



Comparative Performance of Electrical Installation and Maintenance Work Students Taught Using Computer Aided Instruction and Demonstration Methods in Technical Colleges in North East Nigeria

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ABSTRACT

The study compared the Performance of students taught Electrical Installation and Maintenance Work in Technical Colleges in North Eastern geo-political region of Nigeria using Computer Aided Instruction (CAI) and Demonstration Approaches. It used Pre-test Post-test Control group quasi-experimental design. One hundred and eighty four (184) National Technical Certificate II Electrical Installation and Maintenance Work (EIMW) students from seven Technical Colleges were assigned to experimental and control groups of ninety-two each by simple balloting and studied. A 20-item Researcher-Made Multiple Choice Test Instrument (RMMCTI) was used to assess the entry behaviour (Pre-Experiment Test PET) of the students. Trade masters from the study STCs were trained in the use of CAI for two weeks after which they taught the study groups. After Eight weeks of teaching using CAI (experiment) and demonstration (control) approaches by the earlier trained Trade masters, the same RMMCTI was administered to measure the post-experiment performances of the two groups. Five research questions and four hypotheses guided the study. Mean and standard deviation were used to answer the research questions while 2-tail z-tests were used to test the hypotheses at 0.05 level of significance. The study found that (i) there is a significant difference between the performances of EIMW students on pre-test and post-test scores (ii) there is no significant difference between the performances of EIMW students who were taught domestic installation using Computer Aided Instruction and that of EIMW students who were taught domestic installation through demonstration approach (iii) there is no significant difference between the performances of male and female EIMW students when they are taught domestic installation using Computer Aided Instruction (iv) there is no significant difference between the performances of EIMW students from urban and rural Technical Colleges when they are taught domestic installation topics using Computer Aided Instruction. The study recommends that the current (Demonstration approach) to teaching EIMW be sustained.

Keywords: Electrical Installation and Maintenance Work, Computer Aided Instruction and Demonstration Method of Teaching

INTRODUCTION

Electrical Installation and Maintenance Work (EIMW) is a trade subject offered at National Technical Certificate (NTC) level by Technical Colleges that is geared towards equipping its beneficiaries with knowledge and skills in Electrical Installation and Maintenance practice at craftsman level. According to the National Policy on Education (FRN, 2004) the philosophy behind the establishment of the National Technical Certificate (NTC) programme in Nigeria is to train Technical College students with the necessary knowledge and skills that could lead to the production of craftsmen and other skilled personnel who could fill up vacancies of craft level personnel in Nigeria's industrial and business sectors. EIMW course is run by Technical Colleges that have been accredited by National

Board for Technical Education (NBTE) and evaluated by the National Business and Technical Education Board (NABTEB).

In the north east geo-political region of Nigeria which comprise of six states namely; Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe states, Science and Technical Colleges (STCs) that offer courses in EIMW vary in nomenclature, students composition and locations. While in Borno and Yobe states such Science and Technical Colleges (STCs) are single stream [single gender as either Government Girls Science and Technical College or Boys Technical Colleges (GGSTCs or GSTCs)], in states like Taraba STCs are referred to as either Rural Technical College or Urban Technical College.

According to Nwaokolo (1998) the delineation of STCs along gender or location influences pupils' performances. Nwaokolo (ibid) pointed out that, such delineation implies that the cost and quality of technical education vary from one state to the other within the same geo-political region. While technical students from some areas within this region acquire technical education at minimum cost, similar students in other places within the same region incur extra cost to acquire technical education due to school location or gender segregations. Ojoawo (2008) also identified school location as one of the potent factors that influence the distribution of educational resources such as Instructional Aids and technical teachers. Ojoawo (2008) reported that highly qualified teachers prefer to serve in urban STCs rather than in the rural STCs which in turn determine the students' performances in NTC final examinations as students' performances is highly related to teachers' qualifications.

The NTC curriculum drawn by Nigeria Educational Research and Development Council (NERDC) for EIMW is a modular curriculum that is suits Demonstration Approach (DA) to teaching. Each module stands for a level of skill acquisition. Demonstration method of teaching is the instructional approach recommended by the National Board for Technical Education (NBTE 2014) for the teaching of EIMW from National Technical Certificate (NTC I-III) levels which is to be infused with technology of the time.

Demonstration method of instruction has been described by Miller (2000) as a method of teaching that is based on the simple principle of learning skills by doing. Through demonstration method of teaching EIMW, students learn physical or mental skills by actually performing those skills under supervision. Miller (2000) argues that the demonstration method of training is hinged on the rational that an individual learns to write by writing, to weld by welding, to fly an aircraft by performing flight manoeuvres and to carry out electrical wiring or maintain electrical installations by actually; measuring, wiring, servicing and tracing electrical faults in a building.

A relatively new Instructional Approach that is fast gaining ground in EIMW is the Computer-Aided Instruction (CAI). Durbin (2002) described CAI as the application of micro computers in classrooms to improve lesson delivery. CAI is used to teach EIMW in skill training such as drill-and-practice, tutorials, or simulation and offered either as a stand-alone activity or supplemental activities to enhance teacher-directed instruction (Cotton, 1991). Cotton concluded that;

- (a) The use of CAI as a supplement to conventional instruction produces higher achievement than the use of conventional instruction alone;
- (b) students learn material faster with CAI than with conventional instruction alone;
- (c) CAI is beneficial for younger students;
- (d) CAI is more beneficial for lower-achieving students than higher-achieving students;
- (e) students with disabilities achieve at higher levels with CAI than with conventional instruction alone;
- (f) students' fondness for CAI activities centers around the immediate, objective, and positive feedback provided by these activities.

Gerardo (2000) narrated that CAI was first used a method of teaching by International Business Machines (IBM) in 1958 when IBM used CAI to train workers in skill acquisition through the drill and practice, tutorials, simulations, instructional games, and problem solving programs though without scientific evidences. The success of Computer Aided Instruction usage for learning is primarily due to its potential to integrate various types of media such as audio, visual, and simulation among others which may not be readily available with some traditional instructional methods like demonstration.

According to Roblyer and Edwards (2000), the engagement of different Instructional Approaches and Supports (IAS) to teach skills dates back to stone ages when instructional supports (teaching aids)

comprised of fruits, stones, cowries and rocks among others. During the stone ages, shells, cowries, seeds among others, were used as instructional supports to teach arithmetic when they constituted counters. Demirel (2009) also reported that changing Instructional Approaches and Supports (IAS) to suit any course content has been the practice in the teaching industry for long a time. Demirel (ibid) showed that Instructional Approaches and Supports have for long been constantly modified to suit trends and technology advancement. Roblyer and Edwards (2000) reported that throughout the history of technical education, teachers have been using various Instructional Approaches and Supports (IAS) to teach or train learners in various subjects or trades.

As technology advances, teachers and students are provided with multiple pathways to teach and, or learn. Various innovations in instructional approaches and instructional technologies are increasingly introduced in to classrooms. As the number of computers increase in classrooms, instructional approaches keep drifting in emphasis towards new and more novel approaches. Teachers began to integrate new teaching innovations into their classrooms. Thus, calculators and Computer Aided Instructions (CAI) are being introduced in EIMW classes at National Technical Certificate (NTC) level in Vocational Training Centre Gombi, Federal Science Technical College Lassa and Government Technical College Gadau in north east Nigeria in addition to the use of demonstration approaches to teach (Roschelle and DiGiano, 2004).

Also, recently there has been increased emphasis on individualized instructions which suggests the use of computer technology to facilitate learning at all levels of education and training in Nigeria. According to Abimbade (1997), the use of microcomputers to teach in Nigerian classrooms has become common as a result of the advantages it is hoped to offer even though the comparative effectiveness of CAI over the traditional demonstration method in teaching EIMW especially in Nigerian Technical College set ups has not been empirically verified. Salawu, Afolabi and Taiwo (2001) in their study reported that all trade masters in the Science and Technical Colleges (STCs) of Yobe state were trained in Information and Communication Technology (ICT) preparatory for Computer Aided Instruction (CAI). Adamawa state in collaboration with a German agency has set up a pilot CAI Vocational Training Centre (VTC) in Gombi and among others. These and other innovations indicate that CAI is likely to take over demonstration method of teaching as instructional approach in states owned Science and Technical Colleges (STCs).

According to NERDC (2007), the National Technical Certificate (NTC) trades curriculum was designed to meet the targets of the National Economic Empowerment and Development Strategy (NEEDS), which are expressed as: value re-orientation, poverty eradication, job creation, wealth generation and using education to empower the citizenry. The overall goal of the NTC curriculum is to prepare the students to face the challenges of the new millennium (FRN 2004). The major aim of the NTC curriculums for EIMW is that; learners having successfully passed through the Senior Secondary education should have acquired skills in EIMW to enable them create jobs and generate wealth.

Computers being multi-purpose electronic devices (machines) capable of receiving instruction (data), storing, processing and producing (handling) advanced and complex operations are engaged in almost every human operation in modern societies (Ali, 2013). In the field of education, for example, Akpan (2009) showed that the focus of skill training is shifting from demonstration proficiency to design effectiveness which utilizes much of Computer Aided Instruction (CAI). In Nigeria, Chukwuedo and Omofonmwan (2013) observed that computers are engaged in businesses such as in e-banking, e-administration, e-payment, and recently in some skill training like in architectural drafting. Also, the Federal Government of Nigeria (FRN 2004) indicated her intention to computerize Nigerian educational system by charging all educational institutions to infuse computer literacy into educational programmes. This and other gradual modifications of curriculum make the use of CAI an attractive instructional medium for skill training that could influence EIMW teachers' choices of methods and activities.

Many schools in north east Nigeria are integrating Information and Communications Technologies (ICT) into their teaching and learning processes which entails using computer to teach. According to Yakubu (2013), the number of computers in Nigerian schools has risen from one for every 435 students in 1981 to one for every 25 students in 2013. While Nigeria leads Africa in the number of computers per school student, the USA, Western Europe and Japanese schools are also highly computerized. Available research statistics show that computers are being employed in Nigeria's

educational system in ways unparalleled in previous educational history (Chukwuedo and Omofonmwan, 2013).

Statement of the Problem

The progress made in Information and Communication Technology (ICT) during the past two decades through the wide use of cellular phone software and applications such as; WhatsApp, Facebook and Opera browsers among others have made CAI programmes readily available to learners as IAS at all levels of technical education. The proliferation of e-teaching/learning Instructional Support facilities without constraints has made CAI an attractive alternative approach to physical demonstration method of teaching. This can be deduced from the number of computer aided business centers proliferating Nigerian streets and the instances they are referred to by teachers to illustrate concepts in classrooms. State governments in the North east geo-political region of Nigeria have also indicated interests in CAI as an instructional support. For example, all trade masters in the Science and Technical Colleges (STCs) of Yobe state were trained in Information and Communication Technology (ICT) preparatory for CAI. Adamawa state has set up pilot CAI Vocational Training Centre (VTC) in Gombi among others. These and other innovations in instructional approaches tend to indicate that CAI is likely to take over physical demonstration as an Instructional Approach and Support in the state STCs. Though authors like; DeGraw and Smallwood (2007), Demirel (2009), Collet-Klingenberg (2009) and Alth (2013) have indicated that CAI is likely to take over physical demonstration as an instructional approach for skill training, literature review reveals that there are no empirical evidences that establish the superiority of CAI over physical demonstration as an Instructional Approach or Support in the teaching EIMW at NTC level. The problem of this study is that, lack of researched and dependable evidences that could prove or refute the advantages of CAI over physical demonstration approach to teaching EIMW has led to;

- (i) The true advantages of CAI over physical demonstration approaches to teaching EIMW in STCs in north east Nigeria has not been ascertained.
- (ii) It has been difficult to attribute students' performances from north east Nigeria STCs in EIMW to either CAI or physical demonstration instructional approaches.
- (iii) Comparing the two instructional approaches to EIMW skills training has been difficult because no empirically researched evidences were known to researchers as bases on which to compare the two approaches to instruction.
- (iv) Some EIMW teachers and instructors in north east Nigeria have jumped into using CAI to teach EIMW skills without actually improving the performances of their students.
- (v) Teachers and Instructors north east Nigeria STCs have no decision criteria upon which to select the better instructional approach to effectively train their students in EIMW skills among others.

These among other problems generated by the adaptation of CAI by some states and EIMW teachers in north east Nigeria could affect the quality of STC graduates resulting in mediocrity and unemployment. Thus, it is necessary to compare the performances of EIMW students at NTC level in state owned Science and Technical Colleges in the north east geo-political region of Nigeria after they have been taught the subject of EIMW using Computer Aided Instruction and Demonstration Methods of Teaching.

Purpose of the Study

The purpose of this study was to compare the performances of EIMW students from states owned STCs after these students have been taught lessons in domestic installations using Computer Aided-Instruction (CAI) and Demonstration Approaches. Specifically, this study;

1. Compared the mean scores of EIMW students in pretest and posttest achievement tests.
2. Compared the post-test mean scores of EIMW students taught domestic installation using CAI and Demonstration Approaches.

Research Questions

This study was guided by the following research questions:

1. What are the differences between the mean scores of EIMW students on Pre-test and Post-test achievement test?
2. What are post-test differences between the mean scores of EIMW students when taught domestic installation using CAI and Demonstration Approach?

Hypotheses

In line with the research questions raised, the following hypotheses were tested at 0.05 level of significance.

Ho₁: there is no significant difference between the mean scores of EIMW students on Pre-test and post-test achievement tests.

Ho₂: there is no significant difference between the mean scores of EIMW students on Post-test when taught domestic installation using CAI and demonstration approaches.

METHODOLOGY

This study followed a Quasi-experiment design. A quasi-experimental design is any empirical study design that can be used to estimate the causal impact of an intervention on its target population (Dinardo 2008). Quasi-experimental design was adapted for this study because it can be used to estimate the causal impact of an intervention on a target population without altering the existing settings. The geographic area of this study is north eastern Nigeria consisting of six states. These six states are; Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe states. The region lies between longitudes 17.22⁰ and 20.32⁰ north and latitudes 6.26⁰ and 7.12⁰ east, on the globe and covers an area of 103, 639² Km (Yakubu, 2013). The region is bordered by; Kano, Jigawa, Plateau and Benue states within Nigeria at the same time sharing international borders with republics of Cameroun, Chad and Niger.

The population for this study was made up of 280 NTC II students offering EIMW as at August 2015 in north eastern Nigeria state owned STCs. This population is distributed among the 16 state owned Science Technical Colleges in the North East geo-political zone of Nigeria that were accredited by NBTE in 2014. The sample for this study comprised of 184 students of EIMW in NTC II distributed. Data collection for this research was through two instruments; Pre-Experiment Test (PET) and Post Experiment Performance Test (PEPT). Pre-Experiment Test (PET), is a 20-item multiple choice test instrument extracted from NABTE 2008 NTC question paper for Domestic Installation module coded CEI 11 to assess the entry preparation of the subjects. The topics from which PET was drawn have earlier been taught in NTC I. they covered the preliminary aspects of CEI 1 that prelude the NTC 11 topics.

Data collected from respondents were analysed using; mean, standard deviation, Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA). The data collected from the pre-test for both G1 and G2 was analysed using mean to set the entry behaviour of both groups. The post experiment scores of G1 and G2 were then analysed using ANOVA and within each group ANCOVA was employed to compare PET to PEPT. Scheffe’s pair wise comparison test was finally used to determine difference(s) between pre-test and post-test scores of G1 and G2 which will signify the effects of CAI intervention.

RESULTS AND DISCUSSIONS

Research Question 1: *What is EIMW students’ achievement when taught domestic installation using CAI approach?*

Table 1: Distribution of Marks Scored by EIMW students before and after being taught domestic installation using CAI Approach (N=92).

S/No	Test	Sum	Mean	Median	Mode	Standard Deviation
1	Pre-test	862	9.369565	9	9	-1.65561
2	Post-test	1370	14.8913	15	14	1.433175

Table 1 presents the achievement scores and standard deviations of students taught domestic installation through Computer Aided Instruction (CAI) approach to teaching. The total points scored by 92 students during pre-test examination was 862 out of possible 1840. This averaged out to be 9.37 out of 20 points by each EIMW student in this class. The middle (median) score before instruction was 9/20 and most frequent score (mode) was 9 while the standard deviation was -1.65561.

After administration of the treatment (instructions using CAI approach), the same group of EIMW students scored a total of 1370 marks out of 1840 maximum marks with the group post-test mean score standing at 14.8913. CAI post-test median score was 15/20 and mode score was 14/20 while

post-test standard deviation was 1.433175. The differences between mean scores on pre-test and post-test achievement tests (14.8913 – 9.37=5.5213) is an indicator of teaching approach’s effectiveness which shows that there is clear improvement in the students’ achievement when CAI is used to instruct learners in EIMW.

Research Question 2: *What is EIMW students’ achievement when taught domestic installation using demonstration approach?*

Table 2: Distribution of Marks Scored by EIMW students before and after being taught domestic installation through Demonstration Approach (N=92).

S/No	Test	Sum	Mean	Median	Mode	Standard Deviation
1	Pre-test	895	9.7283	10	10	1.541394
2	Post-test	1402	15.23913	15	16	1.536155

Table 2 below presents the statistics of marks scored by EIMW students before and after taught domestic installation through Demonstration approach to teaching. The 92 EIMW students in this group scored 895 and 1402 marks out of possible 1840 respectively in pre-test and post-test achievement testing. The group’s mean score at pre-test was 9.7283 out of 20. After the instructions through demonstration, the same groups’ mean score rose to 15.23913/20.

The median score for demonstration (control) group at pre-test was 10/20 but changed to 15/20 after the instruction process. Similarly before the instruction process, demonstration group most (mode) score mark was 10/20 but after the lessons, most members in the group scored 16/20. Standard deviations at pre-test and post-test were; 1.541394 and 1.536155 respectively.

The differences between mean scores on pre-test and post-test achievement tests (14.23913 – 9.7283 = 5.51) is an indicator of teaching approach’s effectiveness which shows that there is clear improvement in the students’ achievement when CAI is used to instruct learners in EIMW.

Hypothesis 1: there is no significant difference between the mean scores of EIMW students on Pre-test and post-test achievement tests.

Table 3: Distribution of pre-test and post-test scores made by EIMW students (N=184)

S/No	Test	Sum	Mean	δ	df	Z - test	Z-crit 2-tail	Remark
1	Pre-test	1757	9.548913	1.605251	182	34.14627	1.959964	Ho ₁
2	Post-test	2772	15.065217	1.491721				Rejected

The scores of EIMW students from pre-test and post-test achievement tests analysis is shown in table 11 below. Table 11 shows that the 184 EIMW students scored a total of 2772 marks out of possible 3680 marks on the Post-test achievement test against an earlier 1757 out of 3680 possible scores on the Pre-test achievement test.

The mean scores of EIMW students also varied from 9.55/20 points on pre-test achievement test to 15.07/20 on the post-test achievement test.

Mode scored changed from 9/20 during pre-test, to 14/20 at post-test whereas Standard deviation reduced from 1.61 for Pre-test scores to 1.49 for post-test scores. Calculated Z-test of these data at 0.05 level of significance and 182 degree of freedom is 34.14627 whereas Z-critical 2-tail reads; 1.959964. As the Z-calculated is greater than Z-critical 2-tail, the null hypothesis is therefore rejected. Thus, it suffice to declare that there is significant difference between the marks scored by EIMW students in pre-test and post-test achievement tests. This implies that the Instructional Approaches and Supports have changed the mean performances of EIMW students by (15.07 - 9.55 =5.52/20) which is equal to 27.6% achievement due to instruction. This is the difference between pre-test and post-test achievement tests scores which can be attributed to general teaching activity.

Hypothesis Ho₂: there is no significant difference between the mean scores of EIMW students on Post-test when taught domestic installation using CAI and demonstration approaches.

Table 4: Comparative performances of EIMW students on Post-test Achievement Test

S/No	Group	Sample Size (N)	Sum	Mean	δ	df	Z- test	Z-crit 2-tail	Remark
1	CAI	92	1370	14.89	1.43	182	1.59	1.96	Ho 2 is
2	Demonstration	92	1402	15.24	1.54				accepted

Both experimental Group (GE) and Control Group (GC) have equal sample sizes of 92 participants each. Experimental (CAI) group at the end of experiment scored a total of 1370 marks out of a

maximum possible score of 1840. Whereas the control group (demonstration) scored 1402 out of the same 1840 maximum possible score. The mean score for CAI group was 14.8913 while demonstration group averaged out at 15.2391. This shows that demonstration group lead CAI group by 0.35/20 marks ($15.24 - 14.89 = 0.35$).

Standard deviation for CAI group was 1.4331 while that of the control group was 1.5362. Using Z-test to analyze the performances of the two groups at 182 degree of freedom and 0.05 level of significance, the calculated Z-critical was found to be 1.59 as opposed to a tabulated Z-critical 2-tail of 1.96. This gives a calculated Z-critical of smaller value than table Z-critical 2-tail, therefore the null hypothesis is accepted. Thus, there is no significant difference between the mean performances of EIMW students on achievement tests whether CAI and demonstration approaches is used to teach domestic installation to EIMW students.

Findings of the Study

This study found the following:

1. Both CAI and Demonstration approaches to the teaching of domestic installation aspect of EIMW are capable of bringing about learning changes in the behaviour of learners (learning) especially when achievement tests scores are the criteria for evaluating the effectiveness of the instructional approach.
2. The differences in the rate of change in behaviour of learners are significant whether taught through CAI or Demonstration approach.

DISCUSSION OF THE FINDINGS

The findings of this study are herein discussed along the research questions and hypotheses raised from chapter one through chapter four.

This study found in respect to research questions 1 &2 and hypothesis one, that both CAI and demonstration approaches are effective approaches to the teaching of domestic installation aspect of EIMW that are capable of improving the achievement scores of students. The study reveals that CAI improves learners' performances by 5.51/20 (27.55%) whereas demonstration method of instruction improves student' performances by 5.52/20 (27.6%). This implies that both Instructional Approaches and Supports have raised the mean performances of EIMW students by 27.6% on achievement test which can be ascribed to instructional approaches. This supports the assertion of Demirel (2009) that no particular instructional approach is definite for teaching EIMW but, that the success with any instructional method is a function of; the teachers' level of preparation, the entry behaviour of the learners and the lesson objectives. Demirel (2009) therefore declared that any instructional process or approach that is capable of improving learners' performances by 10% is effective for teaching the particular content and can be engaged. Similarly, Tilley and Brant (2004) suggested that the choice of appropriate teaching method may impact positively on the quality of knowledge accumulation of learners, irrespective of their aptitude in the subject. This finding lead to the conclusion that both CAI and demonstration approaches can be used by EIMW teachers to teach domestic installation successfully.

Findings from this study regarding differences between performances of EIMW students after being taught domestic installation using CAI and demonstration approaches revealed that the learning achievement of EIMW students taught domestic installation using demonstration method of teaching slightly surpasses that of students in CAI class. Contrary to Chawla and Deshwal (2013) claims that students taught EIMW through CAI perform better than students that do not use CAI, the post-test mean performance of demonstration group was 15.24 against the 14.89 mean performance of the CAI group. This difference ($15.24 - 14.89$) though not so significant, points to superiority of demonstration approach over CAI as an instructional approach especially where skill training is concerned like in domestic installation. This finding is supported by Vikoo (2003) who stated that demonstration method of teaching aims at motor skill development in learners. It develops in students' knowledge of procedure, rules and principles with which they can do things with their manual dexterity. For this effectiveness of demonstration method of teaching, Okoro (1998) recommends the use of demonstration as the most effective method for teaching tasks in vocational and technical education which include domestic installation. Oranu (2006) affirmed that demonstration method is the most widely used instructional method for acquisition of practical skills as it involves verbal and practical illustration of a given procedure. They added that the method is

highly effective because it involves active participation of the student. Datol (2002) supported this view adding that, technical teachers should teach using demonstration method because it allows for skillful achievement. Datol (2002) thus advise technical teachers to avoid chalk-talk approaches and inculcate the spirit of “doing than saying”.

CONCLUSION

Based on the results of the study, the following conclusions are drawn:

The proliferation of ICT facilities such as GSM cellular phones, cyber café, satellite cables and the explosion of the internet as well as the demand for distance learning has generated great interest and expansion of Computer Aided Instruction all over the world and in Nigeria in particular.

The methods of teaching compared are CAI method of teaching and demonstration method of teaching at technical colleges’ level. The study found out that technical colleges students have learn content taught by both CAI and demonstration method of teaching better than technical colleges’ students taught by lecture method of teaching.

RECOMMENDATIONS

Based on the results of the study the followings recommendations are made:

1. Teachers of EIMW should be encourage to use CAI and demonstration and to teach students theories principles and practical skills in basic electricity because they are is suitable for teaching theories and principles of EIMW rather than skills. The use of various methods of teaching helps students to learn what they have been taught.
2. Technical teachers should employ CAI and demonstration method of teaching while teaching practical skills for the students’ to acquire skills and knowledge in EIMW they need to be taught using CAI and demonstration method of teaching by carrying out the practical exercise themselves using tools and equipment in the workshop.
3. Government should encourage the use of both CAI and demonstration method of teaching in teaching technical subjects by supplying the required tools and equipment to schools for practical lessons, as the study revealed that CAI and demonstration method of teaching used to enhance learning and skills acquisition of content taught Basic Electricity.

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