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Role of Electrical Technology Skills in Curbing Cyber-Crime Activities among Youths in Rivers State

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ABSTRACT

The study focused on the role of electrical technology skills in curbing cyber-crime activities among youths in Rivers State. The design of the study was a descriptive survey research design. Two objectives, two research questions and two hypotheses guided the study. A structured questionnaire was used to collect data for the study. The instrument was validated by three experts and the reliability of the instrument was established using test re-test process, using Pearson Product Moment Correlation to obtain a reliability coefficient of .82. The area of the study was technical education department of Rivers State University, Port Harcourt and Ignatius Ajuru university of Education, Port Harcourt. The study population included 25 respondents: 22 lecturers in electrical technology, and 3 electrical technologists. The entire population were selected for the study. Responses were scored using the mean and standard deviation to respond to the research questions, t-test was used to test the hypotheses at .05 level of significance. The result of the analyses showed that acquiring electrical installation skills and electrical design skills are vital tools that will help in curbing cyber-crime activities among youths in Rivers State. In line with the findings, the following recommendations were made; collaborations should be established between industries and institutions of learning on training youths on electrical installation and electrical design skills; governments at all levels should invest in the training of youths in electrical installation and design. grants and soft loans should be provided for youths who want to start up the electrical installation or electrical design enterprise; and massive awareness should be carried out on the socio-economic potentials inherent in acquiring electrical technology skills.

Keywords: *Cyber-Crime, Electrical Technology, role, Skills, Youths*

INTRODUCTION

In Nigeria, the growing cases of cyber-crime, particularly among the youth, has become a cause for concern at the forefront of national issues. While the digital environment is meant for advancement, it is also used for perverse exploitations. Young people, especially the technologically savvy, engage in cyber-criminal activities including hacking, phishing, online scams, and identity theft. The damaging implications not only derail the socio-economic progress of a nation but also negatively impact its image internationally (Olowe, 2022). Cyber-Crime entails engaging in unlawful acts through one's computer or over the internet. Phishing, hacking, and various internet scams and identity theft are examples of cyber-crime. In Nigeria, misuse of technology, poor moral upbringing and youth unemployment are commonly associated with cyber-crime. As stated by Ajayi (2020), cyber-crime is criminal activities that exploit computer systems and networks for unlawful gains.

Nigeria's National Youth Policy (Federal Republic of Nigeria, 2019) states that young persons classified as being between the ages of 15 – 35 are youths. The youth in Nigeria are a major demographic and are the most active users of technology. Use of technology for educational purposes and entrepreneurship is overshadowed by its unlawful use for cyber-crime among the youths. This is largely driven by unemployment, peer pressure, and the prospect of quickly earning money. Duffy (2025) averred that Michael Brake's theory divides youth into four types: respectable youth who conform to rules and avoid trouble; delinquent youth who engage in illegal activities; cultural rebels who are nonconformists interested in art and music; and politically militant youth involved in protests. To build a society where youths desist from criminal tendencies, youths have to acquire employable skills. In

agreement with this, United Nations (2025) stated that there should also be a focus on providing poor people with the necessary skills and assets that will enable them to take full advantage of any situation they find themselves.

Vocational and technical education and training (TVET) according to the International Labour Organization (ILO) in Oluwole, et al., (2013) is a vehicle for the development of marketable and entrepreneurial skills and engine of development. Okwelle (2013) sees TVET as education that equips people with a broad range of knowledge, skills and attitude that are now recognized as indispensable for meaningful participation in the world of work. Aguado, et al., (2015) saw it as the core of both individuals and society's economy. Furthermore, he stressed that through the acquisition of skills; individuals could explore their environment and harness the resources within it, which could serve them and the society since the wealth of any nation determines its development. Vocational Technical education is a broad field which further divides into technical education, which branches out to include electrical technology education that teaches electrical power systems, electrical installations and maintenance, electronics, electrical design and drafting, machines, telecommunications.

Electrical technology education as an option of technical education prepares learners to receive training on power systems, electrical installation, basic electronics, electrical design, control systems, and communication technology. As mentioned by Okoro (2021), this branch of education is geared towards ensuring that a person is able to become economically independent and contribute positively to the advancement of technology. In Nigeria, this is taught at technical colleges, polytechnics, and universities. A skill depicts the ability to do something well, especially because of training, practice, or experience. It can refer to a general proficiency in a task, a specific expertise like manual dexterity, or a trade requiring special training. Skill according to Indeed (2025) is a term that encompasses the knowledge, competencies and abilities to perform operational tasks. Skills are developed through life and work experiences and they can also be learned through study. There are different types of skills and some may be easier to access for some people than others, based on things like dexterity, physical abilities and intelligence. Skills can also be measured, and levels determined by skill tests. Most jobs require multiple skills, and likewise, some skills will be more useful for certain professions than others. In relation to electrical technology, there are skills one can learn, such as electrical installation and maintenance, electrical design and drafting and basic electronics practice that will provide a means of living for the individual.

Electrical installation and maintenance are the process of both installing and up-keeping electrical systems in residential, commercial, and industrial settings. It includes planning and implementing new wiring, circuit breakers, and other components, as well as ongoing tasks like inspecting, repairing, and upgrading existing systems to ensure they are safe, efficient and reliable. Electrical installation skills refer to the knowledge, competencies, and practical abilities required to plan, assemble, install, test, and maintain electrical systems in residential, commercial, and industrial settings. These skills are essential for ensuring safety, system reliability, and compliance with electrical standards and regulations. As modern society becomes more technologically advanced and energy-dependent, the demand for competent electrical installers continues to grow (Hughes & McKenzie, 2021). Some of these electrical installation skills are; wiring and cable installation, conduit bending and fitting, installation of electrical fixtures and equipment, system testing and troubleshooting, knowledge of electrical codes and standards, safety practices and risk management, blueprint interpretation and technical documentation, and practical tool handling.

Electrical design is the process of planning and designing an electrical system for a construction project. This includes the layout and design of all electrical components including wiring, fixtures, and equipment. It is a critical part of any construction project. Electrical design skills refer to the competencies required to conceptualize, plan, analyze, and produce detailed specifications for electrical systems in residential, commercial, and industrial environments. These skills involve applying engineering principles, safety standards, and computational tools to ensure that electrical systems are functional, efficient, safe, and compliant with regulatory codes. Electrical designers play a crucial role in the planning stages of construction and infrastructure projects, providing technical direction for installers and maintenance personnel (Hambley, 2019). Some of the electrical design skills are; Load Calculation and Power Distribution Planning, Circuit Design and Protection Coordination, Blueprint and Schematic Development, Use of Computer-Aided Design (CAD) Software, Knowledge of Electrical Codes and

Standards, Energy Efficiency and Sustainability Planning, System Testing and Simulation Skills, and Project Documentation and Communication.

Statement of the Problem

Cyber-crime has grown into a major socio-economic challenge in Nigeria, with Rivers State experiencing a noticeable rise in youth involvement in cyber-fraud, phishing, online financial scams, and identity theft. Recent national analyses indicate that youths constitute the highest proportion of individuals engaging in cyber-crime due to unemployment, inadequate vocational skills, and the search for quick financial gains (Adebayo & Tade, 2020). The digital nature of cyber-crime makes it particularly attractive to idle youths, especially in urban and semi-urban areas of Rivers State, where access to internet-enabled devices is widespread. This trend poses significant threats to economic development, public trust, and community security (Olayemi, 2021).

Technical and vocational education, including Electrical Technology, is designed to equip learners with practical, employable, and entrepreneurial skills that can provide meaningful alternatives to criminal involvement. Studies have shown that when youths acquire marketable technical skills, their likelihood of engaging in cyber-crime reduces due to improved employment prospects and increased participation in legitimate economic activities (Okoye & Akinola, 2019). Electrical Technology skills such as electrical installation, design, maintenance, renewable energy and basic electronic design have been recognized as viable pathways for youth empowerment and self-reliance (Hughes & McKenzie, 2021). However, despite the presence of technical colleges, skills-acquisition centers, and TVET interventions in Rivers State, the rate of youth involvement in cyber-crime continues to rise. This raises questions regarding whether electrical technology skills are being effectively taught, whether youths are adequately trained, and whether the available programs are aligned with industry demands. It is unclear if young people are aware of or motivated to pursue electrical technology as a viable career pathway. Moreover, existing studies have not sufficiently examined the specific contribution of electrical technology competencies in diverting youths away from cyber-crime. A critical gap therefore exists in understanding how electrical technology skills influence youth behavior, employability, engagement in productive ventures, and resilience against criminal activities. Without empirical evidence on the role of these skills in curbing cyber-crime, policymakers, educators, and industry stakeholders lack the necessary data to design targeted interventions. Consequently, the persistence of cyber-crime among youths in Rivers State suggests the need for a systematic investigation into the role of electrical technology skills in addressing this challenge.

Aim and Objectives of the Study

The aim of this study is to ascertain the electrical technology skills needed for curbing cyber-crime activities among youths in Rivers State. Specifically, the study sought to:

1. Ascertain the electrical installation skills needed to curb cyber-crime activities among youths in Rivers State.
2. Ascertain the electrical design skills needed to curb cyber-crime activities among youths in Rivers State.

Research Questions

1. What are the electrical installation skills needed to curb cyber-crime activities among youths in Rivers State.
2. What are the electrical design skills needed to curb cyber-crime activities among youths in Rivers State.

Hypotheses

1: There is no significant difference in the mean scores of electrical technology lecturers and technologists on the electrical installation skills needed for curbing cyber-crime among youths in Rivers State.

2: There is no significant difference in the mean scores of electrical technology lecturers and technologists on the electrical design skills needed for curbing cyber-crime among youths in Rivers State.

RESEARCH METHOD

This study adopted a descriptive survey research design. The study was carried out in Rivers State. The population of this study consisted of 22 Electrical Technology Lecturers, 4 lecturers from Rivers State University and 18 lecturers from Ignatius Ajuru university of education, 3 electrical technologists, 2

from Rivers State university and 1 from Ignatius Ajuru university of Education. The entire population was used for the study since the population size was manageable. The instrument for data collection was a structured 16 items questionnaire called the Role of Electrical Technology skills in Curbing Cyber-Crime activities among Youths in Rivers State Questionnaire (RETSCCCAYRS) constructed on a 5-point Likert scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly Disagree (SD) with values of 5, 4, 3, 2, and 1 respectively for each option. The instrument was content and face validated by 3 experts in Technical Education. The reliability of the instrument was determined through test-retest method. Three Electrical technology lecturers and two Electrical technologists of Niger Delta University, Otuoke, Bayelsa State initially responded to the questionnaire. A week later, the same instrument was administered to the same set of respondents. Both mean response scores were correlated using Pearson Product Moment Correlation (PPMC) to obtain a reliability coefficient of .82. A total of 25 copies of the instrument were distributed to the respondents by the researcher. Data collected from the respondents was analyzed using Mean and Standard Deviation. The Mean was used to answer the research questions, while t-test was used to test the hypotheses. To agree or disagree with an item in the questionnaire, a decision rule based on real limits was used. It was decided that an item with a calculated mean value equal or greater than 3.50 was considered as "Agreed" by the respondents, while any item with mean value less than 3.50 was considered as "Disagreed". Standard Deviation value close or wide apart was used to determine homogeneity in the perception of the respondents. The decision for hypotheses was that if the calculated value of t (t-cal) is less than the critical value of t (t-crit), the hypothesis is accepted, but if (t-cal) is greater than (t-crit), the hypothesis is rejected. Statistical Package for Social Sciences (SPSS) version 21.0 was used in the analyses.

RESULTS AND DISCUSSION

The tables presented below contain the analytical details relating to the findings from the respondents, of the 25 questionnaires distributed to the respondents, 25 copies were filled, and returned, and used for this analysis.

Research Question 1: What are the electrical installation skills needed to curb cyber-crime activities among youths in Rivers State.

Table 1: Mean Response Scores and Standard Deviation of Respondents on Electrical Installation Skills needed to curb cyber-crime activities among youths in Rivers State.

S/N	Electrical Installations Skills	Lecturers (22)			Technologists (3)		
		X	SD	Decision	X	SD	Decision
1.	Adequate training in wiring and cable installation can equip youths with skills that discourage engagement in cyber-crime.	4.15	.44	Agree	3.92	.79	Agree
2.	Learning conduit bending and fitting skills helps to redirect youths' interest toward productive technical careers.	4.30	.54	Agree	3.87	.80	Agree
3.	Installation of electrical fixtures and equipment skills equip youths for employment.	4.20	.51	Agree	3.87	.72	Agree
4.	System testing and troubleshooting skills can help curb cyber-crime activities among youths.	4.17	.48	Agree	3.98	.74	Agree
5.	Knowledge of electrical codes and standards can replace deviant online behaviors.	4.10	.49	Agree	3.98	.76	Agree
6.	Knowledge of electrical meter installation can reduce youth involvement in cyber-crime.	4.29	.49	Agree	3.84	.78	Agree
7.	Industrial wiring skills can promote positive youth enterprise.	4.21	.48	Agree	3.87	.79	Agree
8.	Domestic wiring and installation skills encourages entrepreneurship and diverts attention from internet fraud.	4.25	.45	Agree	3.91	.79	Agree
	Grand Mean	**4.20**	**.48**		**3.91**	**.77**	

Source: Researchers' Field Work, 2025

The result of the analysis presented in Table 1 above shows that the overall mean ratings for all items range from 3.91 to 4.20, which falls within the 'Agree' category on the 5-point Likert scale. This indicates that both lecturers and technologists generally agreed that electrical installation skills play a significant role in curbing cyber-crime activities among youths in Rivers State. The relatively low standard deviations (ranging between .48 and .77) show that the responses were consistent and stable across the two groups. Skill acquisition and practical exposure to electrical projects are vital in redirecting youths away from cyber-crime. The findings imply that expanding access to electrical installation training programs could reduce youth involvement in cyber-crime by promoting employability, discipline, and self-reliance. This finding is in agreement with the views of Okoro (2020) and Eze (2022) on technical and vocational education being a powerful and viable alternative to crime diversion.

Research Question 2: What are the electrical design skills needed to curb cyber-crime activities among youths in Rivers State.

Table 2: Mean Response Scores and Standard Deviation of Respondents on Design Skills needed to curb cyber-crime activities among youths in Rivers State.

S/N	Electrical Design Skills	Lecturers (22)			Technologists (3)		
		X	SD	Decision	X	SD	Decision
1.	Lighting system design equips youths with skills that can replace engagement in cyber-crime.	4.05	.52	Agree	3.95	.77	Agree
2.	Knowledge of programmable logic controllers (PLC) helps youths to gain employment in industries.	4.20	.48	Agree	3.90	.64	Agree
3.	Learning how to design electrical control systems develops creativity that can be channeled toward productive innovations.	4.32	.44	Agree	3.91	.68	Agree
4.	Designing electrical systems for real-life applications builds self-confidence among youths, reducing the lure of cyber-crime.	4.23	.45	Agree	3.92	.63	Agree
5.	Skill development in communication and data systems design encourages youths to seek legitimate means of livelihood.	4.18	.46	Agree	3.97	.75	Agree
6.	Exposure to electrical design software and simulation tools redirects youths' interest toward technical problem-solving.	4.15	.50	Agree	3.91	.70	Agree
7.	Circuit design and protection coordination skill enhances analytical reasoning that discourages unethical digital behavior.	4.25	.43	Agree	3.82	.69	Agree
8.	Systems testing and simulation skills helps youths understand the value of innovation over cyber-crime.	4.14	.48	Agree	3.84	.70	Agree
	Grand Mean	**4.19**	**.47**		**3.90**	**.70**	

The result of the analysis presented in table 2 above shows that the mean scores range from 4.05 to 4.32 for lecturers, while technologists' mean scores range from 3.82 to 3.97. Both groups showed strong agreement that electrical design skills can help mitigate cyber-crime. The grand mean for lecturers (4.19) and technologists (3.90) indicates high overall agreement. The low standard deviation values (lecturers: .47, technologists: .70) show consistency in opinions within each group. This suggests that both lecturers and technologists recognize the importance of electrical design skills in curbing cyber-crime activities among youths in Rivers State. This finding is in agreement with the views of Adeniyi and James (2020) that practical and constructive technological training that young people receive not only solves their idle time but also develops critical thinking, self-efficacy, and purpose, all of which are important disincentives to cyber-criminal activities.

Hypotheses Testing

Hypothesis 1: There is no significant difference in the mean scores of electrical technology lecturers and technologists on the electrical installation skills needed for curbing cyber-crime among youths in Rivers State.

Table 3: T-test Analysis on Electrical Installation Skills needed to curb cyber-crime among Youths in Rivers State

Groups	Mean	SD	N	df	t-cal	t-crit	Decision
Lecturers	4.20	.48	22				
				23	1.84	+2.07	Accepted
Technologists	3.19	.77	3				

Source: Researchers' Field Work, (2025)

Table 3 showed that t-cal (1.84) is less than t-crit (+2.07) at 0.05 level of significance. This indicates that the null hypothesis is accepted. This means that there is no significant difference in the mean scores of electrical technology lecturers and technologists on the electrical installation skills needed to curb cyber-crime activities among youths in Rivers State.

Hypothesis 2: There is no significant difference between the mean scores of electrical technology lecturers and technologists on the electrical design skills needed for curbing cyber-crime among youths in Rivers State.

Table 4: T-test Analysis on Electrical Design Skills needed to curb cyber-crime among Youths in Rivers State

Groups	Mean	SD	N	df	t-cal	t-crit	Decision
Lecturers	4.19	.47	22				
				23	.67	+2.07	Accepted
technologists	3.90	.70	3				

Source: Researchers' Field Work, (2025)

Table 4 shows that t-cal (.67) is less than t-critical (+2.07) at 0.05 level of significance. This indicates that the null hypothesis is Accepted. This means that there is no significant difference in the mean scores of electrical technology lecturers and technologist on the electrical design skills needed in curbing cyber-crime activities among youths in Rivers State.

Discussion of Findings

The result of the analysis presented in Table 1 indicates that both lecturers and technologists generally agreed that electrical installation skills play a significant role in curbing cyber-crime activities among youths in Rivers State. The relatively low standard deviations (ranging between .48 and .77) show that the responses were consistent and stable across the two groups. Meanwhile Table 3 indicates that the null hypothesis is accepted. This means that there is no significant difference in the mean scores of electrical technology lecturers and technologists on the electrical installation skills needed to curb cyber-crime activities among youths in Rivers State. This is in agreement with the views of Okoro (2020) and Eze (2022) on technical and vocational education being a powerful and viable alternative to crime diversion.

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and constructive technological training that young people receive not only solves their idle time but also develops critical thinking, self-efficacy, and purpose, all of which are important disincentives to cyber-criminal activities.

CONCLUSION

Based on the findings of the study, the following conclusions were made;

1. Students should be trained in electrical technology, to enable them acquire valuable skills which, in addition to being employable, are ethical, and thus decreases the chances of cyber-crime.
2. Training in electrical installations greatly assists learners in acquiring the knowledge, skills, and values needed to being an entrepreneur, which decrease the likelihood of cyber-crime involvement.
3. Functional and practical skills in electrical designs provides students the needed knowledge which can be used for employment, and positive socially accepted ways.

RECOMMENDATIONS

Based on the findings and conclusions of this study, the following recommendations were made:

1. Collaborations should be established between industries and institutions of learning on training youths on electrical installation and electrical design skills.
2. governments at all levels should invest in the training of youths in electrical installation and design.
3. Grants and soft loans should be provided for youths who want to start up the electrical installation or electrical design enterprise
4. Massive awareness should be carried out on the socio-economic potentials inherent in acquiring electrical technology skills.

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