ICT FACILITIES UTILIZATION: A VITAL TOOL FOR TRANSFORMATION OF TEACHING AND LEARNING OF OTM COURSES IN TERTIARY INSTITUTIONS IN NIGERIA.

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Abstract

The study investigated the ICT facilities utilization as vital tools for transformation of teaching and learning of OTM courses in tertiary institutions in Delta State. Two purposes of the study was raised. Two research questions guided the study. Two hypotheses was formulated for the study. The population comprised of 205 OTM lecturers from tertiary institutions in Delta State. The population size was manageable hence the researcher used census sampling techniques to find out the opinions of the entire population. Structured questionnaire was used for data collection which was validated by two lecturers. Data collected were analyzed using mean ratings and standard deviation. T- test was used to test the hypotheses at 0.05 level of significance. The findings revealed that, in OTM, ICT resources both hardware and software are being used on high degree in teaching. The study recommended among others that there is need to provide regular ICT training and support, encouraging the use of ICT facilities in teaching and learning and developing an ICT integration plan for OTM education. The findings contributed to the body of knowledge on ICT facilities utilization in teaching OTM courses and provided insights for educators, administrators and policymakers seeking to enhance OTM education in tertiary institutions in Nigeria.

Keywords: ICT facilities, OTM, Hardware, Software, ICT Integration

Introduction

Information and communication technology is referred to as a complete range of technologies that are involved in information processing and electronic communication. It serves as an umbrella term that includes any device comprising of hardware and software facilities. These gadgets enhances teaching. Rina (2020) opined that ICT covers the use of computers, online self learning packages,

interactive whiteboard etc. Office Technology and Management Education (OTM) is a vital tool for preparing students for the modern work environment. Office Technology and Management Education (OTM) programme is seen as a curriculum response to the demand of dynamic and computerized work place which is aimed at the production of proficient students in carrying out administrative tasks of coordinating high office information systems and provides technical skills with core business functions.

In line with national policy of education Adewoye & Salau, (2023) OTM programmes is aimed at acquisition of saleable skills, compete both mental and physical as equipment for individuals to live and contribute to the development of the society. These facilities involved in the teaching of OTM curriculum are the essential aids which are needed for the implementation of OTM courses in the tertiary institutions which include hardware, software and telecommunications in the form of personal computers, video projectors, laptops, tablets ,iPads, scanners, digital board, smart watch, laser jets and speakers modem, teleconferencing, compact disk, disk player, recorders, and programs such as database systems used in education(Onah & Okoro in Nwosu 2023).Ajuluchukwu, & Osakwe, (2019) stated that this technology has restructured the tertiary educational practice in terms of improving academic learning. Tertiary institutions are established to produce middle level technical manpower needed for industrial and technical development of the country. The blending of traditional method of classroom face-to-face learning with new information and communication technology facilities will enable the nation's tertiary institutions to produce highly skilled manpower. Some studies about ICT showed the relevance and necessity to continue carrying out works on the use of ICT facilities in teaching and learning. Ojo & Bashir. (2020) ICT facilities have become avaluable tool for teaching, revolutionizing the way teaching is done in 21stcentury.

Statement of the Problem

ICT facilities utilization in teaching is paramount in education and OTM education is not an exemption. The clamour for educators to embrace the use of these facilities in teaching is so high that educators have to equip themselves with these facilities to enhance teaching process. Unfortunately, inadequate use of these facilities in teaching hinders theacquisition of OTM practical skills required by the students making them to be unfit for employment in digital work environment. However, it will be of great value to students if lecturers can integrate ICT facilities in teaching process enable them to either be employed or achieve self reliance which will give them great advantage in digital world of work.

Purpose of the Study

The main purpose of the study is to assess ICT facilities utilization as vital tools for transformation of teaching of OTM courses in tertiary institutions in Delta State. Specifically, the study examined the:

a. Extent ICT facilities utilization such as hardware can enhance teaching in tertiary institutions in Delta State.
b. b) Extent ICT facilities utilization such as software can improve teaching of OTM courses in tertiary institutions in Delta State.

Research Questions

The following research questions were raised for the study:

a. To what extent do ICT facilities utilization such as hardware can enhance teaching outcomes in OTM courses in tertiary institutions in Delta State.
b. b) To what extent do of ICT facilities utilization such as software to improve teaching of OTM courses in tertiary institutions in Delta State.

Hypotheses

The following hypotheses were formulated for the study:

- There is no significant difference in the mean ratings of male and female lecturers in ICT facilities utilization such as hardware in teaching OTM courses in tertiary institutions in Delta State.
- There is no significant difference in the mean ratings of lecturers from urban and rural tertiary institutions in Delta State.

Literature Review

The literature review provided an overview of existing research on the ICT facilities utilizationin teaching OTM courses. Several studies have highlighted the importance of ICT facilities utilization to enhance teaching in tertiary institutions. Nwalado (2019) stated that ICT facilities utilization have been found to improve student engagement, motivation and academic performance. ICT facilities utilization in teaching Office Technology and Management (OTM) courses is a growing area of

interest. Studies have shown that ICT facilities enhance the quality of education offered to OTM students, facilitating adequate training on modern office technologies. Adewoye,. (2023).

Methodology

This study adopted a descriptive survey research design using a population of 205OTM lecturers in tertiary institutions in Delta State. Krejcie and Morgan's table was used to arrive at a sample size of 205 respondents. A stratified sampling technique was employed to ensure a good representation across different six tertiary institutions are well represented. A 20 item research questionnaire titled: ICT Facilities Utilization: vital tools for Transformation of teaching of OTM Courses Questionnaire (IFUVTTTOTMCQ)was developed by the researcher on a 4-point rating scale of: Strongly Agree (SD)…4, Agree(A)3…, Disagree (D) 2... and Strongly Disagree (SD)1….. The instrument was validated and subjected to reliability testing using the Cronbach's Alpha reliability technique which yielded a reliability index of .89. The instrument was then used for data collection through direct contact and with the aid of two research assistants. Data collected was analyzed using mean statistics to answer research questions. Items with 2.50 and above were regarded as agreed while items below 2.50 was regarded as disagreed.

Findings

Research Questions 1

To what extent do ICT facilities utilization such as hardware enhance teaching outcomes in OTM courses in tertiary institutions in Delta State?

Table 1: Mean Ratings on how ICT facilities utilization can enhance teaching outcomes in OTM courses.

SN	ITEMS STATEMENT	SA	A	D	SD	X	DECISION
1	Use of whiteboards assist me to deliver lectures	70	65	60	10	2.95	Agreed
2	Use of computer simulations inspires mein teaching OTM courses	80	67	50	8	3.65	Agreed
3	Use of electronic chalkboard aids in teaching OTM courses	71	62	57	15	2.92	Agreed

4	Use of flash drive encourages creative thinking in assignments and project tasks	70	66	59	10	2.96	Agreed
5	Use of use of smart watches encourages teaching of OTM courses	75	80	38	12	3.06	Agreed
6	Use of printers help in producing of hard copies	71	62	62	10	2.95	Agreed
7	Use Desktop increases my confidence in handling complex tasks	70	65	55	15	2.93	Agreed
8	Use of CD-ROM containing prepared lesson materials for teaching	75	76	44	10	3.05	Agreed
9	Use of video projector inspires me to develop new strategies for teaching OTM courses	70	77	43	15	2.99	Agreed
10	Scanners helps my overall performance by strengthening creativity and problem-solving skills in teaching OTM courses	77	65	55	8	3.03	Agreed
	Grand mean					3.05	Agreed

Source: Field Survey, 2025

The results showed that all the item statements received mean scores below the decision rule of 2.50 indicating agreement among respondents that ICT facilities utilization in these areas. for example, item statements 1 recorded individual mean scores of 2.95, 3.65,2.92,2.96,3.06,2.95,2.93,3.05,2.99, and 3.03, with a grand mean of 3.05. this indicates that respondents generally agreed that Use of whiteboards assist them to deliver lectures. The high means suggested that lecturers perceive ICT facilities utilization as effective in enhancing educational outcomes in teaching OTM courses. The grand mean of 3.05 further reinforced the finding that respondents generally agree with all the statements, demonstrating a positive perception of ICT utilization in teaching OTM courses

Research Question 2:To what extent do ICT facilities utilization such as software to improve teaching of OTM courses in tertiary institutions in Delta State?

Table 2: Mean Ratings on how ICT facilities utilization can improve teaching of OTM courses.

SN	ITEMS STATEMENT	SA	A	D	SD	X	DECISION
1	Microsoft office are available for teaching of OTM courses.	80	65	40	20	3.00	Agreed
2	Specialized software are used in teaching OTM courses	76	63	51	15	2.98	Agreed
3	Google classroom are used for teaching OTM courses	65	60	57	23	2.81	Agreed
4	Zoom is used in teaching OTM courses tools to prepare students for modern workforce that require digital skills	74	73	40	18	2.99	Agreed
5	Antivirus software facilities promotes teaching effectiveness.	75	73	50	7	3.05	Agreed
6	Software update are constantly used to update teaching effectiveness.	80	60	50	15	3.00	Agreed
7	Lecturers received training on current ICT facilities to enhance high productivity.	77	65	52	11	3.01	Agreed
8	Lecturers have assess to software facilities available	75	60	55	15	2.95	Agreed
9	Lecturers often experience compatibility issues in use of software facilities in teaching OTM courses.	70	65	50	20	2.90	Agreed
10	Lecturers have significantly improved in use of software facilities in teaching OTM courses.	80	60	50	15	3.00	Agreed
	Grand Mean					2.96	Agreed

Source: Field Survey 2025

The results indicated that all item statements received mean score above the decision rule of 2.50, showing that respondents generally agreed that ICT facilities utilization(software) improves teaching for example, item statements 2 recorded individual mean scores of 3.00, 2.98, ,2.81,2.99,3.05,3.00,3.01,2.95 ,2.90 and 3.00. With a grand mean of 2.96. this implies that respondents perceived ICT facilities utilization (software)plays significant roles in improving

lecturers performances in teaching OTM courses strengthening students' competencies, and fostering skills relevant to national development.

Overall, the finding confirmed that ICT facilities utilization is a strategic approach for equipping Business Education students with competencies that support national development in south-south Nigeria.

Discussion of Findings

The findings of the study revealed that ICT facilities utilization positively impacts on teaching of OTM courses. This is in line with the position of Selwyn (2019) who insisted that ICT utilization facilitates adaptive learning systems and tailors it to individual student needs. The findings also collaborate the view of Zawacki-Richter et al. (2019) who noted that ICT platforms shape learning experiences and adjusts educational content accordingly to student's needs and varying abilities. This equally affirmed the position of Ng et al. (2021) who stated that ICT facilities utilization helps in automated grading, virtual tutors, and intelligent feedback that help to reduce workload for teachers. The findings are similar with that of Chen et al. (2020) who agreed that the use of ICT facilities offer safe, convenient and cost-effective alternatives for skill acquisition. This is related with the thought of Pan et al. (2021) who affirmed that ICT utilization adequately prepares graduates with globally accepted OTM courses. This means that ICT utilization positively impacts on teaching of OTM courses in tertiary institutions in Delta State.

Findings from the study also showed that challenges affecting the utilization of ICT facilities utilization in teaching include: High cost of funding ICT utilization in OTM teaching, lack of adequate literacy among OTM teachers, poor data privacy policy, over-reliance on ICT and increasing the gap between students from different socio-economic backgrounds. This is related to the view of Selwyn (2019) who echoed that ICT utilization is less accessible for underfunded institutions.

The study also linked with the findings of Ng et al. (2021) who insisted that many OTM lack skills to integrate ICT facilities effectively into teaching processes. The study also reflected view of Chen et al. (2020) who reaffirmed that ICT driven systems poses a risk to student's data privacy and security. Findings from the study equally links with that of Pan et al. (2021) who be laboured that ICT-based simulations reduces practical learning experiences that is crucial for OTM programmes. The study equally reflected the submission of Zawacki-Richter et al. (2019) who insisted that due to social-economic disparity, not all students are able to access ICT-driven learning tools. This point to the fact that addressing the challenges using: Adequate OTM funding towards ICT utilization,

using ICT to train OTM lecturers s, good policy on data privacy will position south south on the world map on producing graduates who meet global standards.

Findings from the study affirmed that strategies such as: Collaborations to fund AI-based VTE programmes, adopting open-source AI tools/software to reduce costs, providing AI training programmes for VTE teachers to enhance their AI competency, use of privacy-preserving AI solutions to protect student data from misuse, combining AI-driven instruction with practical, hands-on training to help students acquire both all aspects of VTE and implementing policies that target expansion of AI access to rural areas through infrastructure development, are the strategies for implementing AI in VTE teaching and learning. This is related to the submission of Schmid et al. (2021) who insisted that public-private partnerships (PPP) and open-source AI tools can help institutions overcome financial barriers. This affirmed the position of Jin et al. (2022) who stressed that cloud-based AI solutions can reduce hardware costs. This also collaborates the findings of Ng et al. (2021) and Chen et al. (2020) who noted that teacher training schools should adopt AI for preparing teachers. The findings also align with that of Selwyn (2019) who advocated for institutional policies that enforce the use of AI. Findings from the study also affirmed the queue of Pan et al. (2021) who insisted that the use of AI prepares students to acquire both theoretical and applied skills. This also fits like the that of Schmid et al. (2021) who reiterated the provision of AI infrastructure for underprivileged areas as a step towards inclusivity. This implies that the aforementioned strategies will address challenges affecting integration of AI tools utilization into VTE skills for creativity and innovation.

Conclusion

Based on the findings of the study, it was concluded that in other to maximize the potentials of ICT utilization in education, it requires that OTM lecturers s make efficient use of ICT facilities as an instructional tool in teaching OTM courses in Colleges of Education in Delta State. However, this study findings has revealed that OTM lecturers in tertiary institutions in Delta State do not make adequate use of ICT facilities in the course of teaching OTM courses. There is need to improve on the use of ICT facilities because it brings a new mix of professional and instructional knowledge advantages to lecturers. OTM lecturers in tertiary institutions in Delta State should make efforts to address the challenges militating against the effective use of ICT facilities in exposing students to the world of information and communication technology.

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

1. OTM lecturers should try as much as possible to make effective use of available hardware facilities and improvise their own for use when necessary and update their knowledge and skills in the use of hardware facilities for effective teaching of OTM courses.

2. In - service programmes such as seminars, conferences, in service courses and workshop should be organized by ICT literate business educators on regular bases to train and retrain serving OTM lecturers in tertiary institutions in Delta State on the effective use of software facilities in teaching OTM courses.

3. Industrial sectors of ICT producing companies, employers of labour and international community should support OTM education programme in Delta State by providing internet, computers and other telecommunication facilities as well as sponsor in service training courses for OTM lecturers.

5. The federal and state governments should make adequate budgetary allocation for the provision of hardware and software facilities in tertiary institutions for the improvement of teaching/learning process.

6. The federal government of Nigeria should review the power and telecommunication sector in the country so as to have uninterrupted power supply and a functional telecommunication network.

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