant
2	Through industrial visits such as field Trip	3.70	0.58	Significant
3	Consulting external job experts	3.71	0.51	Significant
4	Supervising students carrying out practical work.	3.87	0.62	Significant
5	Engage students on workshop practicals	3.22	0.51	Significant
6	Supervise SIWES students	3.91	0.67	Significant
7	Interacting with professional colleagues on Electrical installation modern techniques	3.45	0.56	Significant
8	Setting up exhibitions by learners	3.57	0.56	Significant
9	Undertaking information search	3.76	0.64	Significant
10	Consulting current journals	3.56	0.62	Significant
11	Reference to technical manuals	2.45	0.47	Significant
12	Engaging in team work	3.91	0.56	Significant
13	Seminar to acquire new skills	3.22	0.91	Significant
14	Carrying out demonstration often.	3.12	0.63	Significant

The data presented in Table 2 shows that respondents agreed on the fourteen items but disagreed on only one item 11.

5. Discussion

The findings from the opinions of the respondents revealed that all the twenty (20) teaching skills needed to effectively teach electrical installation trade in technical colleges were overwhelmingly accepted. The teachers agreed that teaching skills that they need to effectively plan instruction should include careful examination of electrical installation curriculum as being now implemented, proper establishment of instructional objectives and determination of proper instructional content. The curriculum of electrical installation should be well examined to ensure that it is versatile, holistic and dynamic. Ekwue (2019) noted that the problems of different vocational and technical schools stem from the fact that their curriculum is very narrow and that some of them do not provide enough varied experiences for students while others in most cases are never upgraded to meet with the demands of the labour market. If the curriculum is faulty, the objectives that are derived from it would subsequently be problematic. The respondents also agreed that specifying instructional concepts in learnable units for students in the class would enhance skill acquisition. Arrangement of instructional contents and objectives in right order of presentation, identification of appropriate learning experiences and adopting of proper teaching methods were accepted by the teachers as good teaching planning skills. Also, in the finding of Gella (2019) shows that the skill possessed by the technical teachers in the operation of technical equipment they work is very low, some other problems found out by the survey is non availability of spare part and lack of basic maintenance knowledge.

Use of appropriate questioning technique was accepted as a good measure for effective teaching skills instructional implementation. This finding is supported by Okoro (2018) and Oke & Olakotan (2017) were pointed out that questioning may be used to introduce a new skill topic, seek solution or draw students' attention to some important points in the lesion. Other items on the teaching skills for effective instructional implementation were accepted by teachers.

On teaching skills for instructional evaluation, the teachers agreed that are important for effective instructional evaluation. They therefore posited that specifying objectives to be evaluated is very important for effective skill teaching. Items 15 and 16 on evaluation technique selection, development and administration were respectively favorably rated by teachers. The respondents also posited that supervision of students during testing period, timely grading of students and providing feedback to them on their performance all form sound teaching skills in proper evaluation.

On the strategies for acquiring the needed skills for improvement on electrical installation, respondents accepted all the items except item fourteen (11) on references to technical manuals. This finding contravened Darrah (2012) that rather upheld that the making references to technical machines manuals are invaluable as this helps users to operate such machines successfully. Respondents' rejection of this item may be based on the ignorance of the value of such referencing.

6. Conclusion and Recommendations

From the findings of this study, electrical installation trade teachers training background lack quality in terms technical skills required of them that were not sufficiently possessed by them. This gives rise to low skills with which they train students of electrical installation trade in Technical colleges in Ondo State of Nigeria. Hence, constant practice of teaching skills needed to impart required skills in electrical installation trade will elevate the teachers to be fully qualified and teach effectively in the technical colleges. When teachers are well nurtured in the various teaching skills it would be easier to effectively implement the Electrical installation trade curriculum in the technical colleges in Ondo State and Nigeria at large.

On the bases of the major findings of this study, the following recommendations were made:

- Teachers of electrical installation tin technical colleges should be given in-service training to enable them continuously updating their teaching skills in planning for effective teaching of skills, instructional implementation and instructional evaluation.
- Technical college administrators should provide the avenues to enable their teachers of electrical installation to participate jn worthwhile ventures that would enable them effectively teach the needed skills. Such ventures include participation in field trips, SIWES organization and supervision, consulting external job expert, engage in workshop practical and encouraging students to mount exhibitions.
- The teachers should organize themselves for effective team work interactions to update their technical skill competencies.
- The Ondo State Government should encourage Electrical installation teachers by giving the incentives and financial support to participate in in-service training that would enable them update their skills and teaching competencies.

References

Abdullahi, S. (2010). Electrical installation competency improvement required by electrical/electronic teachers in Bauchi and Gombe State technical colleges. *Unpublished M. Ed (Industrial) Thesis*.

Atsumbe, B. N., Saba, T. M, & Abdullahi, I. (2019). Work-Skill Required for Training of Secondary School Dropouts in Niger State. *Journal of the Nigerian Vocational Association,* 13(1), 144-150.

Comfort, C. (2012). Vocational technical education in Nigeria: Challenges and the way forward. *Business management dynamics*, *2*(6), 1.

Darrah, M. A (2012). An address by the honorable minister of education and of advisory board for technical colleges. *A Quarterly Journal of FME, 5*(2), 17-20.

Dimelu, I. N. (2010). Competency improvement needs of teachers of home in the use of ICT for effective teaching in Colleges of Education in South Eastern Nigeria. *Journal of the Nigerian Vocational Association*, *14*(2), 25-32.

Ekwue, C. (2009). Challenges of vocational education in present day Nigeria. *Journal of Vocational Education*, *12*(1), 1.

Federal Government of Nigeria. (2014). *Nigeria national policy on education*. Lagos: NERDC Press Ltd.

Gella, A. B. (1993). Technical Teachers on the use and maintenance of Technical Equipment in secondary schools in Adamawa and Taraba state. *Unpublished M. Ed. (Industrial) Thesis, University of Nigeria*.

Hanif, A. S., Azman, M. N., Pratama, H., & Ma'arof, N. N. M. I. (2017). Kit pemantauan penyambungan litar elektrik: Satu kajian efikasi alat bantu mengajar (Schematic circuit and circuit connectivity kits for Malaysian science students: An efficacy study of a teaching aid). *Geografia-Malaysian Journal of Society and Space*, *12*(3).

Mamman, Y. A. (2016). *Workshop Practice Management Skill Improvement Needs of Electricity/Electronics Teachers in Technical Colleges in Adamawa, Bauchi and Gombe State* (Doctoral dissertation).

Ogbuanya, T. C., & Fakorede, S. O. A. (2009). Technical skill improvement needs of metalwork technology teachers for entrepreneurship in response to MDG for quality assurance. *Journal of the Nigerian Vocational Association*, *13*(1), 115-126.

Oke, J. O., & Olakotan, O. O. (2017). Training needs of Technical Education Pre-service Teachers for Employment and Sustainable Development in Ogun State. *International Journal of Educational Foundations and Management IJEFAM*, *11*(1), 39-44.

Oke, J. O., & Olatilu, A. A. (2018). Towards enhancing Creativity among technical colleges students in Nigeria. *International Journal of Research and Analytical Reviews (URAP).* 5(3), 229-233.

Okeke, C. A. (2005). Improving students skill acquisition through effective clothing and textile education in tertiary institutions in Anambra State. *Journal of Home Economics Research*, *6*(1), 84-89.

Okoro, O. M. (2018). *Principles and methods in* vocational and technical education. Nsukka: University Trust Press.

Osuala, C. E. (2016). *Foundations of vocational education*. Onitsha: Cape Publishers Int. Ltd.

Osuala, C. E. (2004). *Foundations of vocational education*. Onitsha: Cape Publishers Int. Ltd.

Pratama, H., Azman, M., Zakaria, N., & Khairudin, M. (2022). The effectiveness of the kit portable PLC on electrical motors course among vocational school students in Aceh, Indonesia. *Kompleksnoe Ispolzovanie Mineralnogo Syra*, *320*(1), 75-87.

Wei, Y., Lai, X. Y., Li, X. Q., Zhang, P. X., Guo, J. H., & Nur Rahma Putra, A. B. (2022). An Assessment of Online Learning Competency among Students of Higher Vocational and Technical School in China. *Journal of Technology and Humanities*, *3*(1), 17-25. https://doi.org/10.53797/jthkkss.v3i1.3.2022