Effective Management of Electrical/Electronics Workshop and Accidents Prevention in Technical Colleges in Rivers State

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Abstract
The study investigated strategies for effectively managing and preventing accidents in electrical/electronics' workshops in Technical Colleges located in Rivers State. It formulated four research questions and hypotheses to guide the inquiry. Descriptive survey research design was used for the study. The population of study comprised 31 principals, teachers, and instructors specializing in electrical/electronic trade across four government-owned technical colleges in Rivers State. Due to the manageable population size, the entire population was included in the study. Data collection utilized a structured questionnaire titled Effective Management of Electrical/Electronic Workshop Accidents in Technical Colleges. Validation of the instrument involved assessment involved 3 experts in electrical/electronic technology and measurement and evaluation, with their feedback incorporated into the questionnaire. The scales were tested for reliability (consistency in measurement) using the Cronbach Alpha Coefficient. The entire alpha coefficients of the individual constructs were above the recommended cut-off (0.70), and therefore considered good. Data analysis involved calculating mean and standard deviation for research questions and employing Z-test for hypothesis testing. Findings revealed the occurrence of eleven types of accidents weekly, with some attributed to unsafe practices by students/trainees, resulting in injuries, equipment damage, and fatalities. Twenty-three effective management techniques for accident prevention were identified. Recommendations included providing orientation and sensitization to workshop users, instituting a policy for accident investigation and documentation, ensuring provision of safety tools and equipment, mandating training for teachers/instructors and workshop attendants, and expediting repair and replacement of faulty equipment post-accident to resume workshop activities promptly.

Keywords: *Effective, Management, Electrical/Electronics, Workshop, Accidents, Prevention*

Introduction

Technical Colleges in Nigeria are secondary educational institutions designed to produce technicians and craftsmen at below professional level; for the country's economic and technological growth and development. Ayomike as cited in Abdulrauf (2019) described a technical college as an educational institution dedicated to imparting specific knowledge and practical skills necessary for various trades, employments, or professional roles such as craftsmen, technicians, technologists, scientists, or similar positions in business. The primary goal of technical

colleges is to equip individuals with functional, vocational, technological, and scientific skills, along with the requisite attitudes, enabling them to enter and progress in their chosen occupations. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the National Board for Technical Education (NBTE) (2010), the curriculum of technical colleges is designed to provide training and instill the essential skills required for producing craftsmen, technicians, and other personnel who are entrepreneurial and self-reliant. Admission to technical colleges is open to students aged 14 years or older who have completed three years of junior secondary education or its equivalent (UNESCO & NBTE, 2010). These students undergo training in various occupational areas, including electrical/electronic trade. The Federal Republic of Nigeria (FRN), in its National Policy on Education (2004), stipulates that technical colleges should offer a diverse range of courses, including but not limited to mechanical trades, computer craft practice, building trades, wood trades, hospitality, textile trades, printing trade, beauty culture trade, and electrical engineering trades, among others.

The Electrical Engineering trades encompass subjects related to electricity and electronics. The Federal Republic of Nigeria (FRN) in 2004 identified three specific subjects under the umbrella of electrical engineering trade: Electrical installation and maintenance work; Radio, television and electronics work; and Appliances repairs. Electricity, as described by Grob and cited in James (2019), is an invisible force capable of producing heat, light, motion, and various other physical effects. It represents a form of energy generated, transmitted, and converted into different forms such as heat, light, motion, and others through natural phenomena like lightning, as well as through man-made devices like generators and alternators. Anaemena (2020) asserted that electronics is a branch of physical science concerned with the study of the properties and behavior of electrons under various conditions, particularly in technical and industrial applications. According to Amos and Amos (2019), electronics is the study of electric current conduction in vacuum, gases, and semiconductors. They further explained that electronics involves methods for generating and controlling charge carriers like electrons, holes, and ions, particularly in devices such as electron tubes and transistors, and their applications. The primary distinction between electricity and electronics lies in the quantity and nature of electric current utilized in each domain. Electricity typically involves high alternating currents and voltages, whereas electronics operates with minute direct currents and voltages. The United Nations Educational, Scientific and Cultural Organization (UNESCO) and the National Board for Technical Education (NBTE) in 2010 delineated that the curriculum of each

program, including Electrical/Electronics, is broadly divided into three components.
In the curriculum, General education constitutes 30% of the total required hours, while Trade theory, trade practice, and related studies comprise 65%, with Supervised Industrial Training/work experience making up approximately 5% of the total hours. The practical aspects of trade practice and supervised industrial training/work experience necessitate workshop exercises and practices for students to acquire practical training. A workshop, as defined by Okorie in Ofonmbuk and Ekereobong (2018), serves as a space where learners can experiment, construct, repair, and study various materials and equipment. Mammam (2018) describes an electrical/electronics' workshop as a crucial environment within technical colleges, where equipment and materials are utilized for skill acquisition. Workshops play a vital role in imparting practical skills to trainees and in instructors' skill enhancement. However, conducting practical work in workshops requires access to specific training equipment, instruments, tools, and consumables as outlined by UNESCO and NBTE (2010). Trainees interact with these resources under instructor guidance, forming proper habits and skills. Yet, due to the expensive, fragile, and risky nature of workshop equipment, mistakes resulting from ignorance or carelessness can lead to accidents.
Accidents are sudden and unforeseen events that can cause material loss, injury, or death. According to Jorgensen in Tuuli (2010), accidents stem from a chain of events that lead to an undesired outcome. Electrical accidents, as defined by Jorgensen, involve personnel actions or equipment failures within electrical installations resulting in injury due to electrical flash, burns, or shocks exceeding 50V. Accidents in electrical/electronics' workshops can manifest in various forms, including electric shocks, electrocution, fires, explosions, and burns, as stated by the National Institute for Occupational Safety and Health (2009).
Numerous factors contribute to accidents. The Washington State Department of Labor and Industries (2009) notes that accidents are often caused by hazardous occurrences resulting from actions or inactions. Ward (2009) characterizes these initiating factors as hazards conditions that, when activated, can lead to damages or injuries. Hazards are inherent in substances, agents, or energy sources, posing risks for undesirable consequences (Work Cover Corporation, 2004). OSHA (2003) emphasizes that workshops harbor various hazards, such as sharp edges, falling objects, chemicals, and noise. Specific hazards in electrical/electronics' workshops include faulty equipment, improper organization, unsafe handling of live wires, inadequate protective equipment, and the use of defective tools (United States Department of Labor, 2002). Most electrical accidents result from unsafe equipment or installations, hazardous environments, and unsafe work practices, compounding the risks within electrical/electronics' school workshops.
In response to the occurrence of accidents within school workshops, experts, scientists, engineers, and researchers have prescribed a range of preventive measures for implementation. These measures include taking necessary precautions while working in workshops, maintaining workshop safety, ensuring the use of healthy machines, and employing appropriate safety equipment during machine operation, among others. Mbaba in Ofonmbuk and Ekereobong (2012) cautioned that any Technical school neglecting safety practices or merely paying lip service to their implementation does so at its own peril, as the resulting losses could be significant.

Similarly, Kigin in Nichols (2005) outlined several strategies instructors should adopt to prevent aoccidents in Electrical/Electronics' Workshops of Technical Colleges. These strategies include maintaining a continuous presence in the classroom during sessions to foster a neat, orderly, and sabefe environment, implementing a comprehensive and ongoing safety program, promptly rectifying all identified hazards and defective conditions, and regularly reviewing safety policies and procedures. Additionally, instructors should set a positive personal example, particularly when demonstrating power equipment, and ensure that all machines are equipped and maintained with guards meeting or exceeding industrial standards.

It is essential to mandate the use of guards whenever machines are in operation, exercise heightened vigilance and maintain close proximity to power machines when students are using them, and enforce 100% eye and face protection for all students and visitors. Establishing safety zones around all power equipment, utilizing visual safety aids such as posters, films, and printed material as integral components of classroom instruction, and avoiding assumptions that students will behave safely without adequate supervision are also crucial. Instructors should establish predetermined emergency response plans and remain present in the classroom at all times.

Despite the implementation of preventive measures, incidents can still occur in workshops due to inadequate implementation or the insufficiency of preventive measures. Such incidents can have significant impacts on trainees, instructors, workshop users, workshop tools and equipment, and the Technical Colleges as a whole. Accidents in school workshops can be traumatic for trainees, instructors, and the materials within the school system. Lar (2013) suggested that the consequences of accidents are related to both the extent of the damage and what is damaged. Accidents can result in injuries, fatalities, and loss of valuable resources in general workshops and specific electrical/electronic workshops. Nichols (2005) reported that the National Safety Council estimated over 24,000 accidents among trainees annually in the United States. These figures only represent reported accidents that caused property damage or resulted in at least half a day of missed school by the trainees. The actual number of accidents in vocational/technical institutions would likely be much higher if all incidents were reported, according to the (United States Department of Health and Human Service cited in Nichols, 2005).

In Nigeria, cases of accidents have also been reported. Olagbegi, Kwasi, and Ugbi (2013) documented a technician nearly being electrocuted to death in the production department at the University of Benin. Additionally, Osang, Obi, and Ewona (2013) reported a first-year student at Cross River University of Technology being rushed to the hospital after a chemical experiment gone wrong in the chemistry laboratory in 2008. The visible effects of accidents in school workshops call for immediate action: accident management within the school workshops.

Management involves the process of directing resources, both human and material, toward achieving organizational goals and objectives. Akpan in Ademola (2002) also defines management as the process of planning, organizing, directing, and controlling the activities of individuals within an organization to create an integrated system capable of achieving specified objectives.

The International Atomic Energy Agency, IAEA, (2005) defines accident management as

a series of actions undertaken during the evolution of an event sequenced to a beyond design basis accident. The aim is to prevent the escalation of the event into a severe accident, mitigate the consequences of a severe accident, and achieve a long-term safe stable state. In the context of school workshops, accident management involves planning, organizing, directing, commanding, coordinating, and controlling available resources to respond to and mitigate accident situations swiftly, aiming to achieve a stable workshop environment and complete recovery to normalcy. It encompasses emergency actions to arrest and recover from hazardous situations.

An emergency is an immediate response to unexpected and dangerous situations, often described as a plan for the worst-case scenario, according to the Health and Safety Executive (2004). This includes rescuing victims, administering first aid treatment, halting further incidents, and evacuating individuals and valuable resources from accident sites. Workshops should be equipped with emergency equipment such as fire extinguishers, fire blankets, and first aid kits, with instructors and trainees trained in their proper application in case of injury or accident. The Department of Education, Training, and Employment (2013) asserts that compliance with the Work Health and Safety Act 2011 mandates schools to ensure the health and safety of staff, trainees, and others, requiring adequate first aid facilities based on risk evaluation.

Ogunyinka in Ogbuanya and Oziegbunam (2022) notes that many tools and equipment remain broken down without repairs due to neglect in management and maintenance. However, despite these fundamental principles of effective management of electrical/electronic workshops and accident prevention, many electrical/electronic equipment in technical college workshops in Rivers State are poorly organized, maintained, and arranged. Some equipment has been in use for decades without replacement, leading to obsolescence and loss due to poor management practices. Consequently, accidents frequently occur in electrical/electronic workshops, dissuading prospective students from pursuing electrical/electronic technology as a profession. Nwachukwu, Bakare, and Jika (2009) observed that students often sustain injuries and damage valuable tools and machines during practical classes due to inadequate management. Overall, the management of electrical/electronic equipment in workshops falls short of achieving the objectives of electrical and electronic technology education in technical colleges.

Prioritizing the effective management of electrical/electronic equipment, including instruments like ammeters, voltmeters, ohmmeters, AVO meters, soldering equipment, electrical installation tools, fault detecting devices, oscilloscopes, and more, is crucial for fostering practical skill acquisition among students. This ensures that the equipment in electrical and electronic technology workshops remains in optimal working condition. Implementing effective management strategies in technical colleges is essential for maintaining the functionality of electrical/electronic equipment when overseen by teachers, instructors, or workshop technicians. By employing appropriate management techniques for electrical/electronic equipment, teachers, instructors, and workshop technicians can positively influence student attitudes toward electrical/electronic technology. The success of equipment management lies in fully achieving its objectives. Effective management of electrical/electronic equipment in workshops directly impacts the amount of time students spend engaged in meaningful learning activities.

However, technical colleges in the study area often face challenges such as frequent damage to electrical/electronic equipment like oscilloscopes, multitesters, ohmmeters, ammeters, voltmeters, signal generators, watt meters, and stationary devices. Consequently, there is a pressing need to identify strategies for effectively managing electrical/electronic workshops and preventing accidents in technical colleges in Rivers State.

Statement of the Problem

Technical colleges are established with the aim of equipping students/trainees with the necessary practical and technical skills to enable them to become self-reliant, create jobs, or secure employment in industries, ultimately reducing poverty and unemployment at the state and national levels. In pursuit of this objective, teachers/instructors and students/trainees engage with tools, equipment, machinery, and consumables to impart and acquire practical skills, respectively.

The field of Electrical/Electronic trade forms an integral part of the curriculum offered at technical colleges. However, this trade involves interactions with high-voltage equipment, hazardous tools, chemicals, and other potentially dangerous consumables during practical training sessions in electrical/electronic workshops. Consequently, the electrical/electronic workshop poses inherent risks, exposing students/trainees, teachers/instructors, and other workshop users to accidents that can result in injuries, fatalities, and property damage.

Recent nationwide research findings (Deebom & Ojoba, 2018; Chiejile, 2019; Oluka & Adamu, 2021; and Osang, Obi & Ewona, 2021) have highlighted a surge in accident cases within electrical/electronic workshops at technical colleges during various workshop operations. These incidents serve as evidence of ineffective management of electrical/electronic workshops and inadequate accident prevention techniques in technical colleges. Similarly, recent research (Deebom & Ojoba, 2018; Chiejile, 2019; Oluka & Adamu, 2021; and Ogbuanya & Oziegbunam, 2022) has identified several contributing factors, including a large number of damaged, malfunctioning, or obsolete equipment; prevalent unserviceable equipment; material wastage; substandard quality of work; indiscriminate misplacement of tools and equipment; piecemeal purchasing due to poor planning; inadequate instructor knowledge of accident types and effective accident management techniques, leading to trainees' inability to recognize potential hazards or respond effectively to accidents.

Consequently, this study aims to address this concerning and unacceptable situation by investigating effective management strategies for electrical/electronic workshops and accident prevention in technical colleges in Rivers State.

Purpose of the Study

The main purpose of the study was to determine the effective management of electrical/electronics workshop and accidents prevention in Technical Colleges in Rivers State. Specifically, the study sought to:

1. Determine the type of accident that frequently occurs in electrical/electronics workshops in technical colleges in Rivers State.

Research Questions

For the purpose of this study, the following research questions are posed:

1. What are the types of accident that occur frequently in electrical/electronicworkshops in technical colleges in Rivers State?

Hypotheses

The following null hypotheses will be tested at 0.05 level of significance:

1. There is no significant difference in the mean responses of the principals/teachers and instructors on the types of accident that occurs frequently in electrical/electronics workshops in technical colleges in Rivers State.

Methods

A descriptive survey research was adopted for the study. The study was conducted in four technical colleges in Rivers State of Nigeria; namely: Government Technical College, Port Harcourt, Government Technical College, Eleogu, Government Technical College, Tombia and Government Technical College; Ahoada. The population of the study covered 4 principals, 18 teachers and 9 instructors of electrical/electronic trade in the four government-owned technical colleges in Rivers State; according to information sourced from the Rivers State Board for Technical Education, in the State Ministry of Education, Port Harcourt. This gives a total population of 31 persons. No sample and sampling technique were used for the study due to the fact that the population was small and of manageable size.

The instrument used for data collection from respondents was a structured questionnaire titled "Effective Management of Electrical/Electronic Workshop and Accidents Prevention in Technical Colleges" (EMEEWAPTCQ). The questionnaire contained sixty-eight (68) items which was used to obtain information from electrical/electronic teachers, workshop instructors and principals in the four technical colleges in Rivers State to be studied. To ascertain the validity, the research instrument was given to three experts in Measurement and Evaluation Education and one expert in Vocational and Technology Education; all in the Faculty of Education; to assess the relevance ofeach item in the research instrument; clarity of purpose and objectivity. The scales were tested for reliability (consistency in measurement) using the Cronbach Alpha Coefficient. The entire alpha coefficients of the individual constructs were above the recommended cut-off (0.70), and therefore considered good. Copies of the questionnaire were administered to the respondents by the researcher with the help of two research assistants through personal contact in each technical college in Rivers State. This measure was taken to make sure that there was a high return of the completed questionnaires and proper filling of them. The researcher collected the questionnaires that were administered after two weeks. The data collected for this study was analyzed using mean and standard deviation. The decision rule for section B, C, D and E of questionnaire was based on the mean cut-off point of 2.50. The decision rule for interpreting section B of the questionnaire was based on class boundary of values of the response

options: Highly Occur (3.50-4.49), Moderately Occur (2.50-3.49), Slightly Occur (1.50-2.49) and No Occurrence (0.50- 1.49). Based on this, any item in section B that has the mean score of 3.50-4.00 was regarded as Highly Occur, 2.50-3.49 was regarded as Moderately Occur, 1.50-2.49 was regarded as Slightly Occur and 0.50-1.49 was regarded as No Occurrence. Thus, for section C, D and E, any item with mean of 2.50 or above was considered agree; whereas any item with a mean below 2.50 was considered disagree.

Analyses of Data and Results

Research Question 1: What are the types of accident that occur frequently in electrical/electronic workshops in technical colleges in Rivers State?

Table 4.1: Mean and Standard Deviation of Responses of Principals/Teachers and Instructors on the Types of Accident that Frequently Occur in Electrical/Electronic Workshop in Technical Colleges in Rivers State.

S/N	Item	Principals/Teachers			Instructors		
		Mean	Std. Dev.	Decision	Mean	Std. Dev.	Decision
1.	Falling below working level	2.71	0.68	Moderately Occurred	2.78	0.66	Moderately Occurred
2.	Striking of legs forcefully against an object in the Workshop	2.89	0.91	Moderately Occurred	2.92	0.89	Moderately Occurred
3.	Exposure to harmful chemicals or substances in the workshop	2.72	1.13	Moderately	2.70	1.11	Moderately

				Occurred			Occurred
4.	Falling of Objects in the workshop.	2.14	0.88	Slightly Occurred	2.09	0.85	Slightly Occurred
5.	Inhaling of poisonous gases in the workshop	2.44	0.83	Slightly Occurred	2.47	0.81	Slightly Occurred
6.	Exposure to electric arc or electric flash while interacting with electric equipment in workshop	2.67	0.94	Moderately Occurred	2.69	0.92	Moderately Occurred
7.	Crushing by machine and tools in the workshop	2.35	1.02	Slightly Occurred	2.39	0.99	Slightly Occurred
8.	Slipping, tripping or falling to surface in the Workshop	2.64	1.03	Moderately Occurred	2.67	1.01	Moderately Occurred
9.	Extending, straining or stressing of body while performing a task in workshops.	2.66	0.69	Moderately Occurred	2.65	0.71	Moderately Occurred
10.	Exposure to electric shock inside workshop.	2.77	0.64	Moderately	2.79	0.61	Moderately

				Occurred			Occurred
11.	Explosions in workshop.	2.53	0.62	Moderately Occurred	2.55	0.60	Moderately Occurred
12.	Thermal/ electric burns in the workshop.	2.72	0.67	Moderately Occurred	2.74	0.64	Moderately Occurred
13.	Fire Outbreak within workshop environment.	2.69	0.82	Moderately Occurred	2.71	0.79	Moderately Occurred
14.	Stepping on sharp object in the workshop.	2.58	0.72	Moderately Occurred	2.61	0.69	Moderately Occurred
15.	Exposure to high temperature in the workshop.	2.24	0.68	Slightly Occurred	2.25	0.66	Slightly Occurred
	Grand Mean	**2.58**	**0.82**		**2.60**	**0.80**	

Source: Field Survey, 2023. **Note:** S/N = Serial Number and Std. Dev. = Standard Deviation

The results in Table 4.1 above showed that the respondents agreed that none of the accidents highly occurred; which meant that none of the accidents occurred as frequently as every week. The results also showed that respondents agreed that items 1, 2, 3, 6, 8, 9, 10, 11, 12, 13 and 14 with mean values that ranged from 2.53 to 2.92 were the types of accident that moderately occurred in electrical/electronic workshops in technical colleges in Rivers State. This meant that these accidents listed in the items above occurred at least once in a month in electrical/electronic workshops in technical colleges in Rivers State. This is because the range of values of these items falls within the class boundaries of moderate occurrence. The respondents also agreed that items 4, 5, 7, and 15 with mean values which ranged from 2.09 to 2.47 were the type of accidents that occurred slightly. This meant that these were the type of accidents that occurred at least once in a term or section in electrical/electronic workshop in technical colleges in RiversState. Finally, the standard deviation of all the items ranged from 0.60 to 1.13 which showed that the respondents' opinions were not far from the mean and from one another. This implies that all the respondents have similar opinions on the type of accidents that frequently occur in electrical/ electronics' workshops in technical colleges in Rivers State.

Test of Hypotheses

H01: There is no significant difference in the mean responses of the respondents on the types of accident that occurred frequently in electrical/electronic workshops in technical colleges in Rivers State.

Table 3: Z-Analysis of the Responses of Respondents on the Types of Accident that Occurred Frequently in Electrical/Electronic Workshops in Technical Colleges in Rivers State

Respondents	N	Mean	Standard Deviation	Z-Cal	Z-Critical	Level of Significance	Decision
Principals/Teachers	22	2.58	0.82	1.48	2.95	0.05	Not Significant
Instructors	9	2.60	0.80				

Source: Field Survey, 2023.

Table 4.5 shows that the z-calculated of 1.48 is less than the z-critical of 2.95. Therefore, the calculated z-ratio is not statistically significant at a 0.05 level of significance since it is smaller than the given critical value of z-ratio. Therefore, null hypothesis 1 is accepted hence the conclusion that there is no significant difference in mean responses of the

respondents on the types of accident that occurred frequently in electrical/electronics workshops in technical colleges in Rivers State.

Summary of Major Findings

The major findings of the study are:

1. Eleven types of accident moderately occurred in electrical/electronics workshops in technical colleges in Rivers State. These accidents occurred at least once in a month in electrical/electronics workshops in technical colleges in Rivers State.

Discussion of Findings

Research question one was used to find out the types of accident that frequently occurred in electrical/electronic workshops in technical colleges in Rivers State.

Table 4.1 revealed that respondents identified eleven types of accident which moderately occurred in electrical/electronic workshops in technical colleges Rivers State. These types of accidents according to the findings occurred at least once in a month. They include: falling below the working level, striking legs against object, exposure to harmful chemical, exposure to electric shock or electric flash while interacting with electricequipment in workshop, slipping, tripping or falling to surface in the workshop, Thermal/electric burns in the workshop, among others include the accidents that are moderately occurring at least once in a month in electrical/electronic workshop in technical colleges in Rivers State. The findings also showed that falling of objects; inhaling of poisonous gases; crushing by machine and tools; and exposures to high temperature in the workshopoccur slightly; at least once in a term or section. This finding is consistent with the work of Chiejile (2022) who reported the types of accident and the rate of their occurrence within two years as follows: falling occurred most frequently in 88 percent; striking the body against tools and equipment occurred in 87 percent; hand tools accident like chisel cut and saw cut occurred in 75 percent; slip occurred in 75 percent and explosionoccurred in 72 percent.

Research question two in Table 4.2 was used to identify the unsafe acts of trainees/students that may cause accidents in electrical/electronic workshops in technical colleges in Rivers State. In the result in Table 4.2 respondents identified ten unsafe acts that can cause accidents in technical colleges in Rivers State. These unsafe acts include: operating devices without authorization, use of tools outside their intended purpose, students not listening to supervisors' advice, working with defective tools and equipment, operating tools/equipment without principle, failure to de-energize the electrical energy source before beginning maintenance or repair activities, use of metal ladder whileworking on electrical installation, working with high voltage without following necessarystandards and so on. This finding is in consonance with the findings of Yekinni (2016); Deebom and Ojobah (2019); and Azonwu and Harry (2021) who also found removing or bypassing safety devices and rules, working with high voltage without following necessary standards, working with defective tools and equipment, use of metal ladder while working on electrical installation, failure to label and identified all hazardous sources, and so on as unsafe acts

that might cause accident in electrical/electronic workshops in technical colleges in south western part of Nigeria and Rivers State.

Conclusion

This study has shown that in the electrical/electronic workshop of four government- owned technical colleges in Rivers State, some types of accident moderately occur while few rarely occur. These accidents occurred as a result of some unsafe acts of the students/trainees which resulted to unpleasant consequences such as injuries, damages and even deaths on rare occasions. These unacceptable developments have therefore made it incumbent on government and all stakeholders in technical and vocational education to put in place an effective management technique of electrical/electronicworkshops and accident prevention in all the technical colleges in Rivers State; whichthis study has identified in the chapter four. This step is the *sine qua non* for the realization of the objectives of secondary school vocational and technical education in thestate and Nigeria in general.

Recommendations

Based on the findings of this study, the following recommendations are made belowfor the realization of an effective management of electrical/electronic workshop and accident prevention in technical colleges in Rivers State:

1. Workshop users should be given proper orientation and sensitization by school management and government on types of accidents that frequently occur; unsafe acts that may cause accidents; and the consequences of the accidents that frequently occur in electrical/electronic workshops and accident prevention techniques in technical colleges in the State. This step will help to prevent accident occurrence in electrical/electronic workshops and accident prevention of technical colleges in the State.

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