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Practical Skill Domestic and Industrial- Consider of Electrical Installation Trade Teachers in Technicalcollege in Ebonyistate

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ABSTRACT:The study focused on evaluating the practical skills need by electrical installation teachers in government technical colleges in Ebonyi State. The concern for this study hinged on the observations that students of electrical installation trade do not perform up to expectation in their final examinations and this could be that the teachers needed more practical skills to effectively teach the students. Technical teachers of electrical installation in the four technical colleges constituted the sample. All the 43 teachers were used and no sampling was done since the population was manageable. Two purposes that yielded two research questions guided the study. A 50-point questionnaire was used to elicit responses on the practical skills needed by the teachers. The data collected was analysed and findings showed that electrical installation teachers need all the 50 skills and it was therefore recommended that teachers should be given in-service training to make them improve in their practical skills.

KEYWORDS:Practical, skills electrical installation, needs, trade, teachers.

I. INTRODUCTION

The objective of practical skills acquisition by technical college students is enable them obtain the required abilities for performing tasks adequately with the muscles in responses to sensor stimuli preparatory to adjustment in the world of work. Learning experience that emphasize learning by doing involves practical skills acquisition that is essential for performing these skills in occupations in which they are employed after graduation. It is therefore imperative that teachers that impact the practical skills should be adequately trained.

Electrical installation trade is one of the major skills based courses offered in technical colleges in Nigeria and comprises basic electricity, industrial installation, domestic installation, electric machine, winding and cable jointing. The goal of electrical installation trade as it is contained in the National Board for Technical Education (NBTE) [1] is specified according to different sections that make up the course. The objective of domestic installation is to provide the students with the knowledge and skills to enable them perform electrical installation in buildings which includes fixing home appliances, conduit and surface installations as well as maintaining electrical fittings and appliances in homes and installation and maintenance of industrial machineries.

NBTE also stated that the objectives of electrical industrial installation includes providing the trainees with skills and knowledge that will enable them undertake factory and industrial installations (conduit, surface or trunk) wiring using appropriate conductors and cables. Industrial installation mainly utilizes high voltages of 415 volts transmitted over bare aluminium conductors of appropriate dimensions in relation to the type of factories they are meant to serve.

Technical college teachers teaching electrical installation trade need to acquire the necessary skills and knowledge to make them efficient and profitable if employed in training students that would be subsequently employed in recognized electricity based organizations. But Faga[2] and Nneji[3] pointed out that tools and equipment needed for teaching and learning of skills are not adequately provided and this constitutes hindrance to proper skills acquisition in electrical installation trade. Ogbuanya, Abdulahi and Ado [4] posited that technical college students who took the NBTE

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Vol. 6, Issue 12, December 2017

examinations performed poorest in electrical installation trade. This makes many technical college graduates of electrical installation trade to be jobless. They are jobless not because there is lack of opportunities in electrical installation related work but because they are not competent in undertakings electrical installation related works as private individuals or with any recognized organization.

Today's contemporary technology depends primarily on high skilled manpower to steer productivity. Therefore technical college graduates of Electrical Installation trade have a lot of input to make industries work effectively in the world of work. Oranu [5] rather stated that technical college products are weak in practice of their trades. Despite all efforts by industrial training fund, government and colleges to ensure practical skills acquisition of technical college students for better employability, there have been dwindling rate of passes of graduates of technical colleges, NABTEB [6].

The level of practical acquisition at the technical colleges needs to be enhanced to enable graduates fit properly into the competitive world of paid employment. The increased competencies of technical teachers directly improve the skills acquisition in students. This is because no educational enterprise can rise above the quality of teachers that teach those skills and competencies. The problem of this study hinges on the fact the electrical installation trade graduates are not competent in carrying out skilled, practical work in the world of paid employment.

II. PURPOSE OF THE STUDY

The main purpose of this study was to determine electrical installation practical skills needed to be acquired by teachers of electrical installation trade. Specifically, the study was set out to:

1. Ascertain the practical skills needed by teachers for effective teaching of domestic electrical installation.
2. Determine the practical skills needed by teachers for effective teaching of Industrial Electrical Installation.

III. METHOD

The research design to successfully carry out this study was a survey. Gall, Gall and Borg [7] posited that a survey design is a method of collecting data by employing questionnaire or interviews from a sample that has been selected to represent a population to which the subsequent of the analysed can be fully generalized. The area of the study consisted of technical colleges in Ebonyi state situated in the South-East of Nigeria. The area was chosen because technical colleges offer electrical installation trade. The population of the respondents consisted of 43 teachers of electrical installation trade in the four technical colleges. The teachers were used because they are knowledgeable on the exact skills they would need to enable students acquire relevant practical skills in electrical installation trade in the world of work on graduation. The selection of teachers was based on the fact that they possess the first hand information on the practical skill needs of the students that would enable them on graduation to be relevant in the world of paid employment. There was no sampling since the population was small and manageable. A 50 item questionnaire was developed by the researcher based on literature reviewed on the practical skills on Electrical Installation trade. A five point Likert Scale was used as a response mode. Respondents were to indicate against each question variable (item) to determine the practical skills required by Electrical Installation Trade teachers as follows: Very Highly Needed (VHN), Highly Needed (HN), Needed (N), Moderately Needed (MN) and Not Needed (NN). Forty three questionnaire copies were administered through personal contact with the respondents and this ensured one hundred percent retrieval of the questionnaire copies. The questionnaire was subjected to face validation by three Technology and Vocational Education experts in the Department of Technology and Vocation Education, Faculty of Education of Ebonyi State University, Abakaliki. After validation, an item was dropped remaining 50 items in the questionnaire that was finally administered on respondents. The reliability was established by firstly administering the questionnaire to teachers in Folk Technical College that is not among the sampled technical colleges. After analysis using Cronbach Alpha, the reliability stood at 0.83 at 0.05 level of significance. The instrument was thus considered very reliable. After data collection, the instrument was analysed using mean and standard deviation on the five-point response modes of Likert scale. The researcher considered the mean of 2.50 and above as acceptable point of respondents any mean less than 2.50 was considered as insignificant and does not represent the practical skills needed by teachers in electrical installation trade in technical colleges.

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Vol. 6, Issue 12, December 2017

IV. RESULTS

The data collected from the respondents were analysed and presented providing answers to the research questions.

Research Question 1

What are the practical skills needed to enhance the effectiveness of Electrical Installation trade teachers in technical colleges? To answer this researcher question, the respondents made the following responses to the questionnaire as presented in table (1) below;

Table 1: Mean Response of Electrical Domestic Installation Trade Teachers on their Practical Skills Needs

S/N	Item	\bar{x}	SD	Remarks
1.	Carryout testing of polarity in an installation.	4.28	0.77	A
2.	Identification of any type of incandescent lamp.	4.16	0.94	A
3.	Cut P.V.C conduit pipe straight	4.03	0.91	A
4.	Identify conduit work tools	4.11	0.93	A
5.	Apply spirit level	4.12	0.95	A
6.	Identify rating of cables	4.09	0.85	A
7.	Select standard Armoured cables	3.91	0.86	A
8.	Use gimlet properly	3.94	1.03	A
9.	Explain accessories	4.07	0.93	A
10.	Identify symbols	4.05	0.94	A
11.	Explain working drawings	4.01	0.99	A
12.	Explain single phase drawings	4.07	0.93	A
		4.16	0.91	
13.	Explain 3-phase drawings	4.15	0.92	A
14.	Utilize drill for working	4.17	1.0	A
15.	Explain surface and conduit wiring systems	3.93	0.97	A
		3.92	0.97	
16.	State regulations guiding conduit installations	4.18	0.91	A
		4.01	0.99	
17.	Explain regulations guiding surface wirings	3.94	1.04	A
		3.09	0.77	
18.	Drawing in wires into conducts using fish wire	3.99	0.85	A
		4.03	0.91	
19.	Select circuit breakers for various circuits	4.15	0.95	A
		4.03	0.91	
20.	Explain the functions of fuses and circuit breakers	3.99	0.85	A
		4.09	0.77	
21.	Properly install earthing systems	4.15	0.95	A
22.	Install 3-phase earth leakage circuit breakers	3.98	0.86	A
		4.15	0.95	
23.	Install double socket outlets	4.03	0.91	A
24.	Install water tight appliances	4.01	0.99	A

Result: In table 1 above, all the skills are needed by the teachers since the items all scored the mean above 3.50.

Research Question 2: What are the skills needed by teachers of industrial electrical installation trade on industrial installation?

Table 2: Mean Response of Teachers on the Skills Required for Electrical Installation Teachers in Teaching of Industrial Installation Skills.

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Vol. 6, Issue 12, December 2017

S/ N	Item	\bar{x}	SD	Remarks
1.	Test machines	4.01	0.99	A
2.	Applying lubricants on machine parts	4.03	0.91	A
3.	Identify motor starters	3.92	0.97	A
4.	Effectively utilize starters in starting electric motors	4.17	0.92	A
5.	Use flexible wires to connect electric motors	4.09	0.77	A
6.	Calculate current motor ratings in Amperes	4.15	0.95	A
7.	Mount electric motors safely.	4.02	0.91	A
8.	Effectively carry out star and delta connections	3.99	0.85	A
9.	Make foundations for mounting electric motors	4.09	0.77	A
10.	Operate multi-phase motors	3.98	0.86	A
11.	Illustrate A/C connections	4.15	0.95	A
12.	Connect motors in series	4.03	0.91	A
13.	Connect three-phase motors	4.01	0.99	A
14.	Connect risk phase motors	3.91	0.86	A
15.	Install trunks of different sizes	3.94	1.03	A
16.	Construct ducts for cables passage	4.07	0.93	A
17.	Install accessories	4.05	0.94	A
18.	Join PVC trunks	4.01	0.91	A
19.	Install earth continuity conductors	4.16	0.92	A
20.	Explain motor principles	4.17	1.0	A
21.	Explain generator principles	3.93	0.97	A
22.	Explain motor construction	4.08	0.91	A
23.	Explain generator construction	4.01	0.99	A
24.	Explain single phase motors	3.94	1.04	A
25.	Explain 3-phase generators	4.03	0.99	A
26.	Explain 3-phase motors	4.15	0.95	A

Results: The table 2 above shows that all the skills listed are required by the teachers having all scored the mean above 3.50.

V. DISCUSSION OF MAJOR FINDINGS

The skill needs of technical teachers of electrical installation in Government Technical Colleges in Ebonyi State were analysed and determined. All the twenty four (24) skills in Domestic installation and 26 skills in industrial installation were all accepted as being required by electrical installation trade teachers in the technical colleges. These skills were found relevant in making them competent teachers. To motivate electrical installation teachers, the listed skills are very imperative. It is thus not amazing that they acknowledged that the skills are needed by them for effective performance as electrical installation teachers in technical colleges. Oranu [5] pointed out that personality development can be described as a combination of a need. Hence, the desire to assuage these needs directs or guides human interest and behavioural patterns. When electrical installation teachers possess these skills, it would make them to be more devoted to their work. Ogbuanya, et al [4] opined that before any training programme is established the felt needs of teachers who will participate in such programmes must be ascertained. This implies that the true needs of the teachers must be put into consideration. It implies that services that will make teachers advance in their teaching process such in-service training programme should be based on identified teachers' needs.

In the data analyzed, respondents indicated that all the skills are needed for the teacher to be effective in teaching Domestic installation at the technical colleges. Both practical and theoretical knowledge were thus accepted as skills that would enable teachers exhibit their prowess in teaching Domestic installation. Olaitan [8] agreed that needs for in-

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Vol. 6, Issue 12, December 2017

service training should be based on skills in which the respondents found them deficient and so need re-training in the in-service programme. However, teachers accepted that more of the skills needed should be through practical acquisition, Ogbuanya, et al [4] pointed out that a comprehensive knowledge of the skills in electrical installations is essential for teachers of Electrical/Electronics especially at higher education level. Thus, competent electrical installation teachers should be highly skilled in diagnosing and selecting requisite materials in teaching students successfully through planned activities.

The findings of the study portray some educational implications. The skills needed to encourage students develop needed psychomotor skills are not possessed by most teachers. Students trained by the teachers that do not actually possess the requisite skills in Electrical Installation will not properly fit into gainful employment or self-reliant in the world of work. Secondly, the findings of the study implies that most Government Technical colleges do not have highly skilled Electrical Installation teachers and as a result of this, they emphasize theoretical aspects of the course leaving students with inept skills that cannot make them fit into the world of paid employment. Since the teachers indicated that they need these skills, in-service training is one of the sure ways of up skilling the serving teachers to increase their instructional prowess, both theoretical and in practical skills acquisition.

VI. CONCLUSION

To enable students acquire the requisite practical skills in Electrical Installation the teachers that are the centre-pin of transmitting knowledge must be highly skilled. No educational enterprise can rise above the quality of teachers that operate the system. Based on the results of the research, the following conclusions have been made: There were evidences of shortage of required skills in electrical installation by the practicing teachers in the technical colleges. As a result of this, the teachers' prowess is limited to the few skills they possess. Most of the skills are yet to be possessed by the teachers of electrical installation trade in the government technical colleges in the state. Electrical installation trade students were not well trained since the skills needed by the teachers are not possessed by them.

VII. RECOMMENDATIONS

From the data collected and analyzed the following recommendations have been proffered.

1. Curriculum planners should use the identified practical skills *needs* to recommend the areas that should be included for emphasis in Electrical Installation trade course in technical colleges.
2. In-service training in form of workshops and seminars should be organized for serving teachers to enable them up skill their prowess in practical competences in the course at technical colleges.
3. The re-training through workshops or seminars should be concentrated on the two major components of Electrical Installation trade which are domestic and industrial installations.

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