



TECHNOLOGICAL SKILLS NEEDED FOR MOVING FROM ON-GROUND TO ONLINE TEACHING AND LEARNING OF OTM COURSES IN POLYTECHNICS

¹**OYINLOYE, O. T.**

Department of Office Technology and Management,
Institute of Information and Communication Technology,
Kwara State Polytechnic, Ilorin.

oyinloyeolayinka@gmail.com

²**Prof. UMORU, T. A**

Department of Business and Entrepreneurship Education
Faculty of Education
Kwara State University, Malete.

Abstract

This paper was on technological skills needed for moving from on-ground to online teaching and learning of OTM courses in Polytechnics. The study had one specific purposes, research questions and hypotheses. The study adopted descriptive survey research design for the study. Population of the study was 1167 comprising 79 lecturers and 1088 students both male and female respectively. A total sample of 323 respondents comprising lecturers and HND students was selected for the study. The instrument for data collection was a structured questionnaire tagged Technological Skills needed for moving from on-ground to Online Teaching and Learning Questionnaire (TSMOOTLQ), with 4points rating scale. The instruments went through face and content validation by three experts. The reliability of the instrument was ensured using the Split-half method and the result yielded a reliability coefficient of 0.87. Three hundred and twenty three copies of the questionnaire were administered. Only two hundred and seventy were retrieved and used for the study. Mean and standard deviation were used to analyze the data collected to answer the research questions. The hypotheses were tested using independent sample t-test at 0.05 level of significance. The study found among others that if lecturers possess adequate technological skills it will facilitate easy moving from on-ground to online teaching and learning of OTM courses. The skills would afford the lecturers and the students' ability to be able to navigate successfully in online environment. Based on the findings, conclusion was made that possession of these technology skills will enhance effective interaction of lecturers and students in online environment. The following were recommended among others that there is the need for OTM lecturers to expose themselves to adequate and relevant technological skills which will enhance their ability to perform successfully in online environment.

Keywords: *Technological skills, On-ground, Online, Teaching and Learning, OTM courses*

Introduction

Innovation in technology has influenced all facets of human endeavour including education. The internet has made education no longer limited to the four walls of school classrooms (Ezeabii, Ile, & Ezugwu, 2019). This modern technology has launched the world into a knowledge based economy in which ideas and technological principles are used for better output (Mbah, 2016). Thus, advancement in technology according to Muhammed, Sua and Munnaza (2015) has compelled teachers and educators to utilize its benefits for the delivery of instruction and hence promote knowledge through online learning.

According to Ajayi and Ekundayo (2009), teaching and learning have gone beyond the teacher standing before a group of students and disseminating information to them without the students' adequate participation. He posited that with the aid of technology, teachers can take students beyond traditional limits, ensure their adequate participation in teaching and learning processes and create vital environments to experiment and explore. Any teacher with adequate and professional skills in technology utilization will definitely have his students perform better in classroom and online learning. Tony-Okeme (2015) suggested that professional training is necessary for teachers to enable them teach effectively with the use of new technology.

Hence, for successful moving from on-ground to online teaching and learning, it requires adequate technological skills and competences of lecturers and students. These skills are the abilities to be able to navigate effectively through online learning environment with the use of communication and internet technologies. The rapid with which scientific inventions and innovation grow has forced teachers to seek and acquire new skills and competences to keep up with time (Ndinechi & Ementa, 2013). Thus, global citizens in the information age should be equipped with the technology literacy skills needed to overcome digital divides and inequalities (Cohron, 2015).

Technological skills are required knowledge and expertise needed in online education by both teachers and students. Technology skill has to do with abilities, experiences and technical knowhow to be able to operate many devices, machines, perform and navigate through many information technology platforms in an online environment. Alan (2019) referred to technology skills as the ability to perform tasks that require the use of certain tools, whether tangible or intangible, and the technology required to master their intended uses in a variety of scenarios. Technology skills in this context usually refer to an individual who possesses the knowledge and expertise to use related devices and online platforms to perform and operate successfully in online environment. In online environment given the growth of technology within worldwide and local economies, and especially in education the need for diverse technical skills and knowledge is likely to continue to grow into the foreseeable future. Alan (2019) explained that technology skills include an array of knowledge on topics that include computing abilities, word processing skills, spreadsheets skills, database skills, electronic presentation skills, web navigation



skills, web site design skills, internet and e-mail management skills, digital cameras, computer network knowledge, file management and windows explorer skills, downloading software from the web (knowledge including ebooks), installing computer software onto a computer system, WebCT or blackboard teaching skills, videoconferencing skills, computer-related storage devices knowledge for example (disks, Cds, USB drives, zip disks, Dvds, etc.), scanner knowledge, knowledge of Pdas, deep web knowledge, educational copyright knowledge and computer security knowledge. Technology skills are often required to operate machinery, tools, software, and coding. They are usually very practical and demand in-depth training. Adefisayo (2010) reported that to facilitate better performance, the teacher should always equip himself with necessary facts, skills and must try to enrich himself with new knowledge and ideas.

Technological knowledge (TK) denotes teacher's knowledge about technology and how it can be effectively used to deliver the curriculum. Technological skills are basic computer and internet related knowledge that must be possessed by teachers and students both in online and on site teaching and learning environment. It is a skill that will make them to interact effectively and collaborate efficiently in order to make teaching and learning enjoyable and achievable. It is surprised that many educators lack the basic computer skills and basic skills to navigate their way through the Internet. This is because many veteran teachers are not used to technology in the classroom talk less of using it to teach online. Hence, these skills that many think every teacher should know might be absent. These are the skills that our students will need in order to survive in the world of work. This is because as computer and associated technologies continue to change and evolve, educators must continue to strive for excellence in their work. They must continue to keep up with time and effort to maintain and improve their technology skills. While this list may seem basic to some, these are the skills that will help to propel students into the future.

The multimodal nature of online learning and virtual spaces means that teachers need to change as they can no longer rely upon sensory and expressive skills to establish and maintain relationships with students (Major, 2010). This implied that teachers are expected to develop strong technological skills for successful online learning. Debbie (2015) opined that technology skills are fundamental; they enhance the instructor's ability to connect with students in online environment. With that in mind, Debbie (2015) suggested the following list of technology skills that every teacher and student should know and possess. The skills include:- basic computer and internet skills such as basic computer hardware and software; ability to perform computer operations, such as using keyboard and mouse, Managing files and folders: save, name, copy, move, backup, rename, delete, check properties. Software installation, security and virus protection; Using software applications, such as Word, PowerPoint, Excel, email clients; Knowledge of copy and paste, spell-checking, saving files in different formats; Sending and downloading attachments. Internet search literacy skills is essential skill needed for school, work and life in general; such as connecting, accessing and using browsers, ability to perform online research using various search engines and library databases.

Ability to use online communication tools, such as email (create, send, receive, reply, prints, send/receive attachments), discussion boards (read, search, post, reply, follow threads), chats, and messengers. Other technology skills are proficiency with software applications: like installing/updating software and plug-ins, proficiency with features and functions within the LMS including uploading files, grading tools and grade book, LMS tools for asynchronous/synchronous communication, familiarity with platforms for communication/engagement outside of LMS, such as Pinterest, Twitter, Google+.

Furthermore, skills to connect on social media, collaborate with other educators' online, video conferencing and sharing videos, blogging, use of smart board, self-learning of technology, netiquette, use of information security and safety, back up, hardware basics and troubleshooting are important technology skills needed in teaching and learning online. **Nwokike and Joseph (2019) stated** that unfortunately, many business educators were trained with old technology. This poses a challenge to acquisition of technology skills by business educators (OTM inclusive) at all levels of education. As technologies continue to evolve, educators must continue to strive for excellence in the process of teaching and learning by upgrading their skills and imparting the required technological skills to their students. Nwokike and Joseph (2019) further noted with dismay that many business educators are resistant to technological changes. This was corroborated with the finding of Ukor, Agwazie and Ayemherire, (2014) that business educators almost never utilize modern e-learning tools in their teaching and learning encounters with their students.

Therefore, acquisition of technological skills as discussed above will give both the teachers and students enough experience to be able to interact, collaborate and navigate effectively in online environment. Adefisayo (2010) stated that to facilitate better performance, the teacher should always equip himself with necessary facts and must try to enrich himself with new knowledge and technological ideas as demanded in online learning. Hence acquisition of adequate technology skill is important to teachers and students for successful online teaching and learning of OTM courses. This will assist teacher to structure new pedagogy to develop socially active online classroom that encourages cooperation, interaction, and collaborative learning.

Statement of the problem

The state of affairs of teaching and learning of OTM courses in the polytechnics is that students and teachers have no access to online teaching/learning and experiences through global networks. Students therefore rely on what they are taught by teachers who are invariably relying more or less on outdated information recycled in documented printed materials like textbooks. Teachers do not have access to global data base because they are not exposed to and cannot make use of the modern information superhighway, the internet. Polytechnic lecturers in OTM, even in this era of information revolution made possible by Information and Communication Technology (ICT) are still relying on the massively adopted orthodox method of talk and chalk instructional delivery without realizing that the online learning and computer is fast becoming the chalkboard of tomorrow (Ima-Obong & Imoh-Obong, 2016).



This implies that OTM students in polytechnics continue to rely solely on their teachers and the available texts, and the instructional strategies continue to be teacher centered, while students remain passive learners. Apart from this, polytechnics have funding problems and there exists an opportunity to make more funds by moving from on-ground to online teaching and learning which has the capacity of greater students' enrolment; many of which are unable to participate in regular on-ground classes due to family obligations or work schedules. More enrolment means more funds for polytechnics especially, these days when institution owners such as government are not ready to adequately fund the institutions but are asking them to look inward to fund the schools in order to be autonomous through internally generated revenue (IGR). Also there is a policy of carrying capacity for polytechnics which limits the number of students that can be admitted in a particular year. With online teaching and learning there will be opportunity to generate more funds at relatively lower costs. However, the researcher observed that polytechnics are not making the most of the opportunity. This was as a result of insufficient technological skills to perform optimally in online environment. This factor may be inhibiting the polytechnics from tapping into this opportunity fully. Therefore the need to examine the technological skills needed for moving from on-ground to online teaching and learning of OTM courses in Polytechnics.

Research Question

In line with the study, one research question was raised to guide the study:

1. What are the technological skills needed for moving from on-ground to online teaching and learning of OTM courses in Polytechnics?

Research Hypothesis

One null hypothesis was formulated and tested at 0.05 level of significance.

1. There is no significant difference between the mean rating of students and lecturers on the technological skills needed for moving from on-ground to online teaching and learning of OTM courses in Polytechnics.

Methodology

The study adopted descriptive survey research design as the study sought the opinion of the respondents on technological skills needed for moving from on-ground to online teaching and learning of OTM courses. The population of the study comprises lecturers and HND students for 2020/2021 session in the department of Office Technology and Management of the eight Polytechnics used for the study. There is a total population of 1167 lecturers and HND students. The students sample is selected using Taro Yamane formula for finite population. The sample size is thus made up of 79 lecturers and 244 HND students.

The instrument for data collection was a structured questionnaire designed by the researcher which is tagged Technological Skills Needed for moving from On-ground to Online, Teaching and Learning Questionnaire (TSNMOOTLQ). The questionnaire was made up of 29 items on technological skills needed for moving from on-ground to online

teaching and learning. The items were placed on 4-point rating scale of Highly Needed (3.50-4.00), Moderately Needed (2.50-3.49), Fairly Needed (1.50-2.49), and Not Needed (0.0-1.49). The instrument was face validated by three senior lecturers from the Department of Business and Entrepreneurship Education, Kwara State University, Malete. Split-half method was used where the instrument was divided into two halves of odd and even numbers. The reliability of one half (odd) was determined using Spearman Rank Correlation Coefficient. The reliability coefficient of the whole instrument was determined using Spearman Brown Prophecy formula. The reliability coefficient calculated was 0.87. The researcher, with the aid of research assistants, administer 323 copies of the questionnaire to the lecturers and students in the eight polytechnics that was used for the study. Out of these 270 copies of the questionnaires administered were collected and used. This gives about 83.59% return rate. Mean and standard deviation were used to analyze the data collected to answer the research question. Independent t-test was used to test the hypothesis.

Results

Research Question One: What are the technological skills needed for moving from on-ground to online teaching and learning of OTM courses in Polytechnics?

Table 1: Mean and standard deviation of responses on technological skills needed for moving from on-ground to online teaching and learning of OTM courses in Polytechnics

S/No	Item Statement	Mean	Std	Remark
1	Computer/ICT skill.	3.84	0.60	Highly Needed
2	Word Processing application package Proficiency.	3.70	0.61	Highly Needed
3	Spreadsheets/Ms Excel Skills.	3.56	0.76	Highly Needed
4	Database Skills.	3.56	0.77	Highly Needed
5	PowerPoint /Electronic Presentation Skills.	3.55	0.76	Highly Needed
6	Ability to search the Internet.	3.65	0.69	Highly Needed
7	Web Site Design Skills.	3.45	0.75	Moderately Needed
8	E-Mail Management Skills.	3.43	0.79	Moderately Needed
9	Webcam for video web conference presentation skills.	3.36	0.78	Moderately Needed
10	Computer Networking skills.	3.51	0.70	Highly Needed
11	Managing Files and folders Skills.	3.60	0.74	Highly Needed
12	Software downloading and uploading skills.	3.59	0.64	Highly Needed
13	Computer software installation and updating skills.	3.44	0.73	Moderately Needed
14	Smart board or Blackboard Teaching Skills.	3.23	0.84	Moderately Needed
15	Videoconferencing skills.	3.33	0.87	Moderately Needed

16	Computer Storage Devices Knowledge: (disks, CDs, USB drives, zip disks, DVDs).	3.58	0.72	Highly Needed
17	Scanner Knowledge skills.	3.41	0.81	Moderately Needed
18	Ability to record and upload video presentation.	3.43	0.81	Moderately Needed
19	Web Knowledge skills.	3.47	0.79	Moderately Needed
20	Educational Copyright Knowledge.	3.30	0.79	Moderately Needed
21	Computer Security Knowledge.	3.49	0.79	Moderately Needed
22	Proficiency with Learning Management System (LMS).	3.41	0.79	Moderately Needed
23	Knowledge to use communication tools of LMS, e.g. Pinterest, Twitter, social media, Google+.	3.45	0.82	Moderately Needed
24	Knowledge of synchronous communication.	3.39	2.65	Moderately Needed
25	Knowledge of asynchronous communication.	3.22	0.81	Moderately Needed
26	Knowledge of copy, cut, move and paste files in different formats.	3.63	0.69	Highly Needed
27	Ability to use online communication tools.	3.76	0.53	Highly Needed
28	Ability to spell-check and correct errors in different file.	3.66	0.66	Highly Needed
29	Ability to save files in different formats.	3.64	0.66	Highly Needed
Weighted Mean and Std		3.39	0.78	Moderately Needed

Source: Field Survey, 2021

Table 1 reveals that the respondents indicated that ability to operate computer (mean = 3.84), word processing application package proficiency (mean = 3.70), spreadsheets skills, (mean = 3.56), database skills (mean = 3.56), power point /electronic presentation skills (mean = 3.55), ability to search the internet (mean = 3.65), computer networking skills (mean = 3.51), managing files and folders skills (mean = 3.60), software downloading and uploading skills (mean = 3.59), computer storage devices knowledge such as disks, CDs, USB drives, zip disks, DVDs (mean = 3.58), ability to copy, cut, move and paste files in different formats (mean = 3.63), ability to use online communication tools (mean = 3.76), ability to spell-check and correct errors in different file (mean = 3.66) and ability to save files in different formats are highly needed technological skills for moving from on-ground to online teaching and learning of OTM courses in Polytechnics.

Table 1 also reveals that web site design skills is moderately needed (mean = 3.45), e-mail management skills (mean = 3.43), webcam for video web conference presentation skills (mean = 3.36), computer software installation and updating skills (mean = 3.44) and smart board or blackboard teaching skills (mean = 3.23) are moderately needed skills. Table one also shows that the following skills are moderately needed: videoconferencing

skills (mean = 3.33), scanner knowledge skills (mean = 3.41), ability to record and upload video presentation (mean = 3.43), web knowledge skills (mean = 3.47), educational copyright knowledge (mean = 3.30) and computer security knowledge (mean = 3.49). Also proficiency with learning management system (mean = 3.41), knowledge to use communication tools of learning management system (LMS) (mean = 3.45), knowledge of synchronous communication (mean = 3.39) and knowledge of asynchronous communication (mean = 3.22) are moderately needed technological skills for moving from on-ground to online teaching and learning of OTM courses in Polytechnics. All the 29 items have their standard deviation ranged from 0.60 to 2.65 which are below the fixed value of 1.96. This means that the responses of the respondents were not too wide spread from the mean, the responses are slightly clustered to the mean.

On the overall, the data analyzed in Table 1 reveals that technological skills listed in the table are moderately for moving from on-ground to online teaching and learning of OTM courses in Polytechnics (mean = 3.39, SD = 0.78).

Test of Hypotheses

There is no significant difference between the mean rating of students and lecturers on the technological skills needed for moving from on-ground to online teaching and learning of OTM courses in Polytechnics.

Table 2 Summary of t-test of the difference between the mean ratings of lecturers and students on the technological skills needed for moving from on-ground to online teaching and learning of OTM courses

Group	N	Mean	SD	t-cal	Df	p-value	Decision
Lecturers	55	3.62	0.32	2.36	268	0.019	S
Students	215	3.47	0.44				

Source: Field survey, 2021

P<0.05

The data in Table 2 reveals that there are 55 and 215 lecturers and students respectively. Lecturers had higher mean ($\bar{x} = 3.62$; SD = 0.32) than students ($\bar{x} = 3.47$; SD = 0.44). The Table reveals that there was significant difference between the mean responses of lecturers and students regarding technological skills needed for moving from on-ground to online teaching and learning of OTM courses ($t_{268} = 2.36$, $P=0.019$). Therefore, the hypothesis that stated that there is no significant difference between the mean rating of students and lecturers on the technological skills needed for moving from on-ground to online teaching and learning of OTM courses was rejected. This indicated that lecturers and students differ statistically significantly in their responses regarding technological skills needed for moving from on-ground to online teaching and learning of OTM courses.



Discussion of findings

The study found that there was significant difference between the mean rating of students and lecturers on the technological skills needed for moving from on-ground to online teaching and learning of OTM courses. This could be seen from the mean performance of lecturer of 3.62 which was greater than the mean of 3.47 for students. It was revealed that lecturers possess technological skills than the students by 0.15 mean differences. This implied that lecturers and students differ statistically significantly in their responses regarding technological skills needed for moving from on-ground to online teaching and learning of OTM courses. This finding agreed with Adefisayo (2010) who reported that to facilitate better performance, the teacher should always equip himself with necessary facts, skills and must try to enrich himself with new knowledge and ideas. This is also in line with Alan (2019) who stated that technology skills are the ability to perform tasks that require the use of certain tools, whether tangible or intangible, and the technology required to master their intended uses in a variety of scenarios. Debbie (2015) opined that technology skills are fundamental; they enhance the instructor's ability to connect with students in online environment. He corroborated further that technology skills in this context usually refer to an individual that is lecturers and students who possess the knowledge and expertise to use related devices and online platforms to perform and operate successfully in online environment. Therefore, technology skills are often required and very important to possess by lecturers and students to operate machinery, tools, software, and operate successfully in online environment. They are usually very practical and demand in-depth training. Hence, technological skills are highly needed both by the lecturers and students for moving from on-ground to online teaching and learning of OTM courses.

Conclusion

Based on the findings of this study, it was concluded that technological skills are highly needed to move from on-ground to online teaching and learning of OTM courses. This implied that possessing adequate technological skills will facilitate easy moving from on-ground to online teaching and learning of OTM courses. It will afford the lecturers and the students' ability to be able to navigate successfully in online environment. The technological skills include among others; computer/ICT skills, word processing, spreadsheet/Ms-excel skill, internet skill, power point presentation, E-mail skills, software downloading and uploading skill, Computer software installation and updating skill, smart board or black board teaching skill, Knowledge of copy, cut, move and paste files in different formats, ability to use online communication tools among others. This implied that for successful interaction between teachers and students in online environment in this 21st century, acquisition of technology skills is a must to be acquired. If these are not acquired it implies that it will not be possible to move from on-ground to online teaching and learning of OTM courses.

The possession of these technology skills will enhance effective interaction of lecturers and students in online environment. Based on this, adequate and relevant technology skills required for moving from on-ground to online teaching and learning of



OTM courses is important. This is because it will have a lot of benefits to the students, lecturers, and the institutions in general.

Recommendations

Based on the findings and conclusion of the study, the following recommendations are made;

1. There is a need for polytechnic management to organize capacity building for all polytechnics lecturers to be able to acquire adequate technological skills needed to move from on-ground to online teaching and learning of OTM courses in polytechnics.
2. OTM lecturers should see acquisition of technological skills as a must to possess especially in this era of ICT for them to be relevant at all time. Exposure to adequate and relevant technological skills will enhance their ability to perform successfully in online environment.

References

- Adefisayo, L. A.(2010). *Information and Communication Technology and the effect of Globalisation: The 21st century “digital Slaver” for developing countries. Myth or reality.* <http://www.des.ca/state.edu/stratipic.html>. *Administrative Issues Journal: Connecting Education, Practice, and Research*, 4 (2) 12-26.
- Ajayi, I.A. & Ekundayo, H.T. (2009). The application of information and communication technology in Nigerian secondary schools. *International NGO Journal* 4(5), 281-286. <http://www.academicjournal.org>.
- Alan, F. (2019). Technical Skills. <https://www.investopedia.com/terms/t/technical-skills.asp> Retrieved on 24/04/2021.
- Cohron, M. (2015). The continuing digital divide in the United States. *The Serials Librarian*, 69(1), 77–86. <http://dx.doi.org/10.1080/0361526X.2015.1036195>
- Debbie,M. (2015). Are you ready to teach online survey? <https://onlinelearninginsights.wordpress.com/2015/06/22/are-you-ready-to-teach-online-readiness-surveys-aim-to-help-faculty-prepare/> Retrieved on 18th April, 2021.
- Ezeabii, I.C., Ile, C.M., & Ezugwu, S.K. (2019). Improving E-learning among Business Students in Public Universities in South-East Nigeria. *Nigerian Journal of Business Education*. 6(1) 207-216.
- Ima-Obong,M. A. & Imoh-Obong, I. (2016). Information and Communication Technology: A tool for Social Studies delivery in open educational resources development and expansion in Nigeria. *International Journal of Academia*. 1(1). 95-107.
- Major, C. (2010). Do virtual professors dream of electric students? College faculty experiences with online distance education. *Teachers College Record*, 112 (8), 2154 –2208.



- Mbah, C.N (2016). Utilizing ICT in the teaching and learning programme of colleges of education in Kaduna: *The learners' perception. Journal of Research and Development 2(1)*, 78-87.
- Muhammed, T.A. Sua, S. & Munnaza, A. (2015). Teachers' perception and needs towards the use of E-learning in teaching of Physics in secondary level of Pakistan. *American Journal of Educational Research 3(5)*, 1045-1051.
- Ndinechi, G.I. & Ementa, C.N. (2013). Business Education students' rating of the teaching of word processing and desktop publishing skills in tertiary institutions in South East, Nigeria. *Nigerian Journal of Business Education 1(2)*
- Nwokike, F. O. & Joseph, N. C. (2019). Integration of New Technologies in teaching Business Education courses in Universities in the E-world. *Nigerian Journal of Business Education 6(2)*, 206-214.
- Tony-Okeme, A. F. (2015). Roles of Information and Communication Technology resources on Teaching Office Technology and Management in Polytechnics in North-Central Geo-Political zone, Nigeria. *Unpublished Master thesis*, ABU, Zaria.
- Ukor, L. O., Agwazie, B. & Ayemherire, S. (2014). Utilization of e-learning tools by business educators in colleges of education in Delta State. *Nigeria Journal of Business Education 1(3)*, 149-158.