

REVAMPING ICT FOR MEETING THE NEEDS AND CHALLENGES OF E-LEARNING DURING THE COVID-19 PANDEMIC IN NIGERIA EDUCATION SYSTEM

(Merombak ICT bagi Memenuhi Keperluan dan Cabaran E-Pembelajaran Semasa Pandemik COVID-19 dalam Sistem Pendidikan di Nigeria)

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Abstract

The study investigated how ICT meet the needs and challenges of E-learning during the COVID-19 pandemic in Nigeria Education system. The study adopted a non-experimental design involving descriptive research of the survey type in which 300 students and lecturers with ICT ideas were randomly selected from three (3) institutions in south-west, Nigeria (1 state and 1 federal) and one (1) private institution. 75 students and 25 lecturers were selected through Whatsapp application from each school giving a number of 225 students and 75 lecturers involved in the study. The instrument for data collection was a self-developed questionnaire divided into four sections with 25 items based on the research topic. Three research questions were raised and answered using frequency count, percentages, means and standard deviation as statistical tools. The study found that E-learning has a positive impact on Nigerian Education system during COVID-19 Pandemic. The study also revealed that poor technical infrastructure, cost of ICT equipment, lack of computer literacy among others are the challenge of e-learning in Nigerian education system. Nevertheless, the study further revealed that learning management system (LMS), Google classroom, Zoom and Skype are the most available E-learning facilities used in the educational delivery system of Nigeria during COVID-19 Pandemic. Based on these findings, the following recommendation among others were made; E-learning should be given the utmost attention and properly implemented to help attain the growth we seek for in our education system during and after COVID-19 pandemic.

Keywords: ICT, E-learning, Nigeria Education system, COVID-19 pandemic, Google classroom.

Abstrak

Objektif utama pendidikan tinggi di Nigeria adalah untuk melatih pelajar supaya memperolehi pengetahuan dan kemahiran yang diperlukan untuk membolehkan mereka menyumbang secara berkesan kepada pembangunan negara. Latihan ini memerlukan penilaian berkala dalam bentuk peperiksaan untuk menentukan tahap kecekapan pelajar. Sebilangan besar institusi pendidikan di seluruh dunia membatalkan pengajaran secara bersemuka dan beralih ke pembelajaran dan pengajaran jarak jauh pada bulan Mac 2020 dalam usaha untuk mengekang penyebaran COVID-19. Penularan wabak corona virus COVID-19 mengganggu kehidupan di seluruh dunia pada tahun 2020. Seperti sektor lain, pandemik COVID-19 memberikan kesan kepada dunia pendidikan dalam pelbagai cara. Kajian ini menyiasat bagaimana ICT memenuhi keperluan dan cabaran e-pembelajaran semasa pandemik COVID-19 dalam sistem pendidikan di Nigeria. Kajian ini mengguna pakai rekabentuk non-eksperimental yang melibatkan penyelidikan deskriptif jenis tinjauan melibatkan 300 pelajar dan pensyarah dengan idea ICT

yang dipilih secara rawak dari tiga (3) institusi di Barat Daya Nigeria (1 negeri dan 1 persekutuan) dan satu institusi swasta. 75 pelajar dan 25 pensyarah dipilih melalui aplikasi WhatsApp dari setiap sekolah yang membawa kepada sejumlah 225 pelajar dan 75 pensyarah yang terlibat dalam kajian ini. Instrumen untuk pengumpulan data adalah soal selidik yang dibangunkan sendiri dan dibahagikan kepada empat bahagian dengan 25 item berdasarkan topik penyelidikan. Tiga soalan kajian telah dibangkitkan dan dijawab menggunakan kiraan kekerapan, peratusan, min dan sisihan piawai sebagai alat statistik. Kajian mendapati bahawa e-pembelajaran mempunyai kesan positif terhadap sistem pendidikan Nigeria semasa pandemik COVID-19. Kajian itu juga mendedahkan bahawa infrastruktur teknikal yang lemah, kos peralatan ICT, dan kekurangan literasi komputer adalah cabaran e-pembelajaran dalam sistem pendidikan Nigeria. Walau bagaimanapun, kajian ini seterusnya mendedahkan bahawa Sistem Pengurusan Pembelajaran (LMS), Google Classroom, Zoom dan Skype adalah kemudahan e-pembelajaran yang paling banyak digunakan dalam pendidikan semasa pandemik COVID-19. Berdasarkan penemuan ini, adalah dicadangkan bahawa e-pembelajaran harus diberikan perhatian yang paling utama dan dilaksanakan dengan baik untuk membantu mencapai pertumbuhan yang dicari dalam sistem pendidikan semasa dan selepas pandemik COVID-19.

Kata kunci: ICT, e-Pembelajaran, Sistem Pendidikan Nigeria, Pandemik COVID-19, Google Classroom

1.0 INTRODUCTION

The eruption of the COVID-19 pandemic has affected every sphere of life and may forever change how we have always lived. Of all the sectors of governance, the educational sector, particularly at the tertiary level, appears to have been most greatly affected and therefore requires a more pragmatic approach to resolution (Anifowoshe, Aborode, Ayodele, Ireteiyayo, & David, 2020). According to the report by UNESCO (2020), the closure of educational institution has impacted over 91% of the world's student population. The ripple effect of this pandemic has been felt by both the educators and students in primary, secondary, colleges and universities as academic sessions were disrupted after the coronavirus was declare a public health emergency. Therefore, it is an excellent time for educational institutions in Nigeria to reorganize what the prospect of education would look like and take realistic stages towards adopting E-learning to move toward in education in order to advance way in and fairness (Anifowoshe, Aborode, Ayodele, Ireteiyayo, & David, 2020).

Technological advances has given rise to upsurge in information hunt which has made students of tertiary institution to be in a great pursuit for information; as they are keen to learn new things, ideas, technologies and new ways of acquiring information (Kyari, Adiuku-Brown, Abechi, Pyochi & Adelokun, 2018). Technology is one of the vital tools for learning as well as teaching. Technology involves the application of knowledge, resource materials, tools and skills in designing, producing and used to extend human capability to control and modify natural and human made environments (Raizen, 2013). Therefore, Information Technology is a type of communications technology which comprises the hardware, networks and software hence does capturing, transmitting, storing, retrieving, manipulating and displaying of data (Melody, 2011).

In education, information communication and technology has made tremendous impact in enhancing learning. Information and communication technology and its use have impacted on the way learners and educators acquire and deliver information (Eke, 2009). These technologies have been applied in so many ways in the learning pursuit thus giving rise to e-learning. Electronic learning, or commonly known as e-learning, is among the earliest applications of web-based

technology (Azhari & Ming, 2015). E-learning is defined as the delivery of learning using purely Internet and digital technology (Al-Busaidi, 2013). According to Eze, Chinedu-Eze and Bello (2018), e-learning is concerned with the wholistic incorporation of modern telecommunication equipment and ICT resources into the education system. Parks (2013) posited that the word "e" should refer to "everything, everyone, engaging and easy" in addition to "electronic". The benefits of the e-learning include better content delivery, interactivity, quality content delivery and confidence of both learners and lecturers in the educational sector. E-learning has moved the citadel of learning from traditional to module-driven, ICT-based customized, adaptable and synergistic learning that involves learners, instructors, facilitators, and specialists (Falana, 2015; Olojo, Adewumi & Ajisola, 2012). Increasingly, e-learning is being employed in universities to provide education, literacy and workforce preparedness to graduating students.

The needs for online learning have been identified including the provision of equal opportunities for learners to learn at their chosen pace. Rohleder, Bozalek, Carolissen, Leibowitz and Swartz (2008) reported that e-learning made it easy to communicate between parties, and easy access to information and learning material. E-learning is a promising tool for expanding and widening access to education especially at advanced levels (Kurt & Larchin, 2005 cited in Maruti, 2010). It allows people to participate in education by increasing flexibility of participation compared to traditional face to face method. It allows working students and adults, people living in remote areas, non-mobile students and distance learning in education (Kurt & Larchin, 2005 cited in Maruti, 2010). In addition, online learning relaxes the constraints of face to face learning such as, size of rooms and student/teacher ratios.

E-learning is currently adopted in Nigeria's Education system, although not at optimal levels. It is practiced in other educational levels at minimal rates. In terms of providing quality education, e-learning has become an integral part in developing highly effective human resource. This is through network technologies that have the potential to increase the availability of quality education materials (World Bank, 2009). Today, the functionality of e-learning has expanded to include all types of students, regardless of whether they're studying full time, part time, or distance learners in higher education institutions (Azhari & Ming, 2015). E-learning gives learners an opportunity to broaden their knowledge because they are able to learn on their own and that increases learners' level of confidence and independence (Horton 2001 cited in Kyari, Adiuku-Brown, Abechi, Pyochi & Adedokun, 2018). It allows for efficient transfer of knowledge anywhere and anytime, regardless of subject matter, and opens up a world of learning unavailable in most corners of the world. At the same time e-learning empowers learners with the information technology awareness and skills crucial to succeed in today's global knowledge economy (Olukayode, 2015).

Consequently, the COVID-19 pandemic ravaging the world has taken its effects on many sectors of the economy especially in Nigeria. This effect is also evident in the Nigeria educational sector as the academic session was halted by the Federal ministry of education in order to curtail the spread of this virus in educational institutions (Adeoye, Adanikin & Adanikin, 2020). Meeting increasing demand for tertiary education by employing e-learning has its own implications. E-learning is still confronted with a lot of challenges in Nigerian Education system especially during this pandemic as this is the only medium available for learning. One of these challenges is epileptic power supply in Nigeria especially in rural areas as there is no guarantee of at least two hours power supply at a stretch. Irregular power supply in Nigeria is seen as an age-long problem which has affected almost every aspect of Nigeria economy with no exception to the educational sector (Adeoye, Adanikin & Adanikin, 2020). This unstable poor power supply has caused a major setback for technological

advancement of many universities in Nigeria. Most rural areas in Nigeria where some students are resident are not even connected to the national grid and as such, this student will experience difficulty in utilizing the e-learning platform effectively. Also, shortage in power supply has brought difficulty in powering of educational gadget such as smartphones, laptops and desktop computers needed for learning.

Nigeria educational systems and African at large have been typically affected by COVID-19 as more that 98% of teaching and learning cannot be performed suitable to country-wide lockdown in these continent. In the shutting of schools across Sub Sahara Africa, of which over 91 percent are primary and secondary school learners. (Anifowoshe, Aborode, Ayodele, Iretiayo, & David, 2020). Ngogi and Mahaye (2020) discourse that long periods of learning would be lost for as long as the closures lasted. This is evident as different cases are recorded daily. Kekić et al. (2016) reported that schools losing long periods of learning because of the disease outbreak can upshot to both chronological and stable smash up on educational system. Nonetheless, UNESCO (2020), reported that 89% of students in sub-Saharan Africa do not have right to use home computers and 82% do not have internet access; this means that these online classes cannot accommodate all students. In spite of these, the challenges with this access have seen some innovation in circumventing the bandwidth challenges; these include pre-recorded lectures on these zero-rated e-learning platforms, among others.

Digital Global Overview Report (2020) describe about 60 percent of people from Nigeria are not associated to the internet. The data for mobile phones, which could also be used as a learning intermediate, are more hopeful. According to the report, around 169.2 million people, 83 percent of Nigerians have right of entry to mobile phone connections; however, of these, 50 percent, around 84.5 million people, live in municipal areas. For the populace with access, the quantity would be twisted towards elevated socio-economic households and urban households; an awe-inspiring preponderance of whom are private school students who already have a learning benefit over their community school peers. For children from poorer backgrounds who tend to have less access to internet connectivity, computers, and other devices, and reside in rural areas where local languages take dominance over English, ICT-learning uptake will be limited.

Pirani (2004) cited in Atsumbe, Raymond, Enoch & Duhu, (2012) stated that for an institution to meet the needs of e-learning, it must provide adequate and reliable technical infrastructure to support e-learning tools and instructors and students must possess the technical skills to use e-learning. Instructors must also redesign their courses to incorporate e-learning effectively into their pedagogy. This has to be supported by relevant policy and legislature from government in order to merit wide acceptability. In Nigeria, this was achieved by the approval of the National Information Technology Policy (NITP) in March 2001 and the subsequent establishment of the National Information Technology Development Agency (NITDA) to implement NITP in April 2001 (Wodi, 2009). The policy stipulated the relevance of ICT to tertiary education. To further strengthen the impact of the policy, the National Universities Commission (NUC), which is the government agency responsible for the regulation of universities in Nigeria prescribed PC ownership for universities as follows: one PC to every four students, one PC to every two lecturers below lecturer I; one PC per senior lecturer, and one notebook per reader/professor (Agyeman, 2007 cited in Atsumbe, Raymond, Enoch & Duhu, 2012). As COVID-19 is impacting the whole world, it therefore imperative to investigate how ICT meet the needs and challenges of E-learning during the COVID-19 pandemic in Nigeria Education system.

2.0 STATEMENT OF THE PROBLEM

Societies all over the world strive to achieve quality education for their citizenry. In order to achieve this noble course, so many factors must be put into consideration. Among them is the introduction of ICT into education. Without doubt, ICT and e-learning has offered many opportunities for students and institutions all over the world; students gain access to information in education they need almost anytime and anywhere when they are ready to and enabling institutions to provide more teaching and learning process. However, e-learning may cost more to develop and requires new skills for the production of content. The associated technology might be intimidating, at times confusing, frustrating and costly. E-learning requires on the part of the learner, more responsibility and self-discipline to keep up with an unconstrained and robust learning process. Moreso, many secondary school students and undergraduates cannot operate basic programs and therefore are not able to handle their files. Furthermore, many students find fixing basic computer problems troublesome, as they have no knowledge in this area. However, technological proficiency is a must for following online courses, as it enables students and lecturers to manage their assignments and courseware in an organized manner without struggling.

3.0 RESEARCH QUESTIONS

- a) What is the impact of e-learning on Nigerian Education system during COVID-19 Pandemic?
- b) What are the challenges that face the e-learning on Nigerian Education system during COVID-19 Pandemic?
- c) What is the level of utilization of available e-learning facilities in the educational delivery system of Nigeria during COVID-19 Pandemic?

4.0 METHODOLOGY

The study adopted non experimental design involving descriptive research of the survey type for the study. The study was based on quantitative data which were statistically analyzed. The population of the study is made up of all students and lecturers in south-west, Nigeria. A sum of three hundred (300) students and lecturers with ICT ideas were purposively selected from three (3) tertiary institution in south-west Nigeria, (1 state and 1 federal) and one (1) private University. 75 students and 25 lecturers were selected through whatsapp application from each school giving a number of 225 students and 75 lecturers involved in the study. The instrument used for data collection is a self-developed questionnaire titled "Needs and Challenges of E-learning During the COVID-19 Questionnaire (NCECQ)." The instrument is made up of four sections consisting twenty-seven (25) items designed in line with the title of this study. Section A of the questionnaire was on bio-data information such as, respondent's gender, age, and academic qualification. Responses was based four-point scale, of "Strongly Agree" (SA = 4), "Agree" (A = 3), "Disagree" (D = 2) and "Strongly Disagree" (D = 1). The instrument was given to three lecturers and experts in the field of ICT to assess the validity before it was administer to twenty students and lecturers of the population sample who were not involved in the real study. Their responses were analyzed and a reliability coefficient of 0.81 was obtained. The instrument for the study was distributed to the respondents. The instrument was retrieved immediately after they have been correctly filled by the respondents. Data were analyzed using frequency count, percentage, mean, standard deviation.

5.0 RESULTS

Table 1 Analysis of the impact of E-learning on Nigerian Education system during COVID-19 Pandemic

S/N	Items	SA	A	D	SD	Mean	SD
1.	E-learning has a competitive advantage on the attitude of students towards learning	223 74.3%	72 24.0%	2 0.7%	3 1.0%	3.72	.818
2.	E-learning is to increase accessibility of education	132 44.0%	159 53.0%	7 2.3%	2 0.7%	3.40	.573
3.	E-learning helps in reducing costs and time	141 47.0%	141 47.0%	14 4.7%	4 1.3%	3.43	.644
4.	E-learning resources is aimed to improve quality of education	134 44.7%	135 45.0%	20 6.7%	11 3.7%	3.31	.754
5.	E-learning provide students with time and place flexibility	163 54.3%	119 39.7%	7 2.3%	11 3.7%	3.45	.718
6.	E-learning provide the ability to apply one's knowledge and meta-cognitive self-regulation strategies	106 35.3%	155 51.7%	31 10.3%	8 2.7%	3.20	.726
7	E-learning helps in monitoring one's learning progress	109 36.3%	135 45.0%	47 15.7%	9 3.0%	3.15	.788
8	E-learning accelerates academic success by making information easily available	133 44.3%	141 47.0%	19 6.3%	7 2.3%	3.33	.700

Table 4.4 shows the descriptive analysis of the impact of E-learning on Nigerian Education system during COVID-19 Pandemic. From the above table, it is seen that (98%) of the respondents strongly agreed that e-learning has a competitive advantage on the attitude of students towards learning, (97%) of the respondents strongly agreed that e-learning is to increase accessibility of education, (94.0%) agreed that e-learning helps in reducing costs and time. It also reveals that (92.7%) of the respondents strongly agreed that e-learning resources is aimed to improve quality of education. Furthermore, (94%) of the respondents strongly agreed that e-learning provide students with time and place flexibility, (87.0%) of the respondents strongly agreed that e-learning provide the ability to apply one's knowledge and meta-cognitive self-regulation strategies, (81.3%) strongly agreed e-learning helps in monitoring one's learning progress, while (91.3%) out of the total respondents also agreed that e-learning accelerates academic success by making information easily available.

Table 2 Analysis of challenges facing E-learning on Nigerian Education system during COVID-19 Pandemic

S/N	Items	SA	A	D	SD	Mean	SD
1.	Poor technical infrastructure	118 39.3%	131 43.7%	44 14.7%	7 2.3%	3.20	.772
2.	Cost of ICT equipment	73 24.3%	150 50.0%	54 18.0%	23 7.7%	2.91	.851
3.	Lack of computer literacy	85 28.3%	116 38.7%	81 27.0%	18 6.0%	2.89	.886
4.	Inappropriate teacher training	99 33.0%	143 47.7%	35 11.7%	23 7.7%	3.06	.867
5.	Cost of accessing the internet	97 32.3%	108 36.0%	69 23.0%	26 8.7%	2.92	.947
6.	Irregular and frequent interrupted power supply	71 23.7 %	123 41.0%	72 24.0%	34 11.3%	2.77	.938
7	Difficulty in understanding the objectives of the online courses	64 21.3%	119 39.7%	72 24.0%	45 15.0%	2.67	.975

Table 2 shows the analysis of challenges that face the e-learning on Nigerian Education system during COVID-19 Pandemic. Majority of the respondents agreed that; poor technical infrastructure (83.0%), cost of ICT equipment (74.3%), lack of computer literacy (67.7%) inappropriate teacher training (80.7%), cost of accessing the internet (68.3%), irregular and frequent interrupted power supply (64.7%), and difficulty in understanding the objectives of the online courses (61.7%) are the challenge posed by the e-learning in Nigerian education system.

Table 3 Analysis of the level of utilization of available E-learning facilities in the educational delivery system of Nigeria during COVID-19 Pandemic

S/N	ITEMS	LEVEL OF E-LEARNING FACILITIES									
		Available		Not Available		Frequently used		Sedonmly Used		Not used at all	
		Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
1	Learning Management System	223	74.3	63	21.0	10	3.3	3	1.0	1	0.3
2	Google classroom	159	53.0	127	42.3	10	3.3	3	1.0	1	0.3
3	Zoom	181	60.3	93	31.0	23	7.7	3	1.0	-	-
4.	Skype,	157	52.3	102	34.0	33	11.0	8	2.7	-	-
5	Adobe captivate	147	49.5	72	24.0	62	20.7	19	6.3	-	-
6.	Elucidat	152	50.7	76	25.3	45	15.0	24	8.0	3	1.0
7	Bamboo learning	137	45.7	103	34.3	41	13.7	13	4.3	6	2.0
8	Docebo	156	52.0	94	31.3	31	10.3	13	4.3	6	2.0
9	WIZIQ	143	47.7	102	34.0	34	11.3	14	4.7	7	2.3
10	Google hangout	160	53.3	103	34.3	31	10.3	5	1.7	1	0.3
	Total	2563	53.4%	1581	32.9%	463	9.69%	140	2.98%	50	1.03%

Table 3: shows the frequency and percentage level of utilization of available E-learning facilities in the educational delivery system of Nigeria Education during COVID-19 Pandemic. Respondents claimed that learning management system (LMS), Google classroom, zoom and Skype are the most available E-learning facilities used in the educational delivery system of Nigeria during COVID-19 Pandemic. The table also revealed the respondents' decision on the utilization of availability of other E-learning facilities such as Adobe captivate, Elucidat, bamboo learning, Docebo, WIZIQ and Google hangout are sedonmly used during COVID-19 Pandemic.

6.0 DISCUSSION

The study revealed that E-learning has a positive impact on Nigerian Education system during COVID-19 Pandemic. This is in tandem with the studies done by Kpolovie, Iderima and Ololube, (2014) which revealed that e-learning enables open and flexible learning, and in turn, allows mature students and those already in employment to access education. The result also corroborated with the findings of World Economic Forum, (2020) posited that during COVID-19 pandemic, students are being able to learn faster online since e-learning requires 40-60% less time to learn than in a traditional classroom setting because students can learn at their own pace, going back and re-reading, skipping, or accelerating through concepts as they choose.

The study also revealed that majority of the respondents confirmed that poor technical infrastructure, cost of ICT equipment, lack of computer literacy, inappropriate teacher training, cost of accessing the internet, irregular and frequent interrupted power supply, and difficulty in understanding the objectives of the online courses are the challenge posed by the e-learning in Nigerian education system. The result obtained lend support to the works of Adeoye, Adanikin & Adanikin, (2020)

which stated that the cost of purchasing the data bundle is so high which might be difficult for both students and lecturers during the COVID-19 pandemic.

The study further revealed that majority of the respondents claimed that learning management system (LMS), Google classroom, zoom and Skype are the most available E-learning facilities used in the educational delivery system of Nigeria during COVID-19 Pandemic. Adobe captivate, Elucidat, bamboo learning, Docebo, WIZIQ and Google hangout are seldomly used during COVID-19 Pandemic. Similar result was reported by Educause Center for Analysis and Research (2017) that 99% of higher education institutions have an LMS in place, and the LMS is used by 85% of faculty and 83% of students. It also supports the findings of Legon and Garrett (2017) and Brooks, (2015) which asserted that the LMS remains a mainstay of online education infrastructure, with 85 percent of faculty confirming their use of the institution's LMS and 81 percent of chief online education officers reporting the LMS to be the technology that is most important to online programs.

7.0 CONCLUSION

The study which investigate how ICT meet the needs and challenges of E-learning during the COVID-19 pandemic in Nigeria Education system has found that E-learning has a positive impact on Nigerian Education system during COVID-19 Pandemic. The study also confirmed that poor technical infrastructure, cost of ICT equipment, lack of computer literacy, inappropriate teacher training, cost of accessing the internet, irregular and frequent interrupted power supply, and difficulty in understanding the objectives of the online courses are the challenge posed by the e-learning in Nigerian education system. Nevertheless, the study further revealed that learning management system (LMS), Google classroom, zoom and Skype are the most available E-learning facilities used in the educational delivery system of Nigeria during COVID-19 Pandemic. Adobe captivate, Elucidat, bamboo learning, Docebo, WIZIQ and Google hangout are seldomly used during COVID-19 Pandemic.

8.0 RECOMMENDATIONS

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

- a) There is a need for stakeholders in education to frequently organize in service training for teachers on ICT issues and emerging trends in order to meet the needs and challenges of E-learning during and after COVID-19 pandemic
- b) E-learning should be given the utmost attention and properly implemented to help attain the growth we seek for in our education system during and after COVID-19 pandemic.
- c) The government through the Ministry of Education should ensure that schools are well equipped with ICT infrastructure especially computers and electricity connection.
- d) Teachers' should be exposed to ICT training so as to improve the ICT skills based on their willingness to integrate technology in teaching and learning during and after COVID-19 pandemic
- e) Schools should be provided with necessary ICT facilities that encourage positive use of ICT.

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