



UTILIZATION OF DIGITAL INSTRUCTIONAL TECHNOLOGIES FOR TEACHING OFFICE TECHNOLOGY AND MANAGEMENT STUDENTS IN THE NEW NORMAL IN POLYTECHNICS, IN NORTH-CENTRAL, NIGERIA

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Abstract

This study was carried out to determine utilization of digital instructional technologies for teaching office technology and management students in Polytechnics Nigeria. To direct the study, three research questions guided the study and three null hypotheses were tested at 0.05 level of significance. The Cronbach Alpha coefficient measure of internal consistency was used to test the reliability value of the instrument. The results of the reliability test were 0.90, 0.91. The population of the study comprised 144 lecturers in OTM department in the North Central, Polytechnics. The study adopted complete enumeration method. A structured questionnaire was developed by the researcher and validated by three experts. The data collected were analyzed using mean and standard deviation to answer the research questions. The t- test was used to test the three null hypotheses. The data analysis revealed the following findings: OTM lecturers in the North Central, Polytechnics utilize digital instructional technologies to a moderate extent. Based on these findings, it was recommended among others that; the information and Communication Technology (ICT) unit of polytechnics should organize workshops and on the job training programmes for lecturers in Office Technology and Management programme on how to effectively use multimedia in their instructional delivery; and that the school curriculum should increasingly be interwoven with ICT such that teachers and students should be given opportunities to utilize hardware tools for teaching and learning.

Keywords: Digital Technology, Covid-19, Office Technology and Management, Polytechnic



Introduction

The COVID-19 (Corona virus) pandemic ravaging around the globe has caused large-scale institutional and behavioral “shock effects” in various areas of human activity including education. The impact on learners is unprecedented. Due to massive and unexpected closures, affected countries and communities have been forced to large-scale lock downs and pushed to seek alternatives in online platforms, including digital learning as a replacement for normal educational processes (UNESCO, 2020).

Over the last two decades educational researchers and Higher Education institutions have explored how digital literacy could support teaching and learning allowing students to meet 21st century challenges. In line with this social transformation, the utilization of digital technologies in such new personal, organizational and educational environments has become very crucial (Carroll & Conboy, 2020). Digital instructional technologies are electronic tools, systems devices and resources that generate store or process data. Well known examples include social media, online games, multimedia and mobile phones (Teach with digital technologies, 2019).

Mary and Neena (2017) described digital instructional technology as any process in which the teacher or learner uses digital equipment such as a computer, (or a Laptop, tablet, MP3 player, or console) to access digital tools such as learning platforms and virtual learning environments (VLEs), and/or learning with digital technology resources to improve students’ knowledge and skills. Instructional technologies are those devices used to support teaching and learning (Seymoureducate, 2016). Similarly, Sharma and Sharma in Nnajofofor, and Ejikeme (2020) defined instructional technology as the system and network devices, instruments, methods and techniques used to achieve certain defined set of learning objectives. Instructional technology is one of many tools that can enhance the presentation of content and convey information to students. It is, however, merely a tool, which teachers use only in conjunction with effective instruction.

Digital technologies have fundamentally changed the way individuals access information and elaborate knowledge. While raising the demand for new skills, they also create new opportunities for education and training. Digital learning is technology-based learning that uses gadgets such as laptops/netbooks and mobile phones to store information/content of textbooks, activities, exercises, reports, games, illustrations to deliver classroom instruction. Digital Learning is “learning facilitated by technology that gives students some element of control over time, place, path and/or pace. The Internet and the proliferation of Internet access devices have given students the ability to learn anytime, anywhere. Learning is no longer restricted within the walls of a classroom. Learning is no longer restricted to the pedagogy used by the teacher. Interactive and adaptive software allows students to learn in their own style, making learning personal and engaging. New learning technologies provide real time data that gives teachers the information they need to adjust instruction to meet the unique needs of each student. Learning is no longer restricted to the pace of an entire classroom of students. Interactive and adaptive software allows students to learn at their own pace, spending more or less time on lessons or subjects to achieve the same level of learning, (Carroll & Conboy, 2020).

Teaching and learning are the bedrock of education and training. Lecturers and students, including office technology and management students, are supposed to upgrade their skills in the use of modern computer facilities like multimedia, hardware and software among others. Utilization of instructional technology at the higher institution level requires teachers having knowledge in the course area, as well as an understanding of how students learn using varied instructional resources, and a good level of technical expertise among the teachers. Chugbuson, Durtur and Nimfel (2016) insisted that the Office Technology and Management programme being a skill acquiring discipline, remains a relevant channel for the transmission of the appropriate



information and communication technology (ICT) skills and knowledge in order to make its graduates ICT savvy to embrace globalization and meet the demands of today's work place. Rajhans et al (2020) stated that the Covid-19 pandemic is proving to be a constructive disruptor, giving an opportunity for restructuring the present conventional classroom based educational system. Rajhans et al further pointed out that the benefit of digital technologies over the traditional face-to-face classroom kept the motivation of teachers high in adapting to e-education mode.

The integration of ICT in teaching is a central matter in ensuring quality of OTM programme. But according to Johnson et al in Winter et al (2021), challenges to its use have been identified to include; availability of equipment, access to resources, training and support. OTM teachers and students are no exception. If there is no access to computers and fast internet connections, then implementing online teaching is not feasible. If teachers have not had sufficient training in technology, then they lack the necessary skills. Working on-line means teachers have to adapt to new pedagogical concepts and mode of delivery of teaching for which they have not been trained (Schlichter, 2020).

Ogonu (2019) observed that epileptic electric power supply to a high extent influenced the use of technologies in teaching business education courses. Ogonu's study also found that poor internet service disrupts teaching process with the use of new technologies. The study also found that most business educators are deficient in the use of new technologies in teaching business courses. Similarly, Nagel in Ogonu (2019) asserted that the key among all the challenges in the use of new technologies in teaching and learning business programme is lack of suitable professional development for business educators who are required to integrate the technologies in teaching. Supporting this assertion, Akasi and Nwabufu (2016) stated that there is lack of adequate trained personnel, and the few business educators that are currently available are not well trained on the use of these equipment and there is no adequate training programme for them.

The attainment of the goals of Office technology and management programme appears to have been stalled by the covid-19 pandemic which resulted in the closure of tertiary institutions. The nature of teacher's work shifted radically. It moved into uncharted territory where there are no guidelines and where much of what works in person may not work online. Milman (2020) described this teaching online response to the crises as Emergency Remote Teaching (ERT) and not just online teaching. This makes the utilization of digital instructional technologies by both teachers and students in teaching and learning of OTM programme in polytechnics a serious episode.

OTM programme is the office education in the polytechnics. OTM programme in polytechnics could be seen as a curriculum response to the demands of dynamic and computerized workplace, which is aimed at the production of highly proficient breeds of administrative personnel that would coordinate high office information systems and provide technical skills with core business line function. Unfortunately, graduates of OTM, having undergone reasonable period of teaching and learning processes come out of school without employable skills, thus, widening the unemployment that is already at its chronic state in Nigeria. The teaching and learning of OTM programme requires the utilization of digital instructional technologies for the inculcation of these skills especially to match pace with changes already experienced globally in the way both office and business activities are carried out in the era of covid-19 pandemic. At the moment, the skill gap experienced among OTM graduates in Nigeria points to low utilization of digital instructional technologies (Odiachi, 2019).

Polytechnic education is one of the tertiary levels of education given after secondary school. Polytechnic institutions are largely owned by both federal and state governments. Federal owned polytechnics are those polytechnics owned, financed and managed by the federal



government while the state polytechnics are those polytechnics owned, financed and managed by state governments. Ndinechi and Gude in Baba, Baba and Iwuoha (2021) posited that it is a two tier programme of studies that consist of National Diploma (ND) and Higher National Diploma (HND) with one year industrial experience as one of the pre-requisites for HND programme. Unfortunately, there appears to be a cog in the wheel of technological impact on OTM programme.

Digital instructional technology has so many advantages on teaching and learning. Digital technology improves research by providing students with tools to analyze and understand large amounts of complex disciplines and media, including data and photographs. Digital tools create an open environment where engagement in the form of inquiry and response can be asynchronous, allowing students' time to prepare answers, promoting the exchange of diverse views and collaboration. Teachers use digital classroom technology to streamline the assessment process. Equipping teachers and students with the ability to give and receive real-time feedback through online digital tools provide a powerful incentive for learners to take charge of their classroom outcomes. The effective use of digital learning tools in classrooms can increase student engagement, help teachers improve their lesson plans, and facilitate personalized learning. It also helps students build essential 21st-century skills, (Anderson, 2020).

However, despite these numerous advantages, some teachers still find it challenging in transiting from the analogue to the digital in teaching and learning and it has been seriously affecting the office technology and management students' academic performance as regards to the acquisition of appropriate office skills for employment. This is because teachers adopt theoretical methods as a way of teaching and learning the subject, mainly due to underutilization of instructional technology in schools (Samson, 2019).

Most researchers have tried to investigate the causes of this problem which they have identified to include lack of teaching and learning resources, lack of competent and committed lecturers, poor funding of Business Education, poor Business Education curriculum content, and so on. Sequel to this, the poor employability skills acquisition of students could have been due to the non-utilization of digital instructional technologies in the classroom which could be hinged on teachers' experiences and knowledge about instructional technology. In the same vein, research report by Aina (2019) and Nnaji for and Ejikeme (2020) have noted that many teachers in the school system do not possess adequate instructional technological skills. This deficiency has negatively impacted on the extent of utilization of digital technologies in students' acquisition of employability skills in the area of office technology and management programme. Many of the teachers require re-tooling of their skills in order to blend and power the utilization of digital technologies in OTM instruction.

Technology ushers in fundamental structural changes that can be integral to achieving significant improvement in productivity. The instructional technologies used for instructional activities include the multimedia technologies, hardware technologies, software technologies, visual learning technologies, cloud computing technologies and many more.

Utilization of multimedia technologies in the new normal according to Simarmata and Mujiarto (2019) provides an opportunity for the implementation of the learning system, by not ignoring the health's protocols. The interaction between teachers and students is done with the assistance of multimedia. Interaction between one student and other students in the learning process can be clearly limited, but with the use of multimedia, interaction between students and teachers and other students can be intertwined, such as in the form of games involving several groups of students. Multimedia technology empowers the educational process by means of increased interaction between teachers, students, and courseware also innovative ways to make learning more dynamic, longer lasting, and more applicable to the world outside the classroom (Hilal, Ehab & Amjad, 2015).



Zandbergen (2021) refers to ICT hardware as the collection of all the physical components of technology that can be touched or felt. Some of the hardware tools may include: The hardware technologies include: computer systems and chips, routers, printers, network card, microphone/speaker/headset and mobile device (Smartphone, iTouch, iPad, MP3 player).

Software comprises the entire set of programs, procedures and routines associated with the operation of a computer system. A set of instructions that directs a computer's hardware to perform a task is called a program, or software program. Afandi and Wahyuni (2019) pointed out that they are software technologies used for teaching and learning. Software such as: Zoom, Google classroom, Microsoft word, blackboard, Floop, Edmodo, Prezi and Idroo are very helpful in communicating remotely; all lectures and explanations can be conveyed directly without having to meet physically.

The integration of information and communication technology in teaching is a central matter in ensuring quality of office technology and Management courses. There are two equally important reasons for integrating ICT into the teaching and learning of OTM. Firstly, students would become familiar with the use of ICT, since all jobs in the society today they are dependent on ICT compliance. Secondly, the teaching of business education utilizing ICT resources will improve the quality of business education (OTM) graduates thereby making them more effective and efficient (Elogbo & Akek, 2019). However, Nwazor and Udegbum in Umeano and Ifi (2019) saw technology integration as focusing on 'how' to use technology to support the way teaching and learning is currently being done in schools. It also enhances the use of modern instructional mode of teaching and learning in tertiary institutions to meet the demands of the current trends in academics.

Instructional technology devices are of no value to Office Technology and Management students if they are not adequately utilized by their teachers. Researchers in education (Brown, Lewis & Harclerod, in Omariba, Gitau & Ayot, 2016) have shown that with present inadequate infrastructure, large class sizes, obsolete equipment, shortage of personnel, lack of technologically skilled teachers, gross under-funding and general neglect in public tertiary institutions in Nigeria, it is difficult to intensively achieve the goals and objectives of quality education and training. Similarly, Umeano and Ifi (2019) lamented that despite increasingly widespread adoption of technologies in virtually every aspect of education, significant challenges are preventing widespread affective implementation.

In spite of the importance of utilization of digital instructional technologies in improving students' employability skills acquisition of OTM students in the new normal, it seems no systematic investigation has been carried out in North-Central Polytechnics, Nigeria, to establish the extent of utilization of digital instructional technologies for teaching of OTM students in the new normal.

Statement of the Problem

The transition to online teaching was unexpected and rapid due to Covid-19, which took place amid a wider ICT transformation process in educational systems. With advancement in technology in the 21st century, digital instructional technology has become an invaluable technology for teaching, learning and research in education. The school lockdown according to Huber and Helm (2020) confronted teachers, students, and parents with an entirely new situation. Continued teaching and learning was only possible through alternative means of schooling. Teachers had to change to on line teaching, requiring them to use various digital tools and resources to solve problems and implement new approaches to teaching and learning. Unfortunately, there appears to be a cog in the wheel of technological impact on OTM. Consequently, it is observed that many OTM lecturers are yet to fully utilize Digital technologies for teaching and, thus, calling for research in this direction. Against this background, the



researchers investigate the extent digital instructional technologies are utilized for teaching in Office Technology and Management in the new normal, in polytechnics, Nigeria.

Research Questions

The following research questions guided the study:

1. To what extent do OTM lecturers utilize multimedia technologies for teaching in Office Technology and Management in the new normal in polytechnics, Nigeria?
2. To what extent do OTM lecturers utilize hardware technologies for teaching in Office Technology and Management in the new normal in polytechnics, Nigeria?
3. To what extent do OTM lecturers utilize software technologies for teaching in Office Technology and Management in the new normal in polytechnics, Nigeria.

Statement of Hypotheses

The following null hypotheses have been formulated and tested at 0.05 level of significance:

1. There is no significant difference between the mean response of OTM lecturers in federal and state polytechnics on the utilization of multimedia technologies for teaching in Office Technology and Management in the new normal in Polytechnics, Nigeria.
2. There is no significant difference between the mean response of OTM lecturers in federal and state polytechnics on the utilization of hardware technologies for teaching in Office Technology and Management in the new normal in Polytechnics, Nigeria.
3. There is no significant difference between the mean response of OTM lecturers in federal and state polytechnics on the utilization of software technologies for teaching in Office Technology and Management in the new normal in Polytechnics, Nigeria.

Methods

The study adopted a descriptive survey research design which allowed the collection of a large amount of data from sizeable population in a highly economical way usually involving the use of questionnaire administered on a sample (Sanders et al 2009). The population for the study comprised 144 lecturers in OTM department in polytechnics in North Central, Nigeria. This consists of 52 lecturers from four (4) federal polytechnics and 92 lecturers from eight (8) state owned polytechnics. The entire population was studied; thus, the study adopted a complete enumeration method because the population size is manageable. A 21-item structured questionnaire was developed from the literature reviewed for the study and utilized for data collection. Each questionnaire item had a five point rating scale of Very High Extent (VHE=5), High Extent (HE=4), Moderate Extent (ME=3), Low Extent (LE=2), Very Low Extent (VLE=1). Three experts face validated the instrument. Cronbach alpha coefficient measure of internal consistency was used to determine the reliability of the instrument and a coefficient of 0.79 was obtained. 144 copies of the questionnaire were administered to the respondents by the researcher and two research assistants and 128 copies were retrieved on completion which gave a retrieval rate of 89%. The data generated was analyzed through descriptive statistics of Mean and Standard deviation to answer the research questions. Inferential statistics (t-test) was employed to test the hypotheses at 0.05 level of significance. Any item with a mean scores and standard deviation of 3.50 and 1.75 and above shows high extent, a mean score between 3.00 – 3.49 and standard deviation between 1.50 – 1.74 suggests a moderate extent, and a mean value and standard deviation below 3.00 and 1.50 indicates low extent (Adefila, 2014).

Results



Research question 1

To what extent do OTM lecturers utilize multimedia technologies for teaching Office Technology and Management students in the new normal in polytechnics, Nigeria?

Table 1: mean ratings of OTM lecturers on the utilization of multimedia technologies for teaching OTM students in the new normal.

S/N	Extent of utilization of multimedia technologies for teaching OTM students in polytechnics in the new normal	Mean	SD	Decision
1	Combination of media in the form of graphic, text and audio.	2.60	1.34	Low extent
2	The use of computer system to convey information.	3.58	1.59	High extent
3	The use of video camera.	3.09	1.66	Moderate extent
4	The use of video cassette recorder.	3.62	1.56	High extent
5	The use of overhead projector.	2.52	1.30	Low extent
6	The use of compact disc.	3.22	1.26	Moderate extent
7	The use of DVD player.	3.41	1.38	High extent
	Grand mean	3.15	1.44	

Data in Table 1 revealed that out of the 7 items, item numbers 2 and 4 with mean of 3.58 and 3.62 fall within the range of high extent, item numbers 3, 6 and 7 with mean ranging from 3.09 to 3.41 fall within the range of moderate extent while item numbers 1 and 5 with mean of 2.60 and 2.52 fall within the range of low extent. Also the grand mean of 3.15 falls within the region of moderate extent. Thus, OTM lecturers in North Central Polytechnics, Nigeria observed in the study utilized multimedia technologies for instructional delivery to a moderate extent. The standard deviations for all the items are within the same range indicating that the respondents were homogeneous in their ratings in the use of multimedia technologies for teaching.

Research question 2

To what extent do OTM lecturers utilize hardware technologies for teaching Office Technology and Management students in the new normal in polytechnics, Nigeria?

Table 2: Mean ratings of OTM lecturers on the utilization of hardware technologies for teaching OTM students in the new normal

S/N	Extent of utilization of hardware technologies for teaching OTM students in polytechnics in the new normal	Mean	SD	Decision
8	The use of computer for preparation of job materials.	3.82	1.45	High Extent
9	The use of projector for PowerPoint presentations.	2.85	1.23	Low Extent
10	The use of keyboard as a communication tool.	3.94	1.51	High Extent
11	The use of scanner to scan documents.	2.86	1.24	Low Extent
12	The use of printer to print electronic data.	4.00	1.76	High Extent
	Grand mean	3.46	1.46	



Data in Table 2 shows that item numbers 8, 10, and 12 fall within the range of high extent while item number 9 and 11 fall within the range of low extent. With the grand mean of 3.46, it can be concluded that OTM lecturers utilize hardware digital technologies for teaching in the new normal to a moderate extent. The standard deviation shows the extent of consistency of scores of respondents in their observed utilization of the hardware technologies for teaching.

Research question 3

To what extent do OTM lecturers utilize software technologies for teaching Office Technology and Management students in the new normal in polytechnics, Nigeria?

Table 3: mean ratings of OTM lecturers on the utilization of multimedia technologies for teaching OTM students in the new normal

SN	Extent of utilization of software technologies for teaching OTM students in polytechnics in the new normal	Mean	SD	Decision
13	The use of Zoom for video conferencing like online meetings, group messaging services and secure recording of session.	3.67	1.65	High Extent
14	The use of Google classroom to facilitate interaction of teacher and students.	2.63	0.84	Low Extent
15	The use of Microsoft word to create documents	4.00	1.88	High Extent
16	The use of Microsoft Teams for conversation with online video calling, screen sharing, audio conferencing and telephony.	3.26	1.24	Moderate Extent
17	The use of Blackboard in creating course content, marking test and enhancing collaborative learning.	2.78	1.10	Low Extent
18	The use of Floop to provide students with digital and interactive feedback on their paper-based assignments.	2.88	0.89	Low extent
19	The use of Edmodo to communicate, interact, collaborate and exchange educational materials.	2.65	1.08	Low Extent
20	The use of Prezi to present ideas and thoughts.	2.66	1.31	Low Extent
21	The use of Idroo to write, draw, insert images and tools.	2.74	1.29	Low Extent
	Grand mean	3.03	1.25	

Data in Table 3 revealed that out of the 9 item, numbers 13 and 15 fall within the range of high extent, item numbers 16, fall within the range of moderate extent while item number 14, 17, 18, 19, 20 and 21 fall within the range of low extent. Also, the grand mean of 3.03 falls within the range of moderate extent. Thus, OTM lecturers utilize software technologies for teaching in Office Technology and Management in the new normal to a moderate extent. The standard deviations for all the items are within the same range



indicating that the respondents were homogeneous in their ratings in the use of software technologies for teaching.

Test of Hypotheses

Hypothesis 1

There is no significant difference between the mean response of OTM lecturers in federal and state polytechnics on the utilization of multimedia technologies for teaching in Office Technology and Management in the new normal in polytechnics, Nigeria.

Table 4: t-test statistics on mean scores of OTM lecturers in federal and state polytechnics on the utilization of multimedia technologies for teaching OTM students in the new normal

Variables (Institutions)	N	Mean	SD	df	t-cal	t-tab	Remark
Federal	46	3.22	1.46	127	1.33	1.96	Not Sig.
State	82	3.19	1.48				

Data in Table 4 of the t-test analysis showed that the t-cal value of 1.33 is less than the t-critical value of 1.96 at 0.05 level of significance and 127 degree of freedom. Hence, the null hypothesis that there is no significance difference on mean scores of OTM lecturers in federal and state polytechnics on the utilization of multimedia technologies for teaching in Office Technology and Management in the new normal in polytechnics, Nigeria, is accepted.

Hypothesis 2

There is no significant difference between the mean response of OTM lecturers in federal and state polytechnics on the utilization of hardware technologies for teaching in Office Technology and Management in the new normal in polytechnics, Nigeria.

Table 5: t-test statistics on mean response of OTM lecturers in federal and state polytechnics on the utilization of hardware technologies for teaching OTM in the new normal

Variables (Institutions)	N	Mean	SD	df	t-cal	t-tab	Remark
Federal	46	3.26	1.44	127	1.54	1.96	Not Sig.
State	82	3.32	1.37				

Table 5 of the t-test analysis revealed that the t-cal value of 1.54 is less than the t-critical value of 1.96 at 0.05 level of significance and 127 degree of freedom. Hence, the null hypothesis



which states that there is no significance difference in the mean response of OTM lecturers in federal and state polytechnics on the utilization of hardware technologies for teaching in Office Technology and Management in the new normal in polytechnics, Nigeria, is accepted.

Hypothesis 3

There is no significant difference between the mean response of OTM lecturers in federal and state polytechnics on the utilization of software technologies for teaching in Office Technology and Management in the new normal in polytechnics, Nigeria.

Table 6: t-test statistics on mean scores of OTM lecturers in federal and state polytechnics on the utilization of software technologies for teaching OTM in the new normal

Variables (Institutions)	N	Mean	SD	df	t-cal	t-tab	Remark
Federal	46	3.13	1.10	127	1.29	1.96	Not Sig.
State	82	3.19	1.12				

Data in Table 6 of the t-test analysis showed that the t-cal value of 1.29 is less than the t-critical value of 1.96 at 0.05 level of significance and 127 degree of freedom. Hence, the null hypothesis that there is no significance difference on mean scores of OTM lecturers in federal and state polytechnics on the utilization of software technologies for teaching in Office Technology and Management in the new normal in polytechnics, Nigeria is accepted.

Discussion of Findings

Findings on the research question one revealed that OTM lecturers in North Central polytechnics, Nigeria utilize multimedia technologies to a moderate extent. the cluster mean fell within the range of 3.00 – 3.49 real limit suggesting moderate extent of utilization of digital technologies by OTM lecturers in north central polytechnics, Nigeria. The findings of this study however appears to disagree with earlier work by Aina (2019) and Nnajofofor and Ejikeme (2020) who noted that many teachers in the school system do not possess adequate instructional technological skills. This deficiency has negatively impacted on the extent of utilization of digital technologies in students' acquisition of employability skills in the area of office technology and management programme. Many of the teachers require re-tooling of their skills in order to blend and power the utilization of digital technologies in OTM instruction.

This is in line with Rajhans et al (2020) who stated that the Covid- 19 pandemic is proving to be a constructive disruptor, giving an opportunity for restructuring the present conventional classroom based educational system. Rajhans et al (2020) further pointed out that the benefit of digital technologies over the traditional face-to-face classroom kept the motivation of teachers high in adapting to e-education mode.

However, the plausible explanation for this contradiction could be that there is marked difference between the subject area as well as the characteristics of the research area with which these researches were conducted. For instance Aina restricted the study to the training of office technology and management education students for job demands and self-employment in Ekiti



State whereas; this study was carried out on OTM lecturers in both federal and state owned polytechnics in north central, Nigeria.

Further, findings revealed that OTM lecturers utilize hardware technologies to a moderate extent. The findings of this study is not in consonance with the findings of a study carried out by Ogonu (2019) who found that epileptic electric power supply to a high extent influenced the use of technologies in teaching business education courses. Ogonu's study also found that poor internet service disrupts teaching process with the use of new technologies that most business educators are deficient in the use of new technologies in teaching business courses. Similarly, Nagel in Ogonu (2019) asserted that the key among all the challenges in the use of new technologies in teaching and learning business programme is lack of suitable professional development for business educators who are required to integrate the technologies in teaching. Supporting this assertion, Akasi and Nwabufo (2016) stated that there is lack of adequate trained personnel, and the few business educators that are currently available are not well trained on the use of these equipment and there is no adequate training programme for them. Table 2 shows that OTM lecturers to a moderate extent utilize hardware technologies for teaching in the new normal such as the use of computer for preparation of job materials, the use of scanner to scan documents and the use of printer to print electronic data.

The disagreement in the result of the findings of this study and that of the findings of Nagel and Ogonu could be as a result of the fact that school closures due to the pandemic which have increased teacher's engagement with technology and for most part, have increased their confidence in using it. Covid-19 will have many far-reaching consequences for the society as a whole, and for education, teachers, students and parents in particular. On the positive side, it has helped to enforce the potential of technology.

The result of research question three revealed that OTM lecturers utilize the following software technologies to a low extent: the use of google classroom to facilitate interaction of teacher and students, the use of blackboard in creating course content, marking test, and enhancing collaborative learning, the use of flop to provide students with digital and interactive feedback on their paper-based assignments, the use of Edmodo to communicate, interact, collaborate and exchange educational materials, the use of Presi to present ideas and thoughts and the use of Idroo to write, draw, insert images and tools. This is in agreement with the finding of a study carried out by Johnson et al in Winter et al (2021) who observed that challenges to the use of digital technologies have been identified to include; availability of equipment, access to resources, training and support. Also, teachers attitude and beliefs about technology use, their skills and knowledge. Working on line means teachers have to adapt to new pedagogical concepts and mode of delivery of teaching for which they have not been trained (Schlichter, 2020).

The results of hypotheses showed that there exist no significant differences in the mean score on the extent of utilization of digital instructional technologies in teaching OTM students in the new normal in polytechnics, Nigeria.

Conclusion

Based on the findings of the study, the researchers conclude that digital instructional technologies are veritable tools for teaching Office technology and management students. However, despite the numerous advantages of digital technologies, some teachers still find it challenging in transiting from the analogue to the digital in teaching and learning and it has been seriously affecting the office technology and management students' academic performance as regards to the acquisition of appropriate office skills for employment. This is because teachers adopt theoretical methods as a way of teaching and learning the subject, mainly due to underutilization of instructional technology during the Covid 19 pandemic. Given the importance



of digital technologies for instructional delivery, it is imperative that measures are put in place that will promote the use of digital instructional technologies for teaching OTM students in the new normal in polytechnics, Nigeria, especially in software technologies which they utilize to a low extent.

Recommendations

The following recommendations are made based on the findings of the study.

1. The Information and Communication Technology (ICT) unit of polytechnics should organize workshop and on the job training programmes for lecturers in Office Technology and Management on how to effectively use multimedia in their instructional delivery.
2. The school curriculum should increasingly be interwoven with ICT such that teachers and students should be given opportunities to utilize hardware tools for teaching and learning.
3. Government at all levels in Nigeria should review and implement the national information and communication technology framework that is geared towards the use of software tools for effective teaching and learning.

References

- Aina, M. A. (2019). Training of office technology and management education students for job demands and self-employment in Ekiti State, Nigeria. *Journal of Advances in Social Science and humanities*. 5 (4), 703-714.
- Anderson. E. (2020). How instructional technology can improve the learning process. Retrieved 20th September, 2021, from <https://www.itchronicles.com>.
- Akasi, S.E & Nwabufu, N.B. (2016). Utilizing modern instructional resources to improve teaching and learning of business education. *Nigerian Journal of Business Education* 3(2), 186-193.
- Baba, E. I., Baba D.D. & Iwuoha, C.U. (2021). Assessment of Small Scale Business Skills acquired by Business Students in the North Central Polytechnics, Nigeria. *Journal of Good Governance and Sustainability Development in Africa*.(6) 3, 41-53.
- Carroll, N. and Conboy, K. (2020). Normalizing the new normal: changing technology-driven work practices under pandemic time pressure. *International Journal of Information Management*, 10, 10-16.
- Chigbuson, A. J., Durtur, S. L. & Nimfel, T. (2016). Perception of teachers and students on factors affecting the teaching and learning of information and communication technology courses in the polytechnics. *Nigerian Journal of Business Education*.Vol 3(2), 202-211.
- Eileen, W.A, Aisling, C., O'Brien, M. and Grainne, H. (2021), teachers' use of technology and impact of Covid-19. *Irish educational studies*, 40(2), 235-246.
- Elogbo, E. E & Akek, M. N. G. (2019). Extent of utilization of World Wide Web and e-mail instructional delivery of business education in federal universities in south-south, Nigeria. *Nigerian Journal of Business Education* 6(1), 217-228.
- Hilal, A. Ehab, F.A., and Amjad, S. (2015). The effectiveness of multimedia learning tools in education. *International Journal of Advanced Research in Computer Science and Software Engineering* 5(12), 761-764.
- Huber, S. G., and C. Helm. 2020. "COVID-19 and Schooling: Evaluation, Assessment and Accountability in Times of Crises—reacting Quickly to Explore Key Issues for Policy, Practice and Research with the School Barometer." *Educational Assessment, Evaluation and Accountability* 1–34.
- Igwe, B. C. (2019). *The genesis of vocational agriculture in Nigeria*. Onitsha: EPPA Publishers.



- Mary, R. M, & Neena.P.C, (2017). Impact of digital technology on learning to enhance the employability skills of business management graduates. *The Online Journal of Distance Education and e-Learning*, 5(2), 35-41.
- Ndinechi, G.I. & Gude, A.G. (2014). Self-assessment on word processing and spreadsheet proficiency by office technology and management students in north-west Nigerian polytechnics. *Nigerian Journal of Business Education* 1(3), 313-321.
- Nnajofofor, F. N. & Ejikeme, C.E. (2020). Teachers' utilization of instructional technology for quality teaching of Business Education in secondary schools in Enugu state, Nigeria. *European Journal of Education Studies*, 6(12) 207-226.
- Odiachi, B. (2019). Availability and utilization of e-learning resources for teaching and learning of office technology and management courses in polytechnics in delta state. *Business Education Journal*, 6 (1).
- Ogonu, O. G. (2019). Challenges of the use of new technologies in teaching of business education courses in tertiary institutions in River State, Nigeria. *Nigerian Journal of Business Education* 6(1), 318-330.
- Siemens, H. & Downes, E. (2018). Impact of instructional materials in teaching and learning of biology in senior secondary schools in Yakurr LGA. *International Letters of Social and Humanistic Sciences*, 62, 27-33.
- Schlichter, A. (2020). The impact of Covid – 19 on education: insights from education at a glance. Paris: OECD Publishing.
- Seymoureducate, U.J (2016). Effective utilization and maintenance of information and communication technology (ICT) facilities for quality learning outcome in secondary schools in Ondo State, Nigeria. *International Journal of contemporary Research*, 3(9), 124-130.
- Teach with technologies, (2019). Retrieved 20th September, 2021, from <http://www.vic.gov.au/school/teachers/teachingresources/digital/pages/teach.aspx>
- Umeano, N. E. & Ifi, C.C. (2019). Extent of integration challenges of new technologies in teaching business education courses in tertiary institutions. *Nigerian Journal of Business Education* 6(1), 235-245.
- UNESCO. (2020). Covid-19 educational disruption and response. Retrieved from: <http://www.en.unesco.org/covid19/educatinresponse> Accessed on 21st June, 2021.
- Winter, E., Costello, A., O'Brien, M. & Hickey, G. (2021). Teachers' use of technology and the impact of Covid-19. *Irish educational studies*, (40) 2, pp 235-246. Retrieved 20th September, 2021 from tandfononline.com
- Zandbergen, P. (2021) What is computer hardware? – Component, definition and examples retrieved 21st September, 2021 from <https://study.come/academy/le>