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Perceived Level of Skills Possessed by Technical College Students for Self-Employment in Winding of Electrical Machines Operations in Rivers State

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ABSTRACT

The study assessed level of skills possessed in winding of electrical machines operation for self-employment among students in Technical Colleges in Rivers State. Three research questions and three hypotheses guided the study. The study adopted descriptive survey research design. The population of the study comprised 38 electrical installation and maintenance work trade teachers' and 22 workshop instructors in the four government technical colleges owned by Rivers State government. The study adopted a census sampling technique because the population is of manageable size. The instrument used for data collection was a 23 items questionnaire structured in a-4 points rating scale. The instrument for the study was face and content validated by three experts in the Department of Technical Education, Ignatius Ajuru, University of Education, Rumuolumini, Port Harcourt. The reliability of the instrument was determined through Cronbach alpha reliability coefficient method. A total of 20 respondents who were not part of the population of the study were used in testing the reliability of the instrument, the reliability co-efficient of 0.75 was obtained. Mean and standard deviation were used to answer the research questions while t-test was used to test the hypotheses at 0.05 level of significance. The study found that students' ability in dismantling of electrical machines will be an added advantage for employment or self- employment, students' ability to remove and replace worn-out brushes accurately will be an added advantage for employment or self-employment upon graduation. Based on these finding, the study recommended among others that technical college students in Rivers State should be given the opportunity of real-life experience through exposure in industries/establishments as to enable them handle winding of electrical machines operation for self-employment upon their graduation.

Keywords: Skill, Winding, Electrical Machine, Operation, Self-employment.

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INTRODUCTION

Technical education is a form of education which involves the study of technologies and related sciences and acquisition of practical skills, altitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (Federal Republic of Nigeria, 2013). According to Agbo et al (2024) technical education is the training for technical oriented personnel who are to be the initiators, facilitators and implementers of technological development of a nation. Technical education inculcates in the citizens the needs to be technological literate that will lead to self-reliance and sustainability. Agwi and Igbudu (2022) maintained that technical education has direct impact on the development of any nation. In Nigerian educational system, technical education is founded and offered in Universities, Polytechnics, Colleges of Education and Technical Colleges. Technical colleges in Nigeria are established to produce craftsmen at (secondary) level and master craftsmen at the advance craft (post-secondary) level (Federal Republic of Nigeria, 2013). Technical colleges according to Gambari cited in Ige and Abiodun (2021) are designed to prepare individuals to acquire manipulative skills, basic scientific knowledge and attitude required of a craftsmen and technician at sub-professional level. Okoye et al (2024) noted that technical colleges is an institution where subjects classified into engineering and construction are offered as to enable individuals to acquire relevant knowledge and skills.

Skill is an ability or capability acquired through deliberate and sustained effort to smoothly carryout complex job functions which involves cognitive, technical and interpersonal skills (Venkateswarlu et al, 2013). Skill refers to the competence or proficiency developed through consistent and intentional practice, enabling an individual to effectively perform complex tasks that require cognitive, technical, and interpersonal abilities (Agbo et al, 2025). According to Madu and Ewang (2022) skill is the ability to use one's knowledge effectively and readily in performing an act a habit of doing a particular thing competently. It equally involves the exhibition of knowledge, capacity and competences acquired through systematic and sustained effort or commitment to smoothly and adaptively carryout complex activities and job functions. In the context of this study skills are ability and capacity that are required by technical college students in electrical technology related areas to carry out the various operations in electrical machines. These skills are taught both in the workshops and laboratories by vocational teachers and workshop instructors. According to Nwagwu (2021) the teacher greatly influences the learner in every direction during teaching and learning process. He/she is the centre figure during teaching and learning either in the classroom, workshop or laboratory. The quality and quantity of knowledge and skill acquired by the learner, their appearance, deportment, manner, the condition of the school, classroom, workshop and laboratory all reflect the standard set and maintained by each technology teachers and instructors. The teachers are pivot or nucleus around which other variables of technology education teaching and learning process revolves, they are the ones that assess students' performance during teaching and learning process.

The teachers and workshop instructor's role in helping students to acquire knowledge and skills during the period of their training in the school is very important because through the use of tools/equipments and machines in the workshop and laboratory. The students will be able to acquire practical skills for self-employment in different vocational related trades winding of electrical machines inclusive. According to Gimba and Orisaji (2022) the importance of winding of electrical machines to everyday life and the overall of the objective of vocational

and technical education that offers training in skill for self-employment and employment into the world of work has made electrical installation and maintenance work trade an important trade to be taught to students, in order words, for students to be trained in electrical installation and maintenance work trade, they require the relevant skills in areas such as winding of electrical machines among others. Winding of electrical machines operation is a practical task that has been going on in various electrical industries over the years (Miller, 2022). The author also stated that in the 18th century, the word winding operator simply meant a person who dismantle and rewind an electrical machine. Presently, rewinding is the process of replacing burnt coils and brushes in an electrical machine in the industry. Onyeukwu and Nale (2019) opined that winding include the various processes in which a burnt coil and brushes are been removed and re-winded in an electrical machine. For students' who are undergoing training in electrical technology related trades at technical colleges, acquisition of relevant technical skills such as winding operations is very important in order to prepare them for employment in the industries or to become self-employed upon graduation.

Self-employment according to Ejiogu cited in Ige and Abiodun (2021) is the ability for one to work for his/her self and not to wait to be employed in a company/establishment. Similarly, Henley (2005) defined self-employment as the ability for one to open and work in his/her own workshop without waiting for a paid job. In the context of this study self-employment is the ability for a technology education student who majored in any of the vocational related trades in technical college such as in electrical technology trade to open and work in his/her own workshop upon graduation without waiting to be employed in the industry/establishment. Uwalaka (2020) noted that to achieve the goal of self-employment, that one must be able to develop the spirit of self-reliance, take calculated risks, translate his or her dream into reality. This according to the author could be achieved by creating organizing and producing ideas, spot opportunities and utilize every strategy that is, to have practical work experiences before graduation from school. Such practical work experience of students needed to be assessed during the period of their training in the school.

Assessment in education is the process of evaluating or judging the quality or extent to which a student or group of students has achieved a particular concept during teaching and learning process. According to Gbamanja cited in Nzeigwe (2019) assessment tells us how well a student or group of students has achieved particular concepts or skills using various form of measuring techniques. Amakiri and Oyagiri (2021) defined assessment as the formation of judgments on the quality of students' achievement. Training of students in winding of electrical machines in technical colleges requires effective assessment of students in order to investigate the status of students with reference to expected outcomes of the training been given to the student. The level of skills possessed by students in winding of electrical machines operations that needed to be assessed during the period of their training according to Wills and Beck (2022) are in the following areas of operations winding of electrical machines; preparing insulation materials for the winding process, cutting stripping, and preparing the wire for winding, winding the wire onto the amateur or stator, employing multiple layers of wire, ensuring proper insulation between layers, connecting the winding ends to terminals of other components and verifying the integrity of the insulation. These operations usually require precision and attention to detail as to ensure the electrical machine functions effectively and reliably.

Dismantling of Electrical Machine is one of the operational tasks that is usually carried out during winding of electrical machines that students undergoing training in technical training institutions needed to acquire skills on how to dismantle machines with the use of

tools/equipment. According to Kendel (2021) dismantling of electrical machines for winding operations is a critical process that requires careful planning, attention to detail and adherence to safety protocols. The goal of dismantling is to access the winding and other internal components, allowing for repairs, re-winding or replacement operations. The ability to dismantle electrical machines accurately for winding operations with the use of correct types of tools/equipment such as winding extractors, pullers and wrenches will be an added advantage for students undergoing training in electrical technology related areas in technical training institutions for employment opportunity upon graduation (Mark, 2023). Dismantling procedures according to Ozuo (2019) include the following; disconnecting and removal of external components such as terminal boxes, conduit and mounting brackets, removal of the end belt, bearing, and other components to access the windings, recoding the location and connection of internal components, brushes and connections, carefully removing of the windings, taking note of their configuration, connections, and any specific requirements. Safety consideration that must be observed during disseminating operations are as follows; ensure that the machine is de-energized and all safety protocols are followed to prevent electric shock or injury, use proper lifting techniques and mechanical aids to prevent injury when handling heavy components, wear protective gear, such as gloves and safety glasses to prevent injury.

According to Wills and Beek (2022) removing and replacing worn-out brushes is an operational work that is usually carried out during winding of electrical machines to replace an already burnt brushes. Brushes are made in different sizes, shape and grades depending on the industrial machine. Cambell (2023) stated that most electrical machine brushes are made from some form of carbon or graphite that are treated by subjecting the carbons to high temperature and pressure, resulting in brushes with different characteristics such as hardness, electrical and thermal conductivity and toughness. Charles (2020) stated that removing and replacing of worn-out brushes covers series of operations that requires the use of different hand tools/equipment that gives students insight in workshop management. Inview of that, Wills and Beek (2022) opined that student's ability to effectively use hand tools/equipment's to remove and replace worn-out brushes in an electrical machine without damage to any part of the machine will be an added advantages for employment upon graduation or for self-employment. Similarly, Tukur (2021) added that student's abilities to perform replacing of worn-out brushes with the use of the following tools such as hammer, screw driver, spanners and mallets would position them into the world of work or for self-employment. Cambell (2021) equally stated that students needed to be practically taught the process for carrying out removing and replacing of worn-out brushes of electrical machines. The responsibility now falls on technology teachers to imbibe in the student's good knowledge of removing and replacing worm-out brushes using the accurate tools/equipment.

Maintenance of electrical machines is another operational task that students needed to acquire skills when they are undergoing training in the school. Maintenance of electrical machine is the process of preserving, repairing and upgrading electrical machines to ensure the continued operation and efficiency of electrical machines. Maintenance involves routine inspection, repairs, replacement and upgrades to prevent equipment failure, reduce downtime and optimize performance. Electrical machines, such as motors and generators are critical components in many industrial and commercial applications (Barat and Dereck, 2023). Regular maintenance the authors continued is essential to ensure the reliable operation, efficiency and longevity of electrical machines. Douglas (2021) posited that by prioritizing regular maintenance, industries and organization can ensure the reliable operation of electrical machines, reduce downtime and optimize overall performance. Akpan and Utin (2021) stated that maintenance tasks in electrical machines is a major important aspect of electrical machines

winding operation that students of electrical technology needed to be practically taught on how to carryout maintenance tasks as this will be of an added advantage for employment in the industries/establishment upon their graduation from school or become self-employed. In the same vein, Okere and Uzor (2022) stated that maintenance tasks such as cleaning, lubrication, insulation checks, wiring and connection, testing and component replacement skills if acquired by students during the period of their training will offer them job opportunities in the industries/establishment or help them to open and work in their own workshop upon graduation from school.

Statement of the Problem

Technical college students upon completion of their training at the technical college level according to Federal Republic of Nigeria (FRN, 2013) is expected to be self-employed or employment of labour. Unfortunately, Agwi and Igbudu (2022) observed that technical college students who has completed their programme are without job. Ogunlewe and Bola (2019) noted that one of the major reasons why technical college students' who has completed their programmes are roaming the streets of different towns searching for jobs that are not easy to secure upon their graduation is the lack of competent knowledge and practical skill that will enhance self-reliance. Graduates of technical colleges who are supposed to be self-employed or become employers of labour are now job seekers. The reason for these problems can traceable to inadequate number of qualified teachers to teach vocational related trades, inadequate tools/equipments and machines, non-functional workshop/laboratories for teaching and learning of vocational related trades in technical colleges. The problem that this study addressed is the quality of training that should be given to students that will enable them acquire practical skills and knowledge in electrical technology related trades that will help them to be gainfully employed or become self-employed upon graduation in Rivers State.

Purpose of the Study

The main purpose of the study is to assess the level of skills possessed by technical college students for self-development in winding of electrical machines operations in Rivers State. Specifically, the study sought to:

1. Assess level of skills possessed in dismantling electrical machines using tools/equipments for self-employment among students in technical colleges in Rivers State.
2. Assess level of skills possessed in removing and replacing worn-out brushes for self-employment among students in technical colleges in Rivers State.
3. Assess level of skills possessed in maintaining of electrical machines parts for self-employment among students in technical colleges in Rivers State.

Research Questions

The following research questions guided the study:

1. What is the level of skills possessed in dismantling of electrical machines using tools/equipments for self-employment among students in technical college in Rivers State?
2. What is the level of skills possessed in removing and replacing worn-out brushes for self-employment among students in technical colleges in Rivers State?
3. What is the level of skills possessed in maintaining of electrical machines parts for self-employment among students in technical colleges in Rivers State?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant difference in the mean ratings between electrical technology teachers and workshop instructors on the level of skills possessed in dismantling electrical machines using tools/equipment for self-employment among students in technical colleges in Rivers State.
2. There is no significant difference in the mean ratings between electrical technology teachers and workshop instructors on the level of skills possessed in removing and replacing worn-out brushes for self-employment among students in technical colleges in Rivers State
3. There is no significant difference in the mean ratings between electrical technology teachers and workshop instructors on the level of skills possessed in maintaining of electrical machines parts for self-employment among students in technical colleges in Rivers State.

METHODS

The study adopted a descriptive survey research design. According to Gall, Gall and Borg cited in Agwi and Igbudu (2022) descriptive survey design is a research method used to collect and analyze data to describe the characteristics, features, or attributes of a particular phenomenon, population or situation. The population of the study was sixty (60) comprising 38 electrical installation and maintenance work trade teachers' and 22 workshop instructors of the four Rivers State owned technical colleges as at 2023/2024 academic session obtained from the office of Vice Principals academic of various technical colleges in Rivers State. No sample was done because the population is of manageable size.

A self-structured 23 items questionnaire designed by the researchers titled "Perceived Level of Skills possessed for self-employment in Winding of Electrical Machines Operations Questionnaire" (PLSWEMO) was the instrument used for data collection from the respondents. The instrument was a 4-point rating scale of Highly Skilled (HS), Skilled (S), Fairly Skilled (FS) and Little Skills (LS). The instrument was face and content validated by three experts in Technology Education Department Rivers State University, Port Harcourt. Cronbach alpha reliability techniques was used to determine the internal consistency of the items of the questionnaire. The reliability coefficient obtained was 0.75. A total of 60 copies of the instrument were administered to the respondents directly by the researchers with the help of five research assistants.

The total numbers of the instrument retrieved after two weeks was 58 and was used for data analysis. The data collected from the respondents were analyzed using mean and standard deviation. Any item whose mean is 2.50 and above was regarded as "highly skilled" while any item whose weighted mean is below 2.50 was regarded as "little or no skill". t-Test was used to test the null hypotheses at 0.05 level of significance.

RESEARCH RESULTS

The outcomes of the data analysis are presented according to the research questions posed and hypotheses tested.

Research Questions 1

Table 1

Mean Ratings and Standard Deviation on Level of skills Possessed in Dismantling of Electrical

Machine for Self-Employment among Students in Technical College in Rivers State

S/N	Skills Possessed	EIMW Teachers' N=36			Workshop Instructors N=22		
		$\bar{x}$	SD	Remark	M	SD	Remark
1.	Skill to identify electrical machine components for dismantling task	3.06	0.91	HS	2.79	0.83	HS
2.	Skill to use extractors such as wrenches, for dismantling operation	2.77	0.84	HS	2.64	0.79	HS
3.	Skill to troubleshoot and overcome obstacles during dismantling processes	2.89	0.86	HS	2.72	0.81	HS
4.	Skill to carefully identify and document component locations and connections	2.76	0.82	HS	2.65	0.80	HS
5.	Skills to apply understanding of mechanical principles and component interactions	2.69	0.71	HS	2.51	0.68	HS
6.	Skills for accurate measuring components and recording data	2.94	0.88	HS	2.61	0.78	HS
7.	Skill to recognize and identify various electrical machine components	3.01	0.89	HS	2.79	0.83	HS
	Average Mean/SD	**2.97**	**0.94**		**2.30**	**0.68**	

Source: Field survey, 2025
Note: HS = Highly Skilled

Data in Table 1 showed the respondents' opinion on the level of skills possessed in dismantling of electrical machines using tools/equipment for Self-employment among Students in technical colleges in Rivers State. Using the criterion mean of 2.50 as the bench-mark for acceptance, the data in Table 1 showed that the students possessed high level of skill in dismantling electrical machines for self-employment in technical colleges in Rivers State. Table 1 equally revealed a grand mean of 2.97 and 2.30 and a grand standard deviation of 0.94 and 0.68. The closeness of the standard deviation shows that the respondents are close in their responses.

Research Questions 2

Table 2

Mean Ratings and Standard Deviation on Level of skills Possessed in Removing and Replacing Worn-out Brushes of Electrical Machines

S/N	Skills Possessed	EIMW Teachers' N = 36			Workshop Instructors N=22		
		$\bar{x}$	SD	Remark	$\bar{x}$	SD	Remark
8.	Skill for using the correct hand tools to remove and replace worn-out brushes	2.75	0.70	HS	2.65	0.64	HS
9.	Skills in checking carbon brushes before replacement	3.21	0.95	HS	2.85	0.72	HS
10.	Skill in replacing worn-out brushes	3.00	0.84	HS	2.73	0.71	HS

11.	Skill in following all the correct procedures in removing and repairing worn-out brushes	2.86	0.75	HS	2.61	0.70	HS
12.	Skill in handling carbon brushes for replacement	2.75	0.71	HS	2.59	0.68	HS
13.	Skill in selecting appropriate carbon brushes during replacement	2.61	0.70	HS	2.53	0.62	HS
14.	Skills in removing worn-out brushes correctly	3.02	0.93	HS	2.83	0.65	HS
15.	Skill in tightening carbon brushes in a machine during winding operation	2.91	0.89	HS	2.64	0.66	HS
16.	Skill in testing for continuity resistance using merger test set	2.58	0.63	HS	2.51	0.68	HS
	Average Mean/SD	**2.85**	**0.79**		**2.66**	**0.68**	

Source: Filed survey, 2025
Note: HS = Highly Skilled

Data in Table 2 showed the respondents opinion on the level of skills possessed in removing and replacing of worn-out brushes skill for self-employment among students in technical colleges in Rivers State. Using the criterion mean of 2.50 as the bench-mark for acceptance, the data in Table 2 showed that the students possessed high level of skills in removing and replacing of worn-out brushes for self-employment in technical colleges in Rivers State. Table 2 equally revealed a grand mean of 2.85 and 2.66 and a grand standard edition of 0.79 and 0.68. The closeness of the standard deviation shows that the respondents are close in their responses.

Research Question 3

Table 3

Mean Rating and Standard Deviation on Level of Maintenance of Electrical Machines Skills Possessed

S/N	Skills Possessed	EIMW Teachers' N = 36			Workshop Instructors N=22		
		$\bar{x}$	SD	Remark	$\bar{x}$	SD	Remark
17.	Skill to identify and diagnose faults in electrical machines	2.80	0.83	HS	2.71	0.81	HS
18.	Skill to prevent electrical shock and injury during maintenance	2.77	0.80	HS	2.65	0.79	HS
19.	Skill to use the correct type of tools and equipment for maintenance task	2.69	0.76	HS	2.56	0.74	HS
20	Skill to follow electrical circuit and wiring diagrams	3.00	0.90	HS	2.81	0.77	HS
21.	Skills to carefully replace faulty components such as bearing, brushes and winding during maintenance	3.05	0.93	HS	2.79	0.74	HS
22.	Skill to use multimetres and other test	2.82	0.85	HS	2.61	0.71	HS

	equipment to measure electrical parameters						
23.	Skill to perform routine maintenance tasks to prevent equipment failure	2.68	0.77	HS	2.57	0.70	HS
	Average Mean/SD	**2.82**	**0.83**		**2.79**	**0.74**	

Source: Field Survey, 2025
Note: HS = Highly Skilled

Data in table 3 showed the respondents' opinion on the level of skills possessed in maintaining of electrical machines for self-employment among students in technical colleges in Rivers State. Using the criterion mean of 250 as the bench-mark for acceptance, the data on Table 3 showed that the students possess high level of skills in maintaining of electrical machines. Table 3 also revealed a grand mean of 2.82 and 2.79 and a grand standard deviation of 0.83 and 0.74. The closeness of the standard deviation shows that the respondents are close in their responses.

Hypothesis 1

Table 4
t-Test Analysis of Difference in the Opinion of Respondents on the Level of Skills Possessed in Dismantling of Electrical Machines for Self-Employment among Students in Technical Colleges in Rivers State

Respondents	**N**	**$\bar{x}$**	**SD**	**Df**	**t-cal**	**t-crit**	**P**	**Decision**
EIMW Teachers	36	2.97	0.94					
				56	1.31	1.96	0.05	Accepted
Workshop Instructors	22	2.30	0.68					

The data in Table 4 showed that 36 electrical installation teachers had a mean rating of 2.92 (SD=0.94) while the 22 workshop instructors had a mean rating of 2.30 (SD-0.68) yielding a calculated t-value of (1.31). Since the calculated t-value of (1.31) is less than the critical t-value (1.96) at df – 56 and 0.05 level of significance. It is an indication that there is no significant difference in the mean responses of the respondents of teachers and workshop instructors on the level of skills possessed by students in dismantling of electrical machines using tools/equipment for self-employment among students in technical colleges in Rivers State.

Hypothesis 2

Table 5
t-Test Analysis of Difference in the Opinion of Respondents on the Level of Skills Possessed in Removing and Replacing Worn-out Brushes for Self-Employment among Students in Technical Colleges in Rivers State

Respondents	N	$\bar{x}$	SD	Df	t-cal	t-crit	P	Decision
EIMW Teachers	36	2.85	0.79					
				56	1.35	1.96	0.05	Accepted
Workshop Instructors	22	2.66	0.68					

The data in Table 5 showed that 36 electrical installation teachers had a mean rating of 2.85 (SD=0.79) while the 22 workshop instructors had a mean rating of 2.66 (SD = 0.68) yielding a calculated t-value of (1.35). Since the calculated t-value of (1.35) is less than the critical t-value (1.96) at df=56 and 0.05 level of significance. It is an indication that there is no significant difference in the mean responses of the respondents of teachers' and workshop instructors on the level of skills possessed by students in removing and replacing of worn-out brushes for self-employment among students' technical colleges in Rivers State.

Hypothesis 3

Table 6

t-Test Analysis of Differences in the Opinion of Respondents on the Level of skills possessed in maintenance of Electrical Machines for Self-Employment among Students in Technical Colleges in Rivers State

Respondents	N	$\bar{x}$	SD	Df	t-cal	t-crit	P	Decision
EIMW Teachers	36	2.82	0.83					
				56	1.30	1.96	0.05	Accepted
Workshop Instructors	22	2.79	0.74					

The data in Table 5 showed that 36 electrical installation teachers had a mean rating of 2.82 (SD=0.83) while the 22 workshop instructors had a mean rating of 2.79 (SD=074), yielding a calculated t-value of (1.30). Since the calculated t-value of (1.30) is less than the critical t-value (1.96) at df – 56 and 0.05 level of significance. It is an indication that there is no significance differences in the mean responses of the respondents' of teachers and workshop instructors' on the level of skills possessed by students in maintenance of electrical machines for self-employment among students in technical colleges in Rivers State.

DISCUSSION

Discussion of the findings of the study were made according to the research questions posed in the study.

Dismantling of Electrical Machines Skills for Self-Employment among Students in Technical Colleges in Rivers Stage

Findings from research question 1 revealed that students in technical colleges in Rivers State possess dismantling of electrical machines skills for self-employment. Similarly, the hypothesis testing indicated no significant difference in the opinion of respondents of teachers' and workshop instructors in technical colleges in Rivers State on the possession of dismantling

skills for self-employment. The findings are in agreement with Mark (2023) who stated the ability to dismantle electrical machines accurately for winding operations with the use of correct types of tools/equipment such as winding extractors, pullers and wrenches will be an added advantages for students undergoing training in electrical technology related areas in technical training institutions for employment opportunities upon their graduation from school.

Removing and Replacing Worn-Out Brushes for Self-Employment among students in Technical Colleges in Rivers State

The finding in research questions 2 revealed that students in technical colleges in Rivers State possess high level of skills in removing and replacement of worn-out brushes for self-employment. Similarly, the hypothesis testing indicated no significant difference in the opinion of respondents of teachers and workshop instructors in technical colleges in Rivers State on the possession of removing and replacement of worn-out brushes skills for self-employment. The findings are in agreement with the view of Wills and Beck (2022) who stated that students' ability to remove and replace worn-out brushes in an electrical machine without damage to any part of the machine during winding of electrical machines operation will be an added advantage for employment upon graduation or for self-employment. In agreement with the view of Will and Beck, Tukur (2021) added that students' ability to perform replacing and worn-out brushes with the use of the following hand tools, hammer, screw driver, spanner, copping tools, stripping pliers, mallet and others without damage to any part of electrical machine would position the students into the world of work or for self-employment.

Maintenance of Electrical Machines Skills for Self-Employment among Students in Technical Colleges in Rivers State

Finding from research question 3 revealed that students in technical colleges in Rivers State possess maintenance of electrical machines skills for self-employment. Also, the finding revealed that the hypothesis testing indicated no significant difference in the opinion of respondents of teachers and workshop instructors in technical colleges in Rivers State on the possession of maintenance skills for self-employment. This finding is in agreement with Akpan and Utin (2021) who stated that maintenance tasks in electrical machines winding is another major important aspect of electrical machines winding operation that students of electrical technology needed to be practically taught on how to carryout maintenance tasks as this will be of an added advantage for their employment in the industries/establishment upon graduation from school or become self-employed. In an agreement with this view, Okere and Uzor (2022) added that maintenance tasks such as cleaning, lubrication, insulation checks, wiring and connection, testing and component replacement skills if properly acquired by students during the period of their training in the school will offer them job opportunities in the industries/establishment or help them to open and work in their own workshop upon graduation from the training institution.

Conclusion

Based on the findings of the study, it was concluded that students in technical colleges in Rivers State possess skills in dismantling of electrical machines, removing and replacing of worn-out brushes and maintenance of electrical machines for self-employment. These students if given the opportunity of real-life experiences through exposure to industries will enable them to handle and work with those tools/equipment and machines that were not found in the school thereby assisting them to acquire more practical skills for self-employment upon their graduation.

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