



EFFECTS OF ELECTRICAL PERFORMANCE OF SENIOR HIGH SCHOOL STUDENTS

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electrical installation maintenance, competence, performance

ABSTRACT

The study was undertaken to determine the level of competence Effects of Electrical Performance of Senior High School Students. The electrical performance focused on Perform Roughing- in Wiring and Cabling Works, Installing Electrical Protective Devices, and Installing wiring devices while academic performance on the weighted average grade of students ($n= 50$) of East Gusa National High School, Senior High School, the School Year 2021-2022. The questionnaires were based on the Vocational Skills in Electrical Training Regulations (TR) that serve as the basis for Competency Assessment and School Form 9 to gather the needed data. Data gathered were then analyzed through the utilization of frequency count, percentage, mean, standard deviation, and the inferential statistics of the Pearson product moment correlation coefficient. A quantitative research design was used to find adequate and accurate interpretations. Results revealed that students were at a very competent level in terms of installing wiring devices and very satisfactory level of academic performance. Furthermore, significant relationships were also disclosed between electrical installation and maintenance level of competence and academic performance. Therefore, teachers were recommended to conduct additional activities for mastery among Electrical Installation students in terms of competence in all three (3) competencies at a high level, and the same goes for academic performance. Moreover, teachers are also encouraged to attend seminars and training to upskill themselves.

INTRODUCTION

The Ultimate goal of vocational-technical education training is acquiring knowledge, attitude, and practical skills for sustainable development. The training of vocational-technical education students is based on producing goods and services that are relevant to themselves and society. Stated that the acquisition of lifelong practical skills calls for effective and efficient teaching strategies, appropriate evaluation methods, and utilization of stand and teaching materials, tools, machines, and equipment to ensure the production of desired graduates with practical skills. Other requirements include training manuals and availability.

Students attending training in wiring system are expected to have a variety of specialized skills, including configuration, innovation, fabrication, excellent electrical planning installation and application of drilling machinery and equipment, and servicing of electrical/ electronics inconnects. The development of skills, particularly in the electrical repair and commissioning trades, would surely help in the formation of opportunities and a greater sense of empowerment because tech college graduates' jobless is a sign that they possess unserviceable talents.

However, there are rising issues and concerns regarding implementing programs like this. Lack of facilities and equipment, lack of books, and even lack of qualified teachers that will handle the program. Issues on students' graduation with a low level of skills and performance need to be addressed to implement EIM successfully and benefit the students. Despite all of these setbacks, the growing demand for skills and skilled workers is still high here in the country and abroad (Cabreza, 2021).

Okoro, cited by Bayloces (2021), remarked that the products of technical institutions do not have the knowledge and skills to enable them to take up the available jobs. Moreover, he asserted that the top universities for industrial counseling to get practical knowledge. Comment section phase professionals must therefore establish toughness and expertise. This indicates that campuses are intended to give full craft man training to prepare youths for entry into various occupations of their interest. Among the professions that children are given training in the technical college include electrical installation such as repair, maintenance, and installation.

In the same view, Nwachukwa, cited by Uy (2021), submitted that technical with the relevant and adequate knowledge, skills, and attributes for employment under the guidelines of a teacher in a related occupation. The pace of skill acquisition in technical education cannot be over emphasized; too many trades are to be learned to achieve these objectives.

Therefore, this study determined the students' Electrical Installation and Maintenance skills. With the above premise, the researcher was interested in determining the Electrical Installation and Maintenance Skills and the academic performance of the students in East Gusa National High School, Senior High School, the School Year 2021-2022. This study provided ideas on students' level of competence and performance that can serve as the basis for improving innovations for a better outcome.

Theoretical/Conceptual Framework

This study was anchored on the theory by Ivan Pavlov on Behaviorism. Behaviorism focuses on how people behave. In the field of education, behaviorism examines how students behave through learning. More specifically, behaviorism focuses on observing how students respond to certain stimuli that, when repeated, can be evaluated, quantified, and eventually controlled (McLeod, 2017).

The studies of Cox and Weegar cited by Oco (2022) revealed that behaviorism is still significant in today's teaching and learning process; however, it must be aligned with learners' current learning needs and styles. Thus, using a theory in the teaching and learning process needs enhancements and modifications to make it more useful and effective. This was seen in the study of Reese cited by Oco (2022) that behaviorism plays a vital role in child development. However, to make it more effective, it must be accompanied by the use of available technologies that can align learning with the current trend in education.

"Establishment and Administration of the National Trade Skills Standards". In order for private corporations' organizations and industry groups to perform allowed trade assessment activity in their various areas in compliance with the requirements, the agency shall design and execute quality assurance program. The Authority shall develop and implement a certification and accreditation program in which private industry groups and trade associations are accredited to conduct approved trade testing activities in their respective areas in accordance with the guidelines.

Methodology

This research used correlational research that aims to collect information regarding the technical skills of the EIM students. A quantitative research design was used to find adequate and accurate interpretations. These methods involved range from the survey on the level of skills of EIM students' technical competence can be acquired through technology education. The study utilized the descriptive and correlation research design. Both are quantitative approaches that find the relationship between variables to represent the relationship through statistical analysis. The purpose of employing the descriptive method is to describe the nature of a condition as it takes place during the study and to explore the cause or causes of a particular situation. The descriptive method of research is to gather information about the existing condition.

The present study used total population sampling or a take all the EIM students from East Gusa National High School, Senior

High School as the study's respondents. The study included a total number of fifty (50) EIM respondents. Therefore, no sampling procedure was made. Instead, these students were engaged in face-to-face classes, so the researcher considered the respondents best to answer the competency being mastered in Electrical Installation.

East Gusa National High School (EGNHS), formerly named Lapasan National High School-Gusa Annex, was where the study was conducted. It is a public secondary school located in Barangay Gusa, Cagayan de Oro City. The school was established on August 11, 2005.

It consists of two thousand three hundred fifty (2 350) students from Grade 7 to Senior High School, sixty (60) teaching staff, and four (4) non-teaching staff. The school is known for Journalism and Extra-Curricular Activities such as Song Writing Competition and Quiz Bee sponsored by PopDev. It is also known as a school of EIM champions (division level) for three (3) consecutive years. They also produced well-competent NC II passers in EIM and Auto Servicing NC-I Passers.

East Gusa National High School, formerly known as Lapasan National High School – Gusa Annex, is a public secondary school located in barangay Gusa, Cagayan de Oro City. The school was established on August 11, 2005. Initially, it started with 195 students. Then, a new School Head initiated the Open High School Program, which became the pilot school for the Division of Cagayan de Oro. As a result, there are more than a thousand students at East Gusa National High School. This March, there will be at most 190 Graduates for the School Year 2011-2012, 166 from the regular High school, and 24 from the Open High School Program.

Questionnaires were based on the Training Regulations (TR) that serve as the basis for Competency Assessment. The questionnaire composed of Part 1 is on Perform Roughing in Cabling and Wiring with ten indicators. Part 2 is on Install Electrical Protectives with ten indicators. Part 3 is on Install Wiring Devices with ten indicators, and Part 4 is on Performance.

Before gathering data, the researcher sought approval of the permit from the Dean of Graduate Studies of SPC. Upon approval, this was sent to the Schools Division Superintendent of Cagayan de Oro City to access data from the respondents. From there, the researcher facilitated the questionnaire distribution to the Grade 12 EIM students at East Gusa National High School, Senior High. It was arranged, coded, tabulated, and submitted to the statistician for analysis and interpretation.

This study used the following statistical tools and techniques to assess the gathered data. First, frequency and percentages describe the profile of the performance of the respondents. Weighted Mean and Standard Deviation determined the rank of the variables to know what variables were at the top and bottom, as well as how to spread the collected data. Pearson Product Moment Correlation Coefficient was used to determine the significant relationship between the level of competence and performance of the students tested at a 0.05 level of significance.

Results and Discussions

Problem 1. What is the level of competence among senior high school students on electrical installation maintenance in terms of: Perform Roughing- in Wiring and Cabling Works, Installing Electrical Protective Devices, Install Wiring devices.

Table 1
Perform Roughing- in Wiring and Cabling Works

Descriptors	Mean	SD	Interpretation
1. Interpret electrical wiring diagrams and mechanical drawings	3.42	0.89	Very Competent
2. Identify proper usage and types of conduits, and fittings in electrical installation.	3.62	0.63	Very Competent
3. Apply proper usage of safety harness.	3.43	0.77	Very Competent
4. Practice proper handling of materials, tools, and equipment	3.72	0.76	Very Competent
5. Interpret electrical/mechanical drawing	2.46	0.90	Less Competent
6. Determine suitability for installation and used of bus way, cable tray, fittings and panels, conformity with the provision of the PEC Code	3.30	0.74	Very Competent
7. Perform proper procedure in installation of auxiliary terminal cabinet and distribution panel.	3.28	0.68	Very Competent
8. Apply methods and techniques in various type of wiring wires and cables	2.26	0.80	Less Competent
9. Follow procedures in bending radius and loop tolerances for cables.	2.66	0.86	Competent
10. Practice good housekeeping, maintenance, and storage of tools & materials	3.70	0.82	Very Competent
Overall Mean	3.19	0.80	Competent

Note: 1.00 - 1.75 Not Competent, 1.76 – 2.50 Less Competent, 2.51 – 3.25 Competent, 3.26 – 4.00 Very Competent

It garnered an overall Mean of 3.19 (SD=0.80), equivalent to the Competent level. Seven (7) out of 10 (70%) of the indicators were at a Very Competent level, and one out of 10 (10%) was at a Competent level, while one (1) out of 10 was at a Less Competent level. This means that the student's level of competence in terms of roughing in wiring and cabling works is at the Competent level. This implies that the students understand the termination of the wire installations at the respective ends, inserting the raw end on the wire into the terminal junction, and tightening the screw to hold the wire in. Also, each wire's end for each simple connection from the terminal union to the terminal hub is connected with the active wire, neutral wire, and connector

Additionally, each end of each wire for each simple connection from the terminal union to the terminal junction is connected with the active wire, neutral wire, and connector. According to Yusuf (2018), the wires, power supplies, switches, and other electrical devices must be connected in order to build a wiring system, which can take a lot of time. Each student's safety is also essential because any mistakes made during the wiring process could subject the child to strong electrical stimulation. Therefore, it is almost impossible to stress the necessity for a new learning experience that allows students to put up and take down their studies safely and without running the risk of electric shock during laboratory testing hours.

The findings of the studies Perform Roughing in Cabling and Wiring competency of De Guia (2018) and Ubay (2021) determined that the pupils have mastered the fundamental abilities required for wiring and cabling works. However, to the highest level of competency, skills must still be improved. Nabatilan (2019) emphasized that further measures had to be taken to guarantee that the required level of underwiring and cabling expertise was met.

The indicator with the highest level is on practice proper handling of materials, tools, and equipment with the Mean of 3.72 (SD=0.76) equivalent to the Very Competent level. This means that most of the respondents have mastered the indicator compared to the other indicators. Furthermore, since the Mean of the respondents' scores in this indicator is greater than the other indicators, it implies that students excel in properly handling materials, tools, and equipment because they are more exposed in hands-on activities. Students also are more familiar of the tools and equipment since the electrical mock-up are displayed inside the laboratory with labels and functions.

This finding aligns with the studies of De Guia (2018) and Ubay (2021), who found that the students mastered basic skills needed in wiring and cabling works, but there are still skills that need improvement to reach the highest level of competence. Nabatilan (2019) stressed that additional activities had to be employed just to make sure the level of competence in underwiring and cabling was satisfied. Moreover, the capacity of students to perform large and minor technical wiring tasks, as well as their competence to install and maintain electrical and electronic equipment. The students receive training in a variety of skills, such as installing and rewinding machines and other portable electronic equipment, reading electrical working drawings, locating and repairing faults in household and industrial appliances, and conducting tests on both new and old electrical installations (Eze et al.,2018).

While the indicator, "Apply methods and techniques in various types of wiring wires and cables," with the Mean of 2.26 (SD=0.80) is equivalent to a Less Competent level. This means that the students could master the concepts under proper handling of tools, materials, and equipment used for electrical installation and maintenance; however, applications of various methods and techniques in various types of wiring wires and cables were minimal. This presents a significant difficulty because developing different strategies is crucial, particularly when offering services on varied building structures. Remedial action can be provided to deal with such problems.

However, learning how to construct a wiring system can be time-consuming because it involves connecting wires, power supply, switches, and other electrical equipment. Furthermore, each student's safety is crucial if errors are made in the wiring procedure. It will be essential to create a new learning environment that enables students to set up and take down their experiments securely during regular laboratory hours without the threat of electric shock. This can be beneficial for electric operation and maintenance activities. It aims to give individuals specialized training so they can satisfy corporate requirements and the demands of specific learners, allowing them to get a career. goals and will allow them to be responsive across the specified range of activities, as well as having the skills and information of key competencies (Yusuf, 2018)

Table 2 presents data on respondents' responses to electrical installation and maintenance through Installing Electrical Protective Devices. It garnered an overall Mean of 3.21 (SD=0.91), equivalent to the Competent level. Six (6) out of 10 (60%) of the indicators were at a Very Competent level, and two (2) out of 10 (20%) were at a Competent level, while two (2) out of 10 (20%) was at a Less Competent level. This data means that the student's level of competence in installing electrical devices was competent.

The studies of Manabete (2016) and Taneo (2021) revealed that installing wiring devices registered the highest level of competence, as seen in the inventory of skills and performance among students. Meanwhile, Odika (2020) revealed installing electrical protectives and wiring devices were the two most learned competencies in electrical installation and maintenance programs.

This means that evidence showing that a technical person with executive function has the abilities required for the job, including practical abilities when appropriate, can function competently across a range of tasks, and has the necessary knowledge and understanding of the underlying competency will be used to confirm and attribute that person's competency (Vandi et al.,2017).

The indicator with the highest level is Perform the installation economically with a Mean of 3.92 (SD=0.90), equivalent to a Very Competent level. This means that most of the respondents show economic mastery in performing the installation. This implies that a single measurement of a quantity is frequently sufficient for the purposes of measurement in many situations. However, a single measurement's uncertainty is constrained by the precision and accuracy of the measuring device; therefore, estimating accuracy involves

judgment. Also, how closely a measurement reflects its actual value is known as accuracy. It is possible to produce products that actually fit the plan and to ensure product quality by doing measurements with the same guide throughout all operations, from material arrival to processing, assembly, and inspection. This is important because inadequate equipment, poor data processing, or mishandling can lead to inaccurate results. One person taking incorrect measurements could result in the final product's quality being degraded. s. Additionally, customers may raise the issue of damaged items.

Furthermore, According to Terrel, cited by Labis (2021), since the Mean of the respondents' scores in this indicator is high compared with the other indicators, it further implies that the students show dominance in terms of performing the installation economically. Courses for electrical installation and repair practices, electrical wiring inspection, and testing process are introduced through practical experience activities.

While indicator," Apply methods and techniques in various types of the lighting fixture and auxiliary outlet," with the Mean of 2.10 (SD=0.78) equivalent to a less competitive level. This means that the students must be aware that electrical errors during installation services can be hazardous and constitute a severe fire hazard, such as insecure wiring. For example, the staples that hold the wiring in place need to be driven to a reasonably precise degree, improper wire length to create an effective wiring connection, electrical wiring needs to be stripped down to its metallic core, and unprotected wiring that is left uncovered or exposed, and connections which need to be adequately tightened. This deficiency must be addressed as this can affect the maintenance service that can be provided by the learners to their customers in the future. Thus, remedial activity can be provided to address such issues.

According to Baylores (2021), lower-order skills under installing electrical devices were highly mastered; however, not all competencies about it are not fully mastered, prompting the researcher to address it as it can affect the performance of the students. Balasabas (2021) further stressed that the students fully mastered safety measures, which implied that safety concerns would not be an issue in performing the said skills.

Table 3 presents data on respondents' responses on electrical installation and maintenance through Installing Electrical wiring Devices. It garnered an overall Mean of 3.33(SD=0.78), equivalent to the Very Competent level. Six (6) out of 10 (60%) of the indicators were at a Very Competent level, and two (2) out of 10 (20%) were at a Competent level, while two (2) out of 10 (20%) was at Less Competent level. This data means that the student's level of competence in installing electrical devices was Competent. This implies that by installing electrical wiring devices, the respondents displayed standards for technical electric operation and maintenance skills, such as the capacity to connect lines, use the variety of tools and techniques, decipher design, grasps electrical policies, and most significantly and recognize how to maintain devices, fixtures, and connections. This runs counter to Moses et al (2017) found that graduates with technical degrees are more likely to work in electrical construction and maintenance. It moderately acquired abilities in the installation of cables and slightly acquired skills in the installation of ducts and trunking job clusters, respectively. While the graduate evidenced a low level of job performance in the installation of ducts and trunking tasks clusters and a moderate level of job performance in the installation of cables, there was no distinguishable difference in the mean response of the graduate and supervisor on the graduate's level of job performance in the manufacturing installation module.

Moreover, there must be adequate training and development programs that can help the students to become more competent. The evidence that a technical person with executive function has the skills necessary for the scope of work, including practical skills when appropriate, can act competently across the specified range of activities, and has the relevant knowledge and understanding of the underlying competency will therefore be used to verify and attribute that person's competency (Vandi et al.,2017).

The indicator with the highest level is Perform procedures for installation of lighting fixture/switches, with the Mean of 3.82 (SD=0.80) equivalent to a Very Competent level. This means most of the respondents have mastered the indicator among the others. It further implies that the respondents are able to demonstrate the skill in lighting.

However, the indicator," Apply methods and techniques in various types of lighting fixtures/ switches, "with the Mean of 2.38 (SD=0.74), is equivalent to a Less Competent level. This implies that the students could master the concepts of necessary procedures or steps in installing electrical lighting but lack mastery in applying complicated methods and techniques in fixtures. Therefore, this deficiency must be addressed as it can affect the maintenance service that the learners can provide to their customers. Thus, remedial activity can be delivered to address such issues.

This finding aligns with the studies of Apus (2021) and Uy (2021), stating that installing wiring devices is the most mastered level of competence among senior high school students. However, both researchers claimed that not all the competencies embedded in it are all at the highest level; therefore, extra attention and activities must be employed. This further confirms the findings of Onoh (2017) and Odika (2020).

Table 4

Level of Competence in Electrical Installation and Maintenance

Perform Roughing in Cabling and Wiring	3.19	0.80	Competent
Installing Electrical Protective Devices	3.21	0.91	Competent
Installing Wiring Devices	3.33	0.78	Very competent
Overall Mean	3.24	0.83	Competent

Note: 1.00 - 1.75 Not Competent, 1.76 – 2.50 Less Competent, 2.51 – 3.25 Competent, 3.26 – 4.00 Very Competent

Table 4 presents data on respondents' overall responses to electrical installation and maintenance. It garnered an overall Mean of 3.24(SD=0.83), equivalent to the Competent level. Two (2) out of three (3) or (67%) of the variables were at a Competent level, and one (1) out of three (3) or (33%) was at a Very Competent level. This data implies that the student's level of competence in terms of installation and maintenance was at the Competent level.

The variable with the highest level is "Installing Wiring Devices," with a Mean of 3.33(SD=0.78), equivalent to the Very Competent level. This means that most respondents show command in installing wiring devices compared with the other indicators. This means that the school provides good hands-on facilities such as mock-ups, electrical tools and equipment that are beneficial to the learning and hands-on experiences of the students.

According to Yusuf (2018), wires, power supplies, switches, and other electrical devices must be connected to build a wiring system, which can take a lot of time. In addition, each student's safety is also essential because any mistakes made during the wiring process could be subject to strong electrical stimulation.

The indicator, "Perform Roughing in Cabling and Wiring," was the lowest, with the Mean of 3.19 (SD=0.80) equivalent to the Competent level. This means there are still areas in the program that require additional efforts and attention to achieve the highest level of competence. Thus, remedial activity can be provided to address such issues.

In this case, Manabete (2016) and Taneo (2021) concluded that installing wiring devices registered the highest level of competence as seen in the inventory of skills and performance among students. Meanwhile, Odika (2020) revealed installing electrical protectives and wiring devices were the two most learned competencies in electrical installation and maintenance programs.

Problem 2. What is the level of performance of EIM senior high school students?

Table 5

Students' Performance

Interval	Description	F	%	Mean	SD	Interpretations
90 - 100	Outstanding	11	22%	86.30	4.66	Very Satisfactory
85 – 89	Very Satisfactory	19	38%			
80 – 84	Satisfactory	18	36%			
75 – 79	Fairly Satisfactory	2	4%			
74 and below	Did not Meet Expectations	0	0%			
Total		50	100%			

Note: F=Frequency, %=Percent, SD=Standard Deviation

Table 5 presents data on respondents' performance. It garnered an overall Mean of 86.30 (SD=4.66), equivalent to a Very Satisfactory level. Nineteen (19) out of fifty (50) or (38%) of the students' performance was at a Very Satisfactory level, eighteen (18) out of fifty (50) or (36%) were at a Satisfactory level, eleven (11) out of fifty (50) or (22%) were at an outstanding level and two (2) out of fifty (50) or (4%) was a Fairly Satisfactory level. This means that the students' level of performance in terms of installation and maintenance was very satisfactory. This further means that very few of the students were able to achieve the highest level of performance, which is the outstanding level. This indicates that basic concepts and methods were mastered, but the higher and more complicated ones were not mastered at the highest level.

These results align with the studies of Baylores (2021) and Taneo (2021), revealing that the performance of students was at a very satisfactory level, only citing reasons that students' mastery of complicated concepts is not at the highest levels. Labis (2021) further stressed that in order to achieve a higher level of performance, students must have the willingness to undergo additional activities of remedial classes to achieve a higher level of mastery.

The ability of students to install and maintain electrical and electronic hardware, equipment, and hardware, as well as their capacity to complete significant and minor personal and corporate wiring jobs, will be considered when evaluating their academic performance. Therefore, the students are taught a wide range of abilities, including how to install and rewind machines and other compact electrical devices, read electrical working drawings, find and fix flaws in personal and corporate machinery, and perform tests on both new and old electrical installations(Eze et al.,2018).

Specifically, to achieve educational outcomes, one must perform well in school. According to Narad and Abdullah, cited by Lago (2022), academic performance is the knowledge learned as assessed by a teacher's evaluations, and educational goals set by students and teachers are to be achieved over a specified period. In their study, Arshad et al., cited by Labis (2021), indicated that academic performance measures education outcome and emphasized that it demonstrates and assesses the amount to which a school, teachers, and students have met their educational goals.

The student's academic progress also serves as a barometer for their achievement in theory and practice. An achievement assessment should cover cognitive, psychomotor, and emotional learning areas to measure a student's academic accomplishment. Students are evaluated in electrical operation and maintenance positions based on their theoretical and practical skills and efficient learning settings. Electrical installation and maintenance are rated in the classroom. High academic achievers are characterized as having

high levels of cognitive and psychomotor skills. Students need to become aware of the knowledge they already know about the issue, the information they need to know to solve it, and the strategies they should use to deal with it. Through their education, students will acquire the skills necessary to succeed (Moses et al., 2017).

Problem 3. Is there a significant relationship between the level of Electrical Installation and Maintenance competence of East Gusa Senior High School students and their academic performance?

Table 6
Test Relationship between the level of EIM and Performance

Variables	R-Value	P-Value	Decision	Interpretations
Perform Roughing in Cabling and Wiring	7.890	0.001	Reject H ₀₁	Significant
Installing Electrical Protective Devices	7.913	0.001	Reject H ₀₁	Significant
Installing Wiring Devices	8.449	0.000	Reject H ₀₁	Significant

Alpha=0.05 level of significance

Table 6 presents the test relationship between the level of competence between electrical installing and maintaining variables and the performance of students. Data reveals significant relationships between interplayed variables with perform roughing in cabling and wiring having an r-value of 7.890 (p-value=0.001), installing electrical protective devices with a computed r-value of 7.913 (p-value=0.001), and installing wiring devices with a computed r-value of 8.449 (p-value=0.000) all postering significant relationships at level 0.05 of importance. Thus, the null hypothesis is thus disproved. This suggests the importance or abilities related to electrical installing and maintaining are essentials to students' educational excellence.

Therefore, all three categories or sets of competencies must be given equal attention so that the students can learn all of them at the highest level and perform their skills at the highest level.

This confirms the studies of Taneo (2021) and Apus (2021), citing that the level of competence found in electrical installation and maintenance was directly correlated with the students' performance. They further claimed that a higher level of competence could also lead to higher performance. However, this also contradicts the study of Labis (2021). They claimed that there is no significant correlation between the level of skills on EIM competencies towards students' performance and that these two (2) areas are independent.

In addition, Tumba and Eze (2016), Olewele (2021), Escarcha (2021), and Code (2022) suggested the importance of teachers constantly updating their teaching skills and knowledge on different strategies for teaching and conducting remedial activities as well as the schools in providing adequate and up to date materials and equipment to ensure that quality learning and skills are being taught and learned by the students.

According to Terrel, cited by Labis (2021), A program on electrical installation and maintenance is introduced through practical experience coaching, electrical system and circuit management, electrical installation evaluation, and testing process. Electrical craftsmen use manufacturers' guides to evaluate, assess, maintain, operate, and completely restore any malfunction on electrical tools and systems. The goal is to expose students and have an influence on the skills that will produce craftsmen, specialists, and other craft people who will be creative and enterprising. Making anything stronger than it was before is what has been referred to as development.

Thus, when a student completes technical training in an electrical installation trade, it is hypothesized that they will be expected to possess excellent abilities in electrical installing work, the installing of electrical machines and equipment, the inspection and testing of electrical installing, the maintaining of equipment machines and equipment, the winding of electrical machines, and the repair of electrical devices (Yusuf, 2018).

Conclusions

Based on the findings, the following conclusions were obtained:

1. The respondents are less competent level on performing Roughing Cabling and Wiring. This means there are still areas in the program that require additional efforts and attention to achieve the highest level of competence. Thus, remedial activity can be provided to address such issues.
2. Students' performance was very satisfactory level while few at fairly satisfactory. The students were able to achieve the highest level of performance. This indicates that basic concepts and methods were mastered.
3. Significant relationships were registered between the EIM competencies and students' performance. The competencies under electrical installing and maintaining contribute to students' educational outcomes substantially. Therefore, all three categories or sets of competencies must be given equal attention so that the students can learn all of them at the highest level and perform their skills at the highest-level affecting students' performance.

Recommendations

From the findings and conclusions obtained in the study, the following recommendations are suggested:

1. Continuous improvement in monitoring and making additional activities to ensure that skills needed for the EIM program will be fully achieved and mastered. Especially in applying methods and techniques in various types of wiring wires and cables. Students must be able to master the concepts under proper handling of tools, materials, and equipment used for electrical installation and maintenance; however, applications of various methods and techniques in various types of wiring wires and cables were at a minimal level.

2. The teachers must assist students with low performance so they can continue to improve themselves. Furthermore, the teachers must also keep abreast of various teaching strategies so that the teaching and learning process between the teacher and the students are up to date and according to the standards set for the EIM program.

3. Knowing the importance of the level of competence towards students' performance, teachers should help each other by being observant of the needs and struggles of the students to address issues and difficulties.

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