IMPACT OF EDUCATIONAL TECHNOLOGY ON THE TEACHING AND LEARNING OF TECHNICAL EDUCATION COURSES IN COLLEGES OF EDUCATION IN LAGOS STATE

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Abstract - The study was carried out to determine impact of educationaltechnology on the teaching and learning of technical education courses in colleges of education in Lagos state. The study was conducted in Lagos state with a total population of 40 lecturers and 60 students from a Federal and State Colleges of Education. The instruments used for data collection was structured questionnaire titled: "Teaching and Learning of Technical Education UsingEducational Technology (TLTEUET)". Three research questions were formulated. Percentage were used to analyze the data for answering research questions based on the availability of Technology while mean and standard deviation were used to analyze the data for answering research questions based on the level to which technologies are been used and the benefits of using technology in teaching and learning of technical education courses. Based on the data analyzed, it was found out from the study that few technologies are available but are poorly used in some Colleges of Education that offers Technical education courses as a result of either poor funding or poor staff training. From the finding, it was recommended that all the educational technologies identified in this study should be incorporated into the curriculum of all Colleges of Education in Nigeria.

Keywords - Colleges of Education, Educational Technology, Technical Education, Teaching and Learning

I. INTRODUCTION

Education can be pictured in the corporate and academic settings as very essential. It is a driving instrument that prepares an individual for brighter future. Education or training exposed to learner enables the learner do things positively than ever before. Education is geared towards creating curiosity in the minds of students but with the use of technology it helps students with better understanding and retaining concept (Raja and Nagasubramani, 2018). There is a clear indication that technology is now an important and vital part of our daily activity either at work or home. Technology helps in achieving success and improving ways of ensuring quality instruction delivery by technical education teachers (Ohwofasa and Elesho, 2014). Today, more than ever, the educational technology role in teaching and learning of technical education is of great importance because of the emerging educational technologies. Emerging technologies according to Bozalek (2011) are those technologies with a large impact on teaching and learning or technologies said to be on the rise (podcasts, blogs and e-books), have been shown to be useful in improving education. The emergent technologies seek to contribute positively to the teachers and learners total scientific and technological literacy. However, introduction of a more technologically incorporated approach to teaching and learning has become so necessary in technical education. Certainly, Educational technology must be incorporated into classrooms and curricula as it remains an application of modern technology to improve the quality of education through a systematic and organized process (Lazar, 2015). Educational technology is an ethical practice to facilitate teaching and learning of Technical education courses (Robinson et al., 2016).

Technical education, as stated in Nigerian national policy on education, it involves qualitative technological human resources development gear towards a national pool of skilled and self reliant craftsmen, technicians and technologists in technical education fields (Okoye and Arimonu, 2016). According to Uwaifo (2009), technical education courses involve the training of personnel to be technically oriented initiators, facilitators and implementers of technologically development of any nation. Uwaifo also observed that technical education compare to any other profession has direct impact on the development of any country if technology is encouraged. Technical education contributes so much ranging from electrical and electronics technology, metal work technology, mechanical/automobile technology, building technology, woodwork technology which are offered in College of Education (Okoye and Arimonu, 2016).

Statement of the Problem

Technologically, the world is changing faster than ever. The era of technological innovation and development is making progress but most progressive schools like Colleges of Education still teach technical education courses in pretty much the same way. It remains a teacher in front of a board using a textbook and a marker which have been resulting to numerous complaints about the poor use of educational technology in most tertiary technical institution in Nigeria. Many of our institutions today, technology are not easily accessible by lecturers and

students that have also resulted to most graduates not properly prepared for work, especially for the industries and commence.

The poor use of technologies in Colleges of Education in Lagos State towards teaching and learning of technical education courses cannot be over emphasized with respect to human resources development in Nigeria. Technical education courses are purely practical oriented courses which require technology to improve the teaching and learning. Thus, need to investigate into ways of improving the teaching and learning of technical education courses become very obvious.

Therefore, this study is designed to find out the impact of educational technology on the teaching and learning of technical education courses in colleges of education in Lagos State.

Purpose of the Study

The main purpose of the study was to determine the impact of educational technology on the teaching and learning of technical education courses in colleges of education in Lagos state. Specifically the study will:

1. Determine the extent to which technology are available in Colleges of Education in Lagos State.
2. Determine the level to which technology are been used in the teaching and learning of technical education courses in Colleges of Education in Lagos State.
3. Find out the benefits of using technology in teaching and learning of technical education courses in Colleges of Education in Lagos State.

Research Question

The following research questions were developed to guide the study:

1. What is the extent to which technology are available in Colleges of Education in Lagos State?
2. To what levels are technology used in the teaching and learning of technical education courses in Colleges of Education in Lagos State?
3. What are the benefits of using technology in teaching and learning of technical education courses in Colleges of Education in Lagos State?

II. METHODOLOGY

Design of the Study

The study adopted a survey research design with the use of questionnaires titled: "Teaching and Learning of Technical Education Using Educational Technology (TLTEUET)"to get and find out information from responded. The design was suitable or appropriate for the study since information was solicited through questionnaire on issues relating to the objectives of the study.

Area of the Study

The study was conducted in two Colleges of Education in Lagos state at both Federal and State levels that offers technical education courses. The study covers 40 lecturers and 60 students from Year 1, Year 2 and Year 3 of the Federal College of Education (Technical), Akoka, Yaba and Adeniran Ogunsanya College of Education, Otto-Ijanikin both in Lagos State.

Validation of the Instrument

The instrument was subjected to face-validation by seven experts, three from Federal Science/Technical College, three from Federal College of Education (Technical) and one from University of Lagos all Lagos State. Each valuator was served with a copy of the instrument with a request to read through each item for the purpose of identifying lack of clarity or ambiguous statement and proffer suggestions to improve the instrument in a way to meet the objectives of the study. The comments and inputs of the valuators were used to improve the final draft of the instrument.

Reliability of the Instrument

The test-retest method was used to establish the reliability of the instrument. Thus, to ensure that the instrument was reliable, that is whether it will be able to elicit the same information always from the respondents, the two results were analyzed using the test-retest method to establish the reliability of the instrument.

Method of Data Collection

The research was done with permission from authority of the two Colleges of Education. The questionnaire was administered personally by the researcher and with the aid of four research assistants. The total questionnaire administered was one hundred and one hundred copies were returned representing a total of 100% was collected. The researcher and the assistants administered the instrument on the respondents at interval of one week and returned for collection of the completed instrument. This interval is necessary in order to give sufficient time to the respondents to respond to the instrument and also to ensure hundred percent return rates.

Method of Data Analysis and Presentation

The data collected from the respondents was analyzed using percentage, mean and standard deviation. Thus, Percentage was used to determine the availability and non- availability of the technology. Technology equal to 50% were considered as available while facilities below 50% were considered as not available. While the mean and standard deviation was used to determine the level to which technology used and their benefits in the teaching and learning of technical education courses in Colleges of Education in Lagos State. The items with Mean score greater than or equal to 2.50 were considered as agreed while items below 2.50 were considered as disagreed.

Research Question 1

1. What is the extent to which technology are available in Colleges of Education in Lagos State?

The data for answering research question 1 are presented in table 1

Mean Responses of the Respondents on the extent to which technology are available in Colleges of Education in Lagos State.

S/N	Technologies	Respondents (Availability) %	Respondents (Non-Availability) %	Remarks
1	Internet Access	17.38%	82.62%	Not available
2	Presentation application	20.80%	79.20%	Not available
3	Personal computer	77.52%	22.48%	Available
4	Flash Drive	95.88%	4.12%	Available
5	Scanner	29.99%	75.01%	Not available
6	Interface Drive	13.81%	86.19%	Not available
7	Software	30.13%	69.87 %	Not available
8	Printer	34.57%	65.43%	Available
9	Projectors	36.76%	63.24%	Not available
10	Camcorder	23.50%	76.50%	Not available
11	Monitor	11.26%	88.74%	Not available
12	Multimedia System	57.63%	19.42%	Available
13	Video Camera	57.63%	19.42%	Available
14	Disc Drive	75.99%	25.01%	Available
15	Slides	41.31%	58.69%	Not available
16	Audio file	84.64%	16.36%	Available

Table 1

The data presented in table1 revealed that seven technologies among others happen to be available with respondents' percentage above 50%. This showed that the percentage of the technologies was above the cut-off point of 50%, while nine technologies among others happen to be non-available with respondents' percentage below 50%.

Research Question 2

2. To what levels are technology used in the teaching and learning of technical education courses in Colleges of Education in Lagos State?

The data for answering research question 2 are presented in table 2

Mean Responses of the Respondents on the extent to what levels are technology used in the teaching and learning of technical education courses in Colleges of Education in Lagos State.

S/N	Item Statements	X	SD	Remarks
1	Computer is used in the teaching and learning of technical education courses.	3.26	0.65	Agree
2	Technical Education lecturers/students in the college make use of computer aided instruction during the teaching and learning process in the classroom.	3.11	0.62	Agree
3	The Technical Education lecturers/students use Projectors and Video Camera for teaching and learning process in the classroom.	2.11	0.42	Disagree
4	Technical Education lecturers/students in the college make use of internet for teaching and learning process in the classroom.	1.32	0.26	Disagree
5	Technical Education lecturers/students in the college make use of Camcorder and monitor for teaching and learning process in the classroom.	2.33	0.46	Disagree
6	Technical Education lecturers/students in the college make use of Engineering software applications for teaching and learning process in the classroom.	2.40	0.48	Disagree
7	Technical Education lecturers/students in the college make use of Multimedia System and Slides for teaching and learning process in the classroom.	2.52	0.50	Agree
8	Technical Education lecturers/students in the college make use of Flash Drive and Audio file for teaching and learning process in the classroom.	2.75	0.55	Agree
9	Technical Education lecturers/students in the college make use of Presentation application for teaching and learning process in the classroom.	2.83	0.57	Agree
10	Technical Education lecturers/students in the college make use of Computer and Disc Drive for teaching and learning process in the classroom.	3.08	0.62	Agree

Key: X =Mean, S.D =Standard deviation

Table 2

The data presented in table2 revealed that 6 item statements have their mean value ranged from 2.51 to 3.26. This showed that the mean value of each item was above the cut-off point of 2.50, indicating that all 6 technologies are used in Colleges of Education. While 4 item statements fell below the cut-off point of 2.50, indicating that all 4 technologies are not used in Colleges of Education. The table also showed that the standard deviations (SD) of the items are within the range of 0.26 to 0.65.

Research Question 3

3. What are the benefits of using technology in teaching and learning of technical education courses in Colleges of Education in Lagos State?

The data for answering research question 3 are presented in table 3

Mean Responses of the Respondents on the benefits of using technology in the teaching and learning of technical education courses in Colleges of Education in Lagos State.

S/N	Item Statements	X	SD	Remarks
1	Use of Technology for learning is student-centered and provides useful feedback through various interactive features.	3.26	0.74	Agree
2	Technology promotes an integrative approach to teaching and learning.	3.11	0.92	Agree
3	Technological developments have become great sources for teachers to help students grasp a concept easily.	3.03	0.75	Agree
4	Technology promotes the manipulation of existing information and to create one's own knowledge to produce a tangible product or a given instructional purpose.	3.32	0.76	Agree
5	Technology seeks to contribute positively to the teachers and learners total scientific and technological literacy.	2.93	0.83	Agree
6	Technology improves the quality of education through a systematic and organized process.	2.90	0.74	Agree
7	Technology reduces sense of isolation during the teaching and learning process.	3.39	0.73	Agree
8	Technology enables teachers and students gain access to knowledge.	3.21	0.63	Agree
9	Technology equips teachers and students to deal with the future and social change.	3.20	0.63	Agree
10	Students though with technology perform better than those though with traditional method.	3.08	0.74	Agree

Key: X =Mean, S.D =Standard deviation

Table 3

The data presented in table3 revealed that 10 item statements have their mean value ranged from 2.90 to 3.39. This showed that the mean value of each item was above the cut-off point of 2.50, indicating that all 10 technologies are used in Colleges of Education. The table also showed that the standard deviations (SD) of the items are within the range of 0.63 to 0.92, this indicated that the mean values of the respondents were not far from one another in their responses.

III. DISCUSSION OF FINDINGS

The findings of this study revealed that technology is important as it improves teaching and learning of technical education courses but some of these technologies are still poorly used in most Colleges of Education.

Seven out of sixteen technologies pointed out in table 1 of the study were available in the Colleges of Education. The respondents agreed that some of these technologies like Computer aided instruction, Multimedia System and Slides, Flash Drive and Audio file, Presentation application, Computer and Disc Drive are only used for the teaching and learning of Technical education courses as a result of some challenges like non-availability of other technologies due to inadequate funding and inadequate facilities.

The data presented in table2 revealed that 6 item statements have their mean value ranged from 2.51 to 3.26. This showed that the mean value of each item was above the cut-off point of 2.50, indicating that all 6 technologies are used in Colleges of Education. While 4 item statements fell below the cut-off point of 2.50, indicating that all 4 technologies are not used in Colleges of Education.

The data presented in table3 revealed that 10 item statements have their mean value ranged from 2.90 to 3.39. This showed that the mean value of each item was above the cut-off point of 2.50, indicating that all 10 technologies are used in teaching and learning of technical education courses in Colleges of Education. These findings were in line with the opinion of Okoye and Arimonu (2016) stating that Technology

promote teaching and learning of technical education courses but most of these technologies are still poorly utilised in some schools as a result of inadequate funding, inadequate facilities, brain drain, poor staff training and retention.

Implications of the Study

The findings of this study had implications for engineers, technicians, teachers and the students. Engineers and technicians of various fields in technical education will have better understanding of technology and its benefits towards economic growth. Teachers and the students seek to gain positively in the area of scientific and technological literacy as technology improves the quality of education through a systematic and organized process as identified by the researcher if integrated into all Colleges of Education curriculum.

IV. CONCLUSION

Based on the findings of the study, the following conclusions were drawn:

Technical education courses are purely practical oriented courses which require technological skills. In order to promote and improve ways of teaching and learning of these technical education courses Technology is needed to be fully integrated into all Colleges of Education curriculum as it promotes an integrative approach to teaching and learning. From the findings, it also shows that some technologies are available but are poorly used in some Colleges of Education that offers Technical education courses as a result of either poor funding or poor staff training. It is thus time for the introduction of a more technologically equipped educational sector for today and future.

RECOMMENDATIONS

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

1. State or federal government should organize training and re-training for Technical education teachers in colleges of education in Lagos State on the use of educational technologies.
2. State or federal government should equip the colleges of education with all educational technologies in order to promote teaching/learning of Technical education courses.
3. Modern equipment, machines and tools for teaching/learning of Technical education courses should also be provided by State or federal government for practical in colleges of education in Lagos State.
4. Well qualified teachers should be employed by State or federal government only to teach Technical education courses in college of education in Lagos State.
5. All the educational technologies identified in this study should be incorporated into the curriculum of all Colleges of Education in Nigeria.

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