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## **Effect of Social Media Usage on Academic Achievement of Electrical Installation and Maintenance Works Students in Technical Colleges in South Western, Nigeria**

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### **Abstract**

This study investigated the effects of Social Media Usage on Academic Achievement of Electrical Installation and Maintenance Works students in the technical colleges in south western, Nigeria. The research design for this study is quasi experimental design of the control group type. This was because there was no random assignment of the subjects to treatment conditions. The population of the study consisted of eight hundred and ten (810) technical colleges' students (523 males and 287 females) in the technical colleges in southwestern, Nigeria. The sample consisted of 42 (25 males and 17 females) students who were purposively selected from the two technical colleges in Ondo State. Intact class was used in each of the colleges to select the student. The instrument used for data collection was EIAMW Achievement Test titled EIAMWAT which

was developed by the researchers. The twenty item multiple choice objective test that made up the EIAMWAT were validated and its reliability determined using Pearson Product Moment Correlation coefficient was used and yielded 0.92 coefficient reliability. The research question was answered using mean and hypothesis was analyzed using Analysis of Covariance (ANCOVA) at 0.05 level of significance. The findings showed that social media significantly affect the students' academic achievement. In view of the finding, it was recommended among others that social media should be formally adopted in technical colleges for teaching in Electrical Installation and Maintenance Work to improve academic performance of Electrical Installation and Maintenance Works students.

**Keywords:** Social Media, Academic Achievement, Electrical Installation and Maintenance Work

### **Introduction**

Technical colleges are post basic and career development institutions established by federal and state government to implement vocational education programmes in Nigeria. Technical College are specialized institutions of learning where trades and modular courses are offered in addition to general education and science subjects. The graduates of technical colleges are expected to be equipped with knowledge, aptitude, understanding and skills that would make them to either be employable in the industry or be self-employed. The establishment of technical colleges was not only to improve the skill acquisition but also to encourage occupational development (Ugwu, 2007) [18].

According to Pugate (2010) [14] the future of any nation lies on the knowledge, skills, and abilities which the citizens are expected to acquire from technical education. Technical college provides technical training in a number of courses which include General education, Automobile trade, Building and Woodwork trade, Business trade, Computer trade, Hospitality trade, Mechanical trade, Printing trade, Textile trade and Electrical/Electronic trade. Electrical/Electronic trade is subdivided into Appliance Maintenance and Repairs; Electrical Installations and Maintenance Works; Instrument Mechanics Works and Electronics Work (FGN, 2004).

Electrical Installation and Maintenance Works (EIMW) is one of the major trades offered in technical colleges in Nigeria. According to Wikipedia (2019) [19], Electrical Installation and Maintenance Works trade is a programme introduced that involves practical training and the maintenance of electrical system and circuits, electrical installation, inspection and test procedure. The goal of electrical installation and maintenance works in Nigeria technical colleges according to National Business and Technical Examination Board (NABTEB, 1995) is to produce competent electrical craftsmen and technician with sound practical and theoretical knowledge who should be able to install, operate, maintain, and repair electrically energized systems such as D.C. motors, AC motors, generators, controls and electrical distribution panels. Electrical installation and

maintenance work also equipped individuals with skills, knowledge and attitudes to test equipment and use meters to diagnose all kinds of faults.

After the completion of Electrical Installation and Maintenance Works (EIMW) course in the technical colleges, students' practical achievement will be determined by their ability to install and maintain electrical and electronic devices; equipment and appliance and their ability to carry out major and minor domestic and industrial wiring. These expectations are in line with the objectives of electrical installation and maintenance works as stated by the National Board for Technical Education (NBTE, 2007)<sup>[9]</sup>. This board stated further that graduates of this course should be able to carry out with expertise: domestic and industrial electrical installation works; detect and repair faults in domestic/industrial appliances; carry out the various tests on new and existing electrical installation; install and rewind electrical machines and other portable electrical devices and interpret electrical working drawing and manuals. EIMW in technical colleges is designed to produce skilled craftsmen who will be able to perform basic functions in electrical installation and maintenance work both in private and public sector.

Electricity is germane in man's daily life. It plays a very critical role and provides stability in nation and human existence. Electricity offers numerous advantages over other energy carriers, enabling far more efficient lighting (Fuquet, 2008)<sup>[7]</sup>. Despite these, the state of electricity in Nigeria is deplorable. This is to say that electricity in Nigeria is not reliable and not dependable. The result has been a gross retardation of development in various sectors in Nigeria. Sambo, Garba, Zarma and Gaji (2010)<sup>[15]</sup> in agreement to this, observed that development in various sectors in Nigeria has been grossly retarded due to the epileptic situation of electric power supply. This undesirable state of power in Nigeria is due to lack of qualified manpower and poor maintenance planning (Emovon, Kareem & Adeyeri, 2010)<sup>[5]</sup>.

However, trained work force with requisite practical skills in the electric power sector are needed in order to arrest this epileptic state of electricity in Nigeria. In line with this, Sylvester (2013)<sup>[16]</sup> opined that the technical needs of the Nigerian society are competent auto mechanics and truck drivers, carpenters, plumbers and electricians to maintain Nigeria's electric power. Several institutions such as universities, polytechnics and technical colleges were established in Nigeria to train engineers, technologists, technicians and craftsmen in electrical engineering and other related courses in order to produce manpower for electrical industries through improvement of the practical and academic achievement of students.

Academic achievement is a key mechanism through which adolescents learn about their talents, abilities and competencies which are an important part of developing career aspiration. Academic achievement is generally regarded as the display of knowledge attained or skills developed in the school subject (Busari 2000). In the school setting, academic achievement is referred to as the exhibition of knowledge attained or skills developed in school subjects. Teachers are major determinant of academic achievement of students which depending on the teaching method adopted by the teacher. Even so, it has been observed that the few students that offer EIAMW in NABTEB perform poorly in it. For instance, an analysis of

the May/June results of National Business and Technical Examination Board (NABTEB) it revealed that students performed poorly in EIAMW across the nation and Southwest in particular. Also, a review of the performance of students in EIAMW subject in the NABTEB examination in Enugu State from year 2015 to 2021 revealed that students' performance in the subject is not satisfactory. This has been a subject of concern to the technical teachers in a way that relates the students' poor performance in EIAMW to the teaching methods used.

Several studies show that teaching methods have significant relationship with academic performance of students (Auwal, 2013)<sup>[2]</sup>. For instance, a study by Orjika (2012)<sup>[13]</sup> revealed that students taught certain concepts in Biology with social media achieved more academically than their counterparts taught same concepts using expository method of instruction. When a concept is taught with a teaching method suited for it, learning increases whereas wrong method of instruction yields poor performance of the learner. That is to say that no teaching method is wrong in itself but every career area has teaching methods that are best suited for instruction.

Prominent among the teaching methods used in teaching EIAMW are demonstration and lecture methods. In view of the dynamic and innovative trends in science and technology and consequent curricula review, these methods are not sufficient enough to ensure meaningful learning of EIAMW (Auwal, 2013)<sup>[2]</sup>. Therefore, teaching methods that are more pedagogical with respect to EIAMW in this era of Information and Communication Technology (ICT) are needed. The danger of insisting on conventional methods is in two ways: in the first aspect, continued insistence on utilizing these methods for instruction may perpetuate the poor performance of students in EIAMW and the trainees will be practically unfit in the world of work as a result of technological innovations which conventional method is deficient to handle. The issue now is "how can effective teaching of EIAMW be achieved in view of the technological advancement. Social media may be of great help in answering the question and also solving this problem.

In recent times, computer (Information and Communication Technology) has been increasingly utilized as an instructional tool in the classroom. The use of computer and phone in the classroom has culminated to social media. Social media is simply the use of computer for instruction. The Oxford dictionary (2011)<sup>[17]</sup>, defined social media as "websites and applications used for social networking" Kaplan and Haenlein (2010)<sup>[8]</sup>, also defined social media as a group of internet-based applications that build on the ideological and technological foundations of Web 2.0 and allow the creation and exchange of user-generated content. It's either used as a tutor or as an aid. Social media encourages individualized instruction and aids learners to learn at their pace. It also saves time, enhances motivation, gives feedback and is highly learner centred. The quality of learning and teaching can be significantly improved when social media is put into use.

Studies have shown that the use of social media for instruction in certain field of study has positive effect on students' academic performance and retention ability compared to the conventional methods. Orjika (2012)<sup>[13]</sup> confirmed that social media is more effective in enhancing students' performance and retention ability compared to the

conventional classroom instruction. The use of social media makes it possible that concepts are presented to the students in such an organized manner that makes for greater clarity and easier comprehension (Anyamene *et al*, 2012)<sup>[1]</sup>. In lieu of this, the study investigated effect of social media usage on academic achievement of electrical installation and maintenance works students in the technical colleges in southwestern, Nigeria.

**Research Question**

1. What is the difference in academic achievement of students taught EIAMW with social media and those taught with conventional teaching method?

**Hypothesis**

1. There is no significant difference between the academic achievement of students taught EIAMW with social media and those taught using conventional method.

**Methodology**

The research design for this study is quasi experimental research design of the control group type. This was because there was no random assignment of the subjects to treatment

conditions. The population of the study consisted of eight hundred and ten (810) technical colleges’ students (523 males and 287 females) in the technical colleges in southwestern, Nigeria. The sample consisted of 42 (25 males and 17 females) students who were purposively selected from the two technical colleges in Ondo State. Intact class was used in each of the schools to select the student. The instrument used for data collection was Electrical Installation and Maintenance Work Achievement Test titled EIAMWAT which was developed by the researchers. The twenty item multiple choice objective test that made up the EIAMWAT were validated and its reliability determined using Pearson Product Moment Correlation coefficient was use and yielded 0.92 coefficient reliability. The research question was answered using mean and hypothesis was analyzed using Analysis of Covariance (ANCOVA) at 0.05 level of significance.

**Results**

**Research Question**

1. What is the difference in academic achievement of students taught EIAMW with social media and those taught with conventional method?

**Table 1:** Achievement scores of students taught EIAMW with social media and those taught with conventional method

Source of Variance	N	pre-test mean	SD	Post-test mean	SD	Mean gain	Remark
Experimental group	23	18.74	5.34	61.20	8.35	42.74	Positive Effect
Control group	19	14.58	4.34	53.13	7.347	38.55	Positive Effect
Difference in mean gains						4.19	

The data in Table 1 show positive effect for both experimental and control group. However, the mean gain of 42.74 (61.20-18.73) for the experimental group is higher than that of the control group which is 38.55 (53.13-14.58). This shows that social media is more effective in enhancing students’ academic achievement in EIAMW than conventional method.

**Hypothesis**

1. There is no significant difference between the academic achievement of students taught EIAMW using social media and those taught using conventional method.

**Table 2:** ANCOVA on achievement scores of students taught EIAMW using social media and those taught using conventional method

Source	Type III Sum of Squares	Df	Mean Square	F-calculated	F-critical	Sig.
Corrected Model	2.178 <sup>a</sup>	1	2.178	16.321		.001
Intercept	4.412	1	4.412	41.331		.000
Groups	2.178	1	2.178	16.321	3.35	.001
Error	2.515	40	.125			
Total	43.000	42				
Corrected Total	4.663	41				

Significant at 0.05 alpha level; df= 1& 40; critical p≥0.001, a. R Squared =.335 (Adjusted R Squared =.307)

The data presented in Table 2 show that the calculated F-value of 16.321 is greater than 3.35 F-critical value. Hence the hypothesis was rejected at 0.05 alpha level of significance and, 1 and 40 degree of freedom. This implies

that there is significant difference in academic achievement of students taught EIAMW using social media and those taught using conventional method.

**Discussion of Results**

Table 1 and 2 revealed that the academic performance of students taught EIAMW using social media differed significantly from that of the students taught same lesson using conventional method in favour of the experimental group. This finding is in agreement with Paul, Moses and Brandford (2013) who found that students taught Pre-Technical Skills using social media achieved academically more than those taught same lesson using conventional method.

In the same vein, this finding is supported by the findings of Orjika (2012)<sup>[13]</sup> in a study that investigated effect of CAI Packages on secondary school students’ academic achievement and interest in science. Orjika found that students taught using the package performed significantly better than those taught using expository method. Also, in agreement to this finding, Doaa (2014) found that the experimental group differed significantly from control group in academic achievement in favour of the experimental group.

**Conclusion**

Based on the finding of this study, it was concluded that social media is an innovative and effective mode of instruction with the capacity of improving students’ academic achievement in electrical installation and maintenance work.

## Recommendations

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

1. Social media should be adopted in technical colleges and vocational schools for teaching so as to enhance academic achievement of students.
2. Technical teachers should ensure constant and effective utilization of social media for effective teaching and learning.
3. Training programmes on effective utilization of social media should be organized regularly for teachers.
4. The schools should be provided with computers and internet facilities to enable students use social media.
5. Training on the development and usage of different social media particularly for teaching trade subjects should be organized for teachers.

## References

1. Anyamene A, Nwokolo C, Anyachebelu F, Anemelu VC. Effect of computer-assisted packages on the performance of senior secondary students in mathematics in Awka, Anambra State, Nigeria. *American International Journal of Contemporary Research*. 2012; 2(7). Retrieved on Nov. 20, 2014 from [www.aijcrnet.com](http://www.aijcrnet.com)
2. Auwal A. Effects of teaching method on retention of agricultural science knowledge in senior secondary schools of Bauchi local government area, Nigeria. *International Journal of Science and Technology Educational Research*. 2013; 4:63-69. [www.academicjournals.org/IJSTER](http://www.academicjournals.org/IJSTER)
3. Buhari S, Ahmad GI, Ashara B. Use of social media among students of Nigerian Polytechnic. *International Conference on Communication, Media, Technology and Design*. 2014; 2(4):302-305.
4. Daso PO. Vocational and technical education in Nigeria: Issues, problems and prospects' dimensions (IPP). *Journal of Educational and Social Research*. 2012; 2(9). Doi: 10.5901/jesr.2012.v2n9p23.
5. Emovon I, Kareem B, Adeyeri MK. Power generation in Nigeria; Problems and solutions. A Conference Paper, 2010.
6. Federal Republic of Nigeria. National policy on education, Lagos: NERDC press, 2014.
7. Fruquet, Roger. Heat, Power and Light: Revolutions in Energy Services. Edward Elgar, 2008.
8. Kaplan AM, Haenlein M. Users of the world, unite! The challenges and opportunities of Social Media. *Business horizons*. 2010; 53(1):59-68.
9. National Board for Technical Education (NBTE), Institutional accreditation for technical colleges and similar technical institutions, Kaduna-Nigeria, 2007.
10. National Business and Technical Examinations Board (NABTEB), ETF, intervention in TVET syllabus for engineering trades examinations based on national board for technical examination modular curriculum, 2007.
11. Nworgu BG. Educational research; Basic issues & methodology. Nssukka, Nigeria: University Trust Publishers, 2015.
12. Olatunde AA. Why candidates fail in public examinations. A paper presented at the National Business and Technical Examinations Board (NABTEB) at the Federal Ministry of Education national stakeholders consultative meeting on improving performance in public examinations at the National Universities Commission (NUC), Abuja, 2011.
13. Orjika MO. Effect of computer assisted instruction packages on secondary school students achievement and interest in biology. Unpublished masters thesis. Science Education Department, Nnamdi Azikiwe University, Awka, 2012.
14. Pugate ST. Influence of learning environment on academic performance and learning of introductory technology in Ona-Ara L.G.A of Oyo State, *Journal on Education, RSUST, Port-Harcourt*. 2010; 2(2):4-10.
15. Sambo AS, Garba B, Zarma IH, Gaji MM. Electricity generation and the present challenges in the Nigerian power sector. Energy Commission of Nigeria, Abuja-Nigeria, 2010.
16. Sylvester A. Revitalization of technical education as a panacea for national development. A paper delivered at the 22nd COREN Engineering assembly, 20th-21st August 2013, Owerri, 2013.
17. The Oxford dictionary. Definition of social media, 2011. Retrieved From: <http://en.oxforddictionaries.com/definition/social-media>
18. Ugwu CJ. Secretaryship. A practical approach Lagos, Tivolic Publishing Company Ltd, 2007.
19. Wikipedia. Electrical installation, 2019. Retrieved from: [https://en.wikipedia.org/wiki/Electrical\\_installation](https://en.wikipedia.org/wiki/Electrical_installation) on 12th Jan. 2023