

# Pre-Service Technical Teachers' Perceptions on the Challenges of N.C.E Electrical/Electronic Programme in Kano State, Nigeria

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## Abstract

**Motivation:** Technical teacher training institutions are inevitable for any country to fulfill its aspirations of becoming technologically self-reliant nation, and compete in the world market. However, these institutions in Nigeria are bedeviled by so many problems that make it difficult for them to accomplish the objectives they are established for. Several researchers conducted a number of studies on these problems, but none is directed towards exploring the perceptions of pre-service technical teachers with respect to these problems.

**Purpose:** This study therefore, aims to explore pre-service technical teachers' perceptions on the challenges of N.C.E electrical/electronic programme in Kano State, Nigeria.

**Methodology:** The author employing descriptive research design collected data from 167 pre-service N.C.E (Technical) electrical/electronic teachers in the 2 training institutions in Kano State, Nigeria. This was through a 35-item structured questionnaire developed by researcher.

**Findings:** The findings of the study revealed that the training institutions experience: inadequate standard and modern workshops/laboratories, dearth of modern instructional materials/ICT facilities, tools and equipment are not regularly maintained, students are not involved in the maintenance of tools and equipment, trainers' employ inappropriate teaching methodology and exhibit technical/manipulative incompetence, pre-service teachers have negative attitudes towards teaching, and they found themselves accidently in a teacher training colleges.

**Research limitation/Implication:** The author limit the data collection to pre-service teachers. Students' views about effectiveness of any aspect of school's programme are sometimes not considered a valid source of information for decision making because they lack adequate knowledge of the full context of the institutional challenges, and therefore their opinions are susceptible to bias.

**Practical Implication:** The findings provide the National Commission for Colleges of Education (NCCE) with a pre-service teachers' feedback as a valuable component of school programmes evaluation system.

**Originality/Value:** This study sets the pace for exploring the perception of other pre-service N.C.E (Technical) teachers in the country.

**Keywords:** Pre-service teachers, Teaching methodology, Teachers' attitude, Motives for teaching

## 1. Introduction

Over the past decades, there exists a continued competition among developed and developing nations over domination of world markets. One means which proved to be inexorable in this competition is technology. Technology is the purposeful application of information in the design, production, and utilization of goods and services, and in the organization of human activities. As a result, every serious country with aspirations to compete within a comity of nations must establish and ensure smooth operations of technology training institutions, for producing competent personnel who will spearhead its industrial development. In conformity with this, the Government of Nigeria realized that technical and vocational education (TVE) holds the key to the nation becoming technologically and internationally relevant and competitive in the world market. Current trends in the world indicates that technology is the most effective means of employing the citizenry to stimulate sustained national development, enhance employment, improve the quality of life, hinder poverty, limit the incidence of social vices due to joblessness and promote a culture of peace, and democracy. However, the technical teacher training programmes in Nigeria presently are facing hydra-headed challenges as noted by many researchers, such as Uwaifo and Uwaifo (2009), Ogbu (2015), and Mbaga, Sambo and Tijjani (2015).

This empirical paper contributes to these current challenges confronting the technical teacher training programmes in Nigeria by exploring the perceptions of pre-service N.C.E (Technical) electrical/electronic teachers on shortage of time, training equipment, hand tools and materials for their training, appropriateness of trainers' teaching methodology and technical/manipulative competence, and pre-service teachers' attitude towards teaching and their motives for choice of becoming teachers. Although the literature indicates that these outlined challenges are dealt with and almost nonexistent in so many developed and developing countries

across the globe, I will show that these challenges still exist in Nigerian technical teacher training institutions. The researcher believed that there is urgent desire for these problems to be exposed. Examining the challenges of effective training of pre-service N.C.E (Technical) electrical/electronic teachers in Kano State, coupled with effective implementation of the recommendations will go a long way in reducing and even eliminating the problems, thereby ensuring efficient training of technology teachers who are the bedrock of industrial and technological development.

## 2. Problem Background

Training is a complex process of socialization that transforms individuals into social beings, equipped with the necessary tools to participate fully in the dynamics of life. Obisi (2001) refers to training as a process through which the skills, talent and knowledge of a trainee is enhanced and increased. Therefore, the education of the individual must continue as long as the individual desires to adapt to new circumstances as he journeys through life (Osusu, 2003). Trainers or teachers consequently, hold the key to the success of several organizations: educational, social, financial, industrial etc. Recognizing the importance of teachers as the fountain-head of education process, the Federal Republic of Nigeria in the National Policy on Education (NPE, 2004), stated that no educational system can rise above the quality of its teachers, which impliedly means that no nation can develop above the quality of its teachers.

As a consequence, the significance of effective teacher training programme of a nation cannot be overemphasized, since it is the yardstick for measuring the quality of education dispensed in its schools. Boudersa (2016) stated that teacher training programme is conceived as being a higher priority in any country, because teaching is considered challenging and critical, as well as determines a nation's development and progress in diverse spheres of life. Training is an organized activity aimed at imparting information and/or instructions to improve the recipient's performance or to help him/her attain required level of knowledge or skill. Jehanzeb, Hamid, and Rasheed, (2015) cited Noe (2008), who defined training as a planned activity taken by the organizations to transfer the job knowledge and skills, and improve the attitude and behavior of the trainee which is consistent with the organizational goals. This implies that training is concerned with the acquisition of knowledge (facts, theory, concepts), skills (how to – do it) and attitude (values, styles, belief). It helps individuals to perform their specific tasks or current jobs

to the required level of competence. Its purpose in the work station is to enable individual employee to become proficient in undertaking a particular activity or range of activities. It has a vocational purpose and it can occur both “off – the – job” or “on the job”.

As an enormous agency, education has a great weight in building strong and developed societies, and the teacher is one of the primary agents for achieving that. This clearly demonstrates the role of teacher education programmes in national development, and the very reason why each country should make vigorous efforts to produce quality teachers or qualified personnel to take up the teaching of her citizens, as teaching is a versatile field that requires at all times the correct identification of indices of development in the society. Its versatility makes it imperative that teachers be an embodiment of constant search for updated knowledge – latest information, skills, and breakthrough – in various field of life for the fulfillment of national objectives.

In fulfilling the national objective of Nigeria, Technical and Vocational Education (TVE) is relied upon as a basis for technological development. It is that aspect of education which is significantly responsible for a sound and capable workforce expected to serve as bedrock for the success of a nation. Vocational education refers to any programme, which provides training for a particular occupation, business or profession. The Nigerian National Policy of Education (2004) defines vocational education as a comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. It is a type of education that offers semi skilled training in different trades and occupations. Vocational training prepares people for employment in the trades, industry, health, agriculture, and business organizations. It equips learners with saleable occupational skills which prepares them for both employment and assumptions of a place in society. The meaning of technical education is limited in scope compared to vocational education. However, the quest for technological development in a country like Nigeria warrants an emphasis on technical education even though it's meaning can be conveniently subsume under vocational education. Technology specifically refers to a form of training for engineering, manufacturing and industrial occupations. Technical education involves preparation in such trades as welding, carpentry and joinery, painting and decoration, mechanic, machining, electrical installation, electronics etc. These are trades which prepare beneficiaries

for work that is largely manipulative and practical. It is clear that technical education opens up trainees to opportunities different from those who have acquired literacy training offered by many institutions.

The Government of Nigeria has realized that technical and vocational education holds the key to the nation becoming technologically and internationally relevant and competitive in the world market. Current trends of technology in the world indicates that technology is the most effective means of employing the citizenry to stimulate sustained national development, enhance employment, improve the quality of life, hinder poverty, limit the incidence of social vices due to joblessness and promote a culture of peace, free and democracy. Nonetheless, to achieve all these good potentialities, a formidable technical teacher training programme in the country must be established. An efficient teacher training programme equips the teacher to provide enabling environment needed for a student to attain his full potential and thrive. Thus, teacher education should be the arrow-head and the spirit of renascent Nigeria. Our teacher education programme should be in harmony with our national aspiration for development. Good teacher dispense good teaching, which in turn produces good quality workforce, such as engineers, medical doctors, architects, accountants, and lawyers etc. working towards the achievements of national goals. An effective teacher education programme therefore, must seek to assist the individual teacher to grow and develop as a person, provide him/her with the necessary skills and professional abilities that will help him/her become an effective teacher and a community leader. Above all, teacher education is basically related to every phase of our development: socially, economically and politically. However, no adequate training can take place without competent teachers to handle the training programme. Consequently, teacher education must come at the top of every list of priorities concerned with education and training, because the services of the teachers are indispensable to any nation, and more than any other profession, influences the lives of the nation's youth and the nation's future.

Technical education is designed to prepare learners for an understanding of laws of sciences and technology as applied to modern design and production. Technical and vocational education is further concerned with skill training that is critical for sustainable industrialization and poverty reduction in terms of creating a critical mass of technically and entrepreneurially qualified people, who are able to stimulate investment opportunities, create jobs and increase productivity. Technical and Vocational education when effectively handled will help in

conserving and developing the vast, natural resources available in the country. Given adequate technical training, Nigerians will be able to look inward and exploit the local material resources as well as traditional ingenuity of ours. The country needs to evolve a technical identity. By the skilful adoption and invention of technological artifacts, one can genuinely describe a technology as Nigerian. Similarly, an effective TVET will only materialize through carefully structured curriculum at all levels of the school system and the non-formal TVE. Pivotal to the success of the curriculum is the spirited implementation of the planned curriculum through efficient technical teacher training programme.

Technical teacher training is a very vital enterprise that needs effective attention of concerned stakeholders. It takes an effective teacher to impart saleable skills to learner. Jonah (2019) emphasized that deficient teacher preparation might slow down national economic transformation. Adequately trained teachers can deliver quality skills in learners. Okwelle, Deebom, and Okwelle (2017) pointed out that skill training provided by TVE enhances employment and productivity as well as sustain competitiveness in the global economy leading to economic transformation. The importance of effective training of teachers in any education enterprise cannot be overemphasized. Okwelle, Deebom, and Okwelle (2017) observed that TVE aspects of our education has placed high premium on national development, considering its importance to the production of skilled and competent workmen. It is obvious that the technological transformation will be a mirage without effective corresponding training of technical teachers. The Nigeria government has realized the importance of TVE in economic development of the nation, and has proposed a priority for the realization of vision 2020. This can only be realized if TVE is properly repositioned to make its products, and especially the teachers better skilled and knowledgeable to impart on subsequent students.

However, the technical teacher training programmes in Nigeria presently are facing hydra-headed challenges as exhibited by young technical teachers who took up teaching job; and this is carefully observed by the researchers over a six-year period. These challenges are real dangers and threats to the Nigeria's aspirations to becoming technologically self-reliant nation. The system and process of training and developing technical teachers is seriously deficient and some of the problems which need to be addressed include: technical teachers are poorly trained and equipped with regard to their ability in manipulation of training equipment, hand tools, and consumable materials; inappropriate teaching methodology and practical incompetence; and

negative attitude towards teaching. Upon this background, this study is poised to investigate the perceptions of pre-service technical teachers on the challenges of N.C.E electrical/electronic programme in Kano State.

### **3. Problem Statement**

The roles of an effective teacher training programme for acquisition of knowledge, skills and right attitudes for the national development cannot be over emphasized. However, the training of pre service N.C.E (Technical) electrical/electronic teachers is being challenged by a number of problems which should be attended to for the realization of the objectives of the programme. These problems include but are not limited to poorly trained and poorly equipped teachers with respect to their capacity in handling of training equipment, improper teaching method and lack of interest towards teaching job. A number of studies were carried out particularly in Nigeria with regards to problems associated with teacher training programmes (e.g., Ogunyinka, Okeke, and Adedoyin, 2015; Rafukka, Clement, and Abu Raihan, 2013; and Uwaifo and Uwaifo, 2009). However, to the best of researchers' knowledge, the perceptions of pre-service teachers on the challenges confronting NCE (Technical) electrical/electronic programme in Kano state, Nigeria have not been investigated.

Undoubtedly these problems need to be addressed due to their relationship with the nation's peaceful coexistence. Investigating from the pre-service teachers' perspective is also of utmost importance, and forms a part of the framework of solving the problems. This is because if these challenges are left unattended or ignored, there will be continued production into the teaching profession of NCE (Technical) electrical/electronic teachers without effective training which will hamper their ability to teach effectively in our junior secondary schools and especially in technical colleges. This will result in incompetent craftsmen who are unemployable in the industries, leading to more jobless youths on the streets resulting into so many social vices including political thuggery, drug addiction, and burglary. The consequences of these social vices will make our communities to be unsafe for living which poses a great danger to the security of people in the societies in particular and the entire country in general.



#### 4. Research Objective/Questions

The chief object of this study is to investigate the challenges of effective training of pre-service N.C.E (Technical) electrical/electronic teachers in Kano State. It therefore seeks to specifically answer the following questions:

- i. To what extent do the shortage of time, training equipment, hand tools and materials affect the training of pre-service N.C.E (Technical) electrical/electronic teachers?
- ii. Are the teaching methodology and technical/manipulative competences of trainers appropriate?
- iii. To what extent do pre-service N.C.E (Technical) electrical/electronic teachers' attitude and choice of becoming teachers have impacts on the effectiveness of their teaching job?
  - a. To what extent do pre-service N.C.E (Technical) electrical/electronic teachers demonstrate positive attitudes towards teaching profession?
  - b. What are the pre-service N.C.E (Technical) electrical/electronic teachers' motives for their choice of teaching career?

#### 5. Methodology

The research design for this study was descriptive survey research. The population of the study consists of all the pre-service N.C.E (Technical) electrical/electronic teachers in the two institutions offering the programme in Kano State. The institutions (college A and B) have 183 and 44 pre-service electrical/electronic teachers respectively which make the target population of the study to be 227 subjects. With the aid of Krejcie and Morgan (1970) table of sample size, the researcher used simple random sampling technique to select 127 and 40 subjects from college A and B respectively. As a result, the sample size for the study consists of 167 subjects. The instrument for data collection used was a 35-item structured questionnaire designed by the researcher for obtaining information from the respondents. The initial draft of the questionnaire was presented to four (4) lecturers in the Department of Science and Technology Education, Faculty of Education, Bayero University, Kano, Nigeria, to check the face and content validity of the instrument. Suggestions and observations made by the experts were effected to produce the final draft of the questionnaire. The researcher also entrenched the reliability of the instrument via pilot-testing the questionnaire on 41 pre-service electrical/electronic teachers of the Department of N.C.E Technical, Hassan Usman Katsina Polytechnic, Katsina, Katsina State, Nigeria. Cronbach's Alpha method was used to ascertain the extent of the homogeneity of the



items. The reliability coefficient of the questionnaire was found to be 0.913, which indicates that the items in the questionnaire are internally consistent in measuring what was intended to be measured for the study. The researcher used mean, and standard deviation in analyzing the research data with the aid of SPSS statistical software. Any item with mean value of 2.50 and above is accepted while items with a mean value below 2.50 are rejected.

## 6. Results

The results of the study are presented below in accordance with the research questions that guided the study.

**6.1 Research Question 1:** To what extent do the shortage of time, training equipment, hand tools and materials affect the training of pre-service N.C.E (Technical) electrical/electronic teachers?

**Table 6.1: Respondents’ Mean Scores and Standard Deviation on the Effect of Shortage of Time, Training Equipment, Hand Tools and Materials on the Training of Pre-Service N.C.E (Technical) Electrical/Electronic Teachers**

N = 167				
S/No	Items	$\bar{X}$	SD	REMARK
1	Students have adequate time to learn and practice requisite skills in the workshop/laboratory during practical lessons	2.898	1.08	Accepted
2	Equipment for training of pre-service N.C.E (Technical) electrical/electronic teachers are adequate	2.991	0.67	Accepted
3	Portable and other powered-hand tools for training pre-service N.C.E (Technical) electrical/electronic teachers are adequate	3.033	0.38	Accepted
4	There are adequate consumable materials for training pre-service NCE (Technical) electrical/electronic teachers in this school	3.114	0.69	Accepted
5	There are adequate related modern instructional materials in the workshop for the training of pre-service N.C.E (Technical) electrical/electronic teachers	2.330	0.75	Rejected
6	There are adequate standard modern workshops/laboratories for work to complement the theoretical aspects of training pre-service electrical/electronic teachers in this school	2.084	0.86	Rejected
7	There are adequate ICT facilities for training of pre-service N.C.E (Technical) electrical/electronic teachers	2.042	0.81	Rejected
8	Tools and equipment are regularly maintained for practical training in the laboratory/workshop	2.234	0.72	Rejected
9	Students are greatly involved in the maintenance of tools and equipment in the workshop	2.167	0.71	Rejected
10	Proper monitoring of workshop equipment, tools and machines is conducted periodically	2.362	0.56	Rejected

**Key:** N - Population of the respondents;  $\bar{x}$  – Mean scores of the respondents; SD – Standard deviation of the respondents

Table 6.1 above shows the mean and standard deviation of the responses of pre-service electrical/electronic teachers in this study. Analysis of mean responses of the respondent revealed that 4 out of the 10 items addressing shortage of time, training equipment, hand tools and materials are accepted with a grand mean rating ranging from 2.898 – 3.114. The respondents further rejected 6 other items presented to them.

**6.2 Research Question 2:** Are the teaching methodology and technical/manipulative competences of trainers appropriate?

**Table 6.2: Respondents’ Mean Scores and Standard Deviation on the appropriateness of trainers’ teaching methodology and technical/manipulative competences**

N = 167				
S/No	Items	$\bar{X}$	SD	REMARK
11	Lecturers are willing to take extra time to answer questions and solve problems	2.34	1.03	Rejected
12	I am satisfied with our lecturers’ organization and presentations of lessons	2.24	0.87	Rejected
13	I am satisfied with our lecturers’ ability to relate course content with real world experience	2.30	0.75	Rejected
14	Lecturers respect human dignity and integrity, and show concern and care towards students	2.11	0.68	Rejected
15	Lecturers are patient, easy-going, and accommodating	2.20	1.39	Rejected
16	Lecturers use one or more of the following methods of instruction in the workshop: Demonstration, Field trip, Project, Experiment, Assignment	3.48	0.69	Accepted
17	Lecturers observe and rate the procedures adopted by students in performing a tasks in the workshop	2.03	0.82	Rejected
18	Lecturers rate end product performed by the students in the workshop	2.06	0.88	Rejected
19	Lecturers emphasized compliance of safety rules and regulations in the workshop	3.04	0.68	Accepted
20	Lecturers spend more time on teaching theory components of electrical/electronic curriculum than practical components.	3.34	1.00	Accepted

**Key:** N - Population of the respondents;  $\bar{x}$  – Mean scores of the respondents; SD – Standard deviation of the respondents

The result presented in table 6.2 shows that 7 out of 10 items addressing appropriateness of trainers’ teaching methodology and technical/manipulative competence were rejected. While, items 16, 19, and 20 were accepted by the respondents with a grand mean rating from 3.04–3.48.

**6.3 Research Question 3:** To what extent do pre-service N.C.E (Technical) electrical/electronic teachers’ attitude and choice of becoming teachers have impacts on the effectiveness of their teaching job?

- a. To what extent do pre-service N.C.E (Technical) electrical/electronic teachers demonstrate positive attitudes towards teaching profession?

**Table 6.3(a): Mean Scores and Standard Deviation of Pre-service N.C.E (Technical) electrical/electronic teachers’ Attitudes Towards Teaching as a Profession**

N = 167				
S/No	Items	$\bar{X}$	SD	REMARK
21	I feel highly honored to present myself as a teacher	2.22	0.84	Rejected
22	The idea of becoming a teacher attracts me	2.17	0.68	Rejected
23	Teaching does not suit my lifestyle and personality	3.25	0.57	Accepted
24	I fear I will have troubles working as a teacher	2.95	0.86	Accepted
25	It makes me happy to think that I will become a teacher	2.31	0.71	Rejected
26	I would like to work as a teacher even under difficult conditions	1.07	0.74	Rejected
27	The teaching profession is boring for me	3.29	0.89	Accepted
28	The idea of teaching people things they do not know pleases me	2.45	0.67	Rejected

**Key:** N - Population of the respondents;  $\bar{x}$  – Mean scores of the respondents; SD – Standard deviation of the respondents

Table 6.3 (a) shows the mean scores of the respondents on their attitudes towards teaching. Analysis of the mean and standard deviation of the responses of the respondents reveals that 5 items out of 8 posed to address pre-service teachers’ attitudes towards teaching as a profession were rejected, even as items 23, 24, and 27 were accepted with a mean rating ranging from 2.95 – 3.29.

- b. What are the pre-service N.C.E (Technical) electrical/electronic teachers’ motives for their choice of teaching career?

**Table 6.3(b): Mean Scores and Standard Deviation of Pre-service N.C.E (Technical) electrical/electronic teachers’ motives for choice of teaching career**

N = 167				
S/No	Items	$\bar{X}$	SD	REMARK
29	I choose teaching as my career because the salary is appealing	2.12	0.84	Rejected
30	I choose teaching as my career because of the high status of teachers in the society	2.37	0.68	Rejected

31	I choose teaching as my career because of the outstanding working conditions	2.25	0.57	Rejected
32	I choose teaching as my career because of the passion I have for teaching electrical/electronic	2.15	0.86	Rejected
33	I choose teaching as my career because of the view I hold of teaching as a valuable and important profession	2.31	0.71	Rejected
34	I choose teaching as my career because of my desires to support children’s development and to make difference in society	3.07	0.94	Accepted
35	I choose teaching as my career because I couldn’t secure admission into other professional courses such as Medicine, Law, Engineering etc	3.29	0.89	Accepted

**Key:** N - Population of the respondents;  $\bar{x}$  – Mean scores of the respondents; SD – Standard deviation of the respondents

The table 6.3 (b) reveals the mean scores of the respondents on their motives for choice of teaching career. Analysis of mean responses and standard deviation of the respondents as presented in the table reveals that 5 out of 7 items posed to address pre-service teachers’ motives for choice of teaching career were rejected. At the same time items 34 and 35 were accepted by the respondents.

## 7. Discussion and Implication

This study investigated the perceptions of pre-service Technical electrical/electronic teachers on the challenges of N.C.E electrical/electronic programme in Kano State, Nigeria. Specifically, the study examined impact of shortage of time, training equipment, hand tools and materials on their training; the suitability of teaching methodology and technical/manipulative competences of trainers; and the impact of attitude and choice of becoming teachers on the effectiveness of their teaching job. These purposes are accomplished via descriptive survey design, where a structured questionnaire designed by the researcher was administered to the respondents for the data collection. As such, the discussion of the findings that follows is organized according to the objectives that guided the study.

### 7.1 Shortage of time, training equipment, hand tools and materials for the training of N.C.E electrical/electronic teachers

The findings as shown in table 6.1 revealed that there is enough time for learning and practicing requisite skills in the workshop/laboratory. This finding is in agreement with Sadker, Sadker, and Klein (1991) who believes that allocating adequate time to academic content is not

enough, but the teacher's ability to effectively use allocated time in classroom teaching is the real key to students' achievement. This implies that workshop instructions and management will continue to yield positive results with respect to learning and practicing new skills, because time is a precious commodity for both teachers and students. The finding also revealed that there are adequate equipment, portable and other powered-hand tools, and materials in the workshop/laboratory. This finding concurs with Rafukka, Clement, and Abu Raihan (2013), who discovered that there is availability of tools, equipment and materials for the technical teacher training programme in Katsina State, Nigeria. However, Mbagu, Sambo, and Tijjani (2018) reported that equipment, tools, and machines were not enough to cater for the increasing population of students' enrollment in the colleges of education in North-Eastern Nigeria. Also Okwelle (2006) claimed that students are exposed to obsolete and non-functional equipment and tools in technical schools. This implies that not all teacher training colleges in every parts of the country are well furnished with efficient equipment, portable and other powered-hand tools, and materials in their workshops/laboratories. The availability of equipment, portable and other powered-hand tools, and materials aid memory by making theoretical concepts become real. Equipment and other facilities make it possible for the students to interact with the learning materials that enhance teaching and learning thereby making the process meaningful and purposeful.

The findings also indicate that there are inadequate standard and modern workshops/laboratories in the technical teacher training institutes. This is in concise with Uwaifo and Uwaifo (2009) who reported that tertiary institutions in Nigeria that offer technical and vocational education (TVE) programmes lack adequate buildings and well equipped workshops/laboratories. They observed that, in universities, engineering workshops are used for training of TVE teachers by engineering instructors who do not possess requisite pedagogy skills. Supporting this finding, Omekwe (2009) stated that perhaps this is why in technical schools today; many teachers avoid certain practical lessons because they know the technical resources are non-existent or not functional. Iyola (2005) opined that government has failed in its responsibility to equip schools' workshops/laboratories, and argues that this lack of facilities has been proven to be one of the main hindrances to successful TVE programmes. The implication of this finding is that the aspirations of the country of becoming one of the best 20 economies in the world by the year 2020 will continue to be a mirage. This is because institutional training

workplaces are the hub of technical education which is believed to be one of the most successful measures of bringing about technological change that would guarantee speedy technological advancement of any country.

The finding further showed that there is dearth of modern instructional materials/ICT facilities in the technical teacher training institutes. This consents with Puyate (2002) who stresses the usefulness of instructional materials/ICT facilities in the teaching and learning of electrical/electronic technology education, but laments the unfortunate situation of scarce and inadequate instructional materials/ICT facilities in TVE programmes in the country. Ogbu (2015)'s work corroborates this finding in which he uncovered that inadequate instructional materials/ICT facilities influence the teaching/learning of electrical/electronic technology courses in 32 negative ways. This finding suggests that teaching and learning of TVE programmes in Nigeria will continue to be traditional and mechanistic which renders the teachers' job as difficult, slow and ineffectual.

Furthermore, the findings disclose that tools and equipment are not regularly maintained. This finding is not coming as a surprise because Abdulkadir and Ma'aji (2014) found that preventive maintenance were not regularly observed in Technical colleges of Niger State, Nigeria. This is also supported by Asiyat (2012) that facilities in public schools are generally in a state of poor condition owing to insufficient maintenance. As a result, Kailani, Gyallesu and Yaro (2017) concluded that by and large maintenance culture is not instituted in the Nigerian work environment. This implies that the tools, equipment and other facilities will be subjected to early breakdown and therefore never reach their lifespan due to lack of frequent maintenance. This will consequently cause the level of students' academic achievement to be low, exorbitant cost of repairs from the scanty budgetary allocation to the institutions, and institutionalize lack of maintenance culture in both teachers and students. Regular maintenance is essential to keep the equipment, machine and work environment safe and reliable. Lack of or inadequate maintenance can lead to dangerous situations, accidents and problems.

The findings of the study also demonstrate that students are not involved in the maintenance of tools and equipment, and periodic monitoring and examination of workshop equipment, tools and machines are not conducted This finding is in line with Gobir (1991) who discovered that students are not involved in routine maintenance exercise, and there is no adequate arrangement to involve them in the maintenance and service of workshop equipment in

technical colleges in Sokoto and Kebbi States, Nigeria. Moreover, Kailani, Gyallesu and Yaro (2017) consent with this finding by maintaining that management of TVE administrations do not consistently supervise workshop/laboratory facilities. If the pre-service teachers are not involved in the maintenance of tools and equipment, they will be very much incapacitated with respect to practical skills and basic maintenance practices when they are employed to teach in the technical colleges. This is perhaps the reason why Omekwe (2009) stated that in technical schools today many teachers avoid certain practical lessons.

### **7.2 Suitability of teaching methodology and technical/manipulative competences of trainers**

The findings of the study as presented in table 6.2 provide answer to research question 2. The findings revealed that eight (8) of the ten (10) questionnaire items on suitability of teaching methodology and technical/manipulative competences of trainers were rejected by the respondents. This finding is consistent with the research of Joseph and Godstime (2016) in which they found that irrelevant traditional methods of teaching are used in teaching of practical skills. This finding is also corroborated by Achuonye (2015) that lecture method of teaching was still prevalent at schools in all levels, and that ignorance is a major setback to effective application of innovative strategies. However, the respondents in this study agreed that their lecturers used at least one teaching method in the workshop/laboratory, which include Demonstration, Field trip, Project, Experiment, and Assignment. This finding is supported by Odo, Adenle, and Okwori (2012) that techniques and strategies adopted by TVE teachers comprise demonstration, field trip, project, experiment and assignment. Teaching technique and technical incompetence of teachers has bearing on the students' understanding. In most cases, the resultant performance of students reflects the methods of teaching employed. In fact, the students' aptitude is enhanced by the teaching methods employed by teachers. Teaching methods with adequate facilities and equipment will culminate in better understanding of the object of the course. Furthermore, the finding of the study is also in line with the discovery of Gobir (1991) that technical teachers lack adequate technical/manipulative competency to utilize work shop equipment. Confirming this finding is the outcome of a review carried out by Isma'il, Nopia, Rasul and Leong (2015) in which they found out that TVET teachers need to improve in technical, ICT and pedagogy, and the need to improve TVET teacher skills and knowledge through training. The implication of this



is that, as the popular adage goes ‘you can’t give what you don’t have’, the students will always be at the receiving end, since teachers themselves do not possess the requisite technical/manipulative competencies. This will generally affect the academic performance of the students and render them invaluable in the job market, where technical skills are favored.

### **7.3 (a) Pre-service teachers’ attitudes towards teaching profession**

The findings from Table 6.3(a) showed that all the eight (8) items that address pre-service N.C.E (Technical) electrical/electronic teachers’ attitudes towards teaching profession are rejected. This implies that the respondents have negative attitudes towards teaching. This finding is contrary to the work of Alkhateeb (2013) in which he found that education students’ attitudes towards the teaching profession were positive on average. Similarly, Andronache, Bocoş, Bocoş, and Macri, (2014) found future teachers’ attitude towards teaching profession is generally positive. The finding is also at variance to the study of Bademcioglu, Karatas, and Bulent, (2014) that the teacher candidates in pedagogical formation certificate program have positive attitudes towards teaching profession. This finding implies that in Nigeria, there is poor societal perception with respect to teaching as a profession. Unlike other countries, there is general apathy shown by the respondents towards teaching. If this problem is not resolved, there is tendency that abrupt shortage of qualified TVE teachers will caught up with the country and will cause total collapse of technical education, jeopardizing the aspirations of the country of becoming technologically self-reliant nation.

### **7.4 Pre-service teachers’ motives for the choice of teaching career**

The results obtained from pre-service N.C.E (Technical) electrical/electronic teachers on the motives guiding them to choose teaching as a career as presented in table 6.3 (b) revealed that the respondents rebuffed all of the items. The overwhelming rejection implies that the respondents found themselves accidently in a teacher training colleges. This finding disagrees with the results of Keow (2006) in which he discovered that pre-service teachers chose to enter the teaching profession for altruistic motives (selfless contribution to young lives). The finding of this study is also in contrast with Topkaya, and Uztosun, (2012) who conclude that social utility, intrinsic values of teaching, and ability-related belief were the most important career motivations for pre-service teachers. Yu, and Bieger, (2013) as well, do not concur with the

findings of this study, since the outcome of their study suggest that perceived teaching ability, passion for teaching, social value of the profession, and prior experience of teaching and learning are important determinants to the decision of becoming a teacher. This finding implies that the conditions of service for teachers are far from being conducive in Nigerian context. This also suggests that pre-service teachers in this study have negative attitude towards the teaching profession which will undoubtedly affect their students' performance negatively.

## 8. Conclusion

This study investigates the challenges for effective training of pre-service N.C.E (Technical) electrical/electronic teachers in Kano State. The results of the study demonstrate that the training institutions experience inadequate standard and modern workshops/laboratories, dearth of modern instructional materials/ICT facilities, tools and equipment are not regularly maintained, students are not involved in the maintenance of tools and equipment, trainers' employ inappropriate teaching methodology and exhibit technical/manipulative incompetence, pre-service teachers have negative attitudes towards teaching, and they found themselves accidentally in a teacher training colleges. As a result, the FGN should as a matter of urgency review the current conditions of service for teachers in the country, embark on a massive nationwide campaign programme to enlighten prospective students, parents and the populace on the need to enroll into technical training programmes, and the curriculum should also be reviewed to instill good attitudes in the minds of the students. This will be of utmost important in order to reduce the severity of the problems and the ills it's causing the training programmes and the country's aspirations of becoming technologically literate society.

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