Section A-Research paper

Post-COVID-19 Era and the Challenges of Online Learning in Nigerian Public Higher Institutions

Mary Kehinde Salawu

Department of Management and Accounting, Faculty of Administration,
Obafemi Awolowo University, Ile-Ife, Nigeria
Phone: +2348034784667
E-mail: mksalawu@oauife.edu.ng

ABSTRACT

Sequel to the outright loss of academic calendars by public tertiary institutions in Nigeria arising from the Covid-19 global pandemic, the study aimed to examine the challenges faced by Nigerian public tertiary institutions students in an online learning environment after the pandemic. The study adopted a survey research design. Using a simple random sampling technique, a sample of 375 undergraduate students was drawn from the average population of 6,000 students from three academic faculties of Obafemi Awolowo University. Data were gathered through a structured online questionnaire which was administered to the respondents via email and WhatsApp. Data were analyzed with the use of descriptive statistics. The results of the study showed that the majority of the students of public higher institutions prefer physical contact sessions to online due to persistent frustration arising from poornetwork service, poor electricity supply, and high data subscription costs among other challenges confronting students in an online learning environment in Nigeria. The study recommends the provision of basic infrastructure for effective online learning as well as compliance with the minimum benchmark set by the National Universities Commission for the public universities in the country to avert future losses of the academic calendar.

Keywords: Online Teaching, Challenges, public universities

1. INTRODUCTION

Online learning has played a major role in the educational sector globally, especially during the coronavirus disaster in 2019 [COVID-19], a global pandemic that originated in Wuhan, China, and disrupted the educational systems of many countries of the world. Many countriesaround the world closed down educational institutions to avoid the further spread of the disease(Coman, Laurențiu, Luiza & Maria, 2020; Hosen, Uddin, Hossain, Islam & Ahmad, 2022; Radha 2020; Sahu 2020; Santhosh 2020). The Ministryof Education in Nigeria announced and mandated an immediate lockdown of all educational

institutions in the country on March 19, 2020. These directives led private institutions mostly to keep up with academic processes because they already had the facilities to migrate to online teaching (Agbele & Oyelade, 2020; Santhosh, 2020). Although most universities in Nigeria did not prepare for the contingency that could have an impact on the educational system, such as the COVID-19 pandemic; however, management teams at various universities that adopted online learning provided guidance and support to ensure that learning activities continued.

Online learning during the period was both synchronous and asynchronous. Online learning tools such as Zoom, Microsoft Teams, and Google Classroom, among others, were used to deliver remote instructions (Shahabadi & Megha 2015; Perveen 2015; Chen *et al* 2020; Dhawan 2020; Ope-Davies 2021; Santhosh 2020). This enabled students to learn in groups at the same time with the use of live video and/or audio with immediate feedback from the students. On the other hand, asynchronous learning allowed students to learn at their individual pace and within the timeframe set by their facilitators. Students' emails and WhatsApp groups were flooded with learning materials and recorded lectures, which were mailed or shared with the students (Watheq & AbuSeileek, 2015).

Within the timeframe allowed, students were able to access and engage with their lectures and other learning resources within the semester (Piskurich 2016; Coman, *et al.* 2020). These institutions' management ensured quality control over the teaching and learning by applying appropriate strategies to address any foreseeable limitations inherent in remote teaching. Regrettably, while those activities were ongoing in private institutions during the pandemic, all the public tertiary institutions across Nigeria, including all academic activities were shut down because there were no existing platforms to host online teaching and learning prior to the pandemic year. Subsequently after the reopening of the public tertiary institutions at the end of the first quarter of 2021, the institutions did not provide technological tools or data to support either academic staff members or students for online teaching and learning. Yet, teaching and learning were planned to commence without physical meetings with the students. The objective of this study was therefore to examine the experience of the undergraduate students of the public tertiary institutions in Nigeria with respect to online learning challenges after the covid-19 pandemic so as to determine practical steps to avert/combat the future occurrence of loss of academic calendar in the public institutions. This will help to close the gap between the online learning experience and the associated skills of the graduates of private tertiary institutions and their counterparts in the public tertiary institutions in Nigeria. The subsequent sections contain the review of relevant literature, the method, and material adopted for the study as well as the results and discussion of findings. The concluding section also presents useful recommendations arising from the study which management and relevant

regulators would find helpful.

2. LITERATURE REVIEW

Online, web-based, and electronic learning [e-learning] are used interchangeably. These concepts have become increasingly important components in Nigeria's national drive to enhance education, as with many other developing nations (Ajadi *et al* 2008; Obioma *et al*. 2013; Kyari *et al*. 2018; Bassey 2020). Online learning could be described as the use of information and communication technologies for improving and advancing teaching and learning methods. It encompasses everything about accessing coursework either partly or entirely online. Irrespective of the subject matter, e-learning allows for the efficient transfer of knowledge anywhere and at any time (Oye 2011; Ajadi *et al* 2008; Olalekan 2021). Since the period of the Covid-19 global lockdown, there has been a noticeable shift from the old style of chalk-and-board approach to a modern approach in which computer technology plays an important role (Kennedy 2020; Sathishkumar 2020). Although, for most higher education institutions in Nigeria, online learning is still a supplement to the face-to-face learning process (Jeongyun *et al*. 2018); and the only time online learning was employed as the only mode of instruction was during the Covid-19 pandemic (Chen 2020; Kennedy 2020; Sathishkumar 2020; Subuola, Oresajo & Akintola (2021).

Online learning according to Madu, Obidi and Genevive (2015), provides ease of access to huge amounts of information which improves the effectiveness of knowledge acquisition and certifications. Other numerous benefits include but are not limited to helping students to activate and develop the basic skills required for navigating across relevant learning platforms; removing learners' personal limitations, such as the fear of speaking with other students; accommodating individual learner's uniqueness; encouraging learners to attend lectures irrespective of their physical locations; substituting for the shortage of teaching staff, including instructors/facilitators, laboratory specialists, and other experts; facilitating interactions amongst students with the usage of discussion boards, etc. (Sam 2009; Harasim 2017; Jeske 2017; Eiriemiokhale & Idiedo 2020).

Despite the numerous benefits of the online teaching method, certain drawbacks have been identified in the literature as inhibiting the efficacy of online learningin Nigeria. One of the problems is the unstable power supply that exists across the country (Oye, 2011, Egolum, (2021). Many Nigerians living in urban areas anticipate power to be available 24 hours a day, whereas, it is only available for an average of eight hours every day. In the same vein, hundreds of thousands of students who live in rural areas where there is no power supply at allare grossly affected by this menace. Other challenges take different forms such as the lack of technical expertise required by facilitators (Halima 2014; Olukayode 2015;

Ronghuai 2019; Subuola, Oresajo & Akintola, 2021; Ogolodom *et al* (2022). Students also experience similar difficulty evaluating their online lectures because the majority of them are not technically oriented. There are problems with slow learners who rely on their peers to re-explain the concepts taught by their teachers. This problem could be worsened by the absence of a lecturer's guidance to support the slow learners who are now isolated from their peers and might not be expected to catch up with their peers. Although, studies have shown the value of collaborative learning among students as a means of bridging the gap between slow and fast learners, however, a lack of appropriate digital tools and, internet connections, can result in several setbacks, with many students potentially losing out on the learning process (Gang & Takatsuka 2009; Dhawan 2020; Subuola, Oresajo & Akintola (2021). Due to poor ICT infrastructure, online learning in Nigeria has not been performing to expectation. This setback is partly due to the high cost of developing infrastructure and increasing public access to the Internet net and other ICT tools (Halima, 2014; Bubou & Job, 2021). A more related challenge to this is the inequality in access to technology arising from the stringent economic situation in the country. Only parents and guidance with high-paying jobs can buy personal computers, laptops, and other digital devices for their children and wards, leaving a large proportion of Nigerians computer illiterate.

Other shared problems include inadequate funding of the universities towards the acquisition of emerging technologies as well as required devices such as laptops, and tablets among others, for both students and staff (Olukayode 2015; Ronghuai, 2019; Ogolodom *et al* (2022). Some public institutions are not able to acquire expensive software to support online learning programmes. This also limits educators from producing online instructional content with the help of appropriate software. Internet connectivity problem is also a major impediment to gaining access to online platforms as desirable. This study is therefore based on the theory of constructivism which encourages learners to build their own meaning and understanding from learning resources and circumstances within and outside their immediate environment. It takes cognizance of the individual characteristics of learners and promotes skills development (Visha (2015). The practicality of this theory has been enhanced today by massive open online courses (MOOCs) which facilitates skills activation and competencies update through self-learning (OECD, 2016)

3. METHODOLOGY

The study adopted a survey research design. Using the Yamane formula, with a 95% level of confidence (Yamane, 1967), a sample of 375 undergraduate students was drawn from the average population of 6,000 students from three academic faculties including Social Sciences, Administration, and Faculty of Science of Obafemi Awolowo University calculated as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where:
n = sample size required
N = population
e = allowable error in percentage

To substitute numbers in the formula:

$$n = \frac{6000}{1 + 6000(0.05)^2} = 375$$

The respondents from Social Sciences belonged to different Departments comprising Economics, Demography & Social Statistics, Political Science, Sociology & Anthropology, and Geography while those from the Faulty of Administration were comprise of Departments of Management & Accounting, International Relations, Local Government & Development Studies, and Public Administration. Respondents from the Faculty of Science comprise students of the Departments of Geology, Mathematics, Physics, and Chemistry among others. The groups of students selected for the study were mandated by the University Authority (in line with the directives of National Centre for Disease Control) to join online classes in order to prevent possible spread of the virus after resumption from Covid-19 global shutdown. Studies have shown that online learning is more suitable in the social sciences such as Economics, Accounting, Business administration, political science, and humanities rather than in fields such as pharmacy and medicine, where laboratory practical sessions are largely required (FGN 2004; Picciano, 2017). This, therefore, informed the choice of the respondents selected for this study (refer to Table 1) to ensure unbiased information is elicited from the appropriate sets of students so as to guarantee the reliability of the study outcomes. Although about 20% of science students were involved in the study, the focus of the study was on challenges that were common to all the students.

The study employed a simple random sampling technique to provide an equal chance for study participants. Data for the study were gathered through a well-structured online questionnaire which was administered to the respondents via email and WhatsApp. As shown in Table 1, 375 respondents were drawn from the faculty of administration (60.8%); faculty of science (20.3%), and faculty of social sciences (18.9%) respectively for the study. Descriptive statistics were employed for analyzing the data for the study and these include tables, percentages, ranges, and narratives.

Table 1: Distribution of the Faculties of Respondents

Faculties	**Population**	**Sample Size**	**Percentage**
Administration	3648	228	60.8
Science	1218	76	20.3
Social science	1134	71	18.9
Total	**6,000**	**375**	**100**

Source: Field Survey, 2022

4. RESULTS

4.1 Age distribution of respondents

The information presented in Table 2 shows that the respondents are of the university's legal age with 16 years as the minimum. Respondents between ages 16 and 20 are 32%; those between ages 26 and 30 years are about 52% while those between 26 and 30 years are about 15%. Only about 1% of the respondents are above 30 years. This also indicates that the respondents are of the supposedly digitally-inclined generation with 16 - 25 years accounting for the larger percentage. It is noteworthy that the Faculty of Science constitutes the largest proportion of students between the ages of 16 and 20. This implies that a lot of younger undergraduates in Nigerian tertiary institutions are scientifically oriented.

Table 2: Age distribution of respondents on Faculty Basis

Age (years)		**Faculty**			**Total**
		Administration	Science	Social science	
16 – 20	Count	67	33	20	120
	% within Age (years)	55.8%	27.5%	16.7%	100.0%
	% within Faculty	29.4%	43.4%	28.2%	**32.0%**
21 – 25	Count	123	30	41	194
	% within Age (years)	63.4%	15.5%	21.1%	100.0%
	% within Faculty	53.9%	39.5%	57.7%	**51.7%**
26 – 30	Count	36	12	9	57
	% within Age (years)	63.2%	21.0%	15.8%	100.0%
	% within Faculty	15.8%	15.8%	12.7%	**15.2%**
Above 30	Count	2	1	1	4

	% within Age (years)	50.0%	25.0%	25.0%	100.0%
	% within Faculty	0.9%	1.3%	1.4%	**1.1%**
Total	Count	228	76	71	375
	% within Age (years)	60.8%	20.3%	18.9%	100.0%
	% within Faculty	100.0%	100.0%	100.0%	**100.0%**

Source: Field Survey, 2022

4.2 Preference for online learning and physical learning modes

The result of the evaluation of students' preference for learning on the online platforms and learning in the physical classroom is displayed in Table 3. While about 47% of the respondentspreferred online learning to physical learning, the majority of the students (53%) showed a preference for physical learning.

Table 3: Preference of online learning to physical learning

Preference for Online Learning	**Frequency**	**Percent**
Yes	175	46.7
No	200	53.3
Total	**375**	**100.0**

Source: Field Survey, 2022

4.3 Challenges Faced by Students in the online learning environment

This section identifies the challenges confronting the respondents in their online learning environment. The challenges are analysed and categorized as shown in Table 4. The predominant problem experienced by the students are issues relating to internet connectivity (41.6%), which ranges from outright network failure and poor network coverageamong others. Others include poor electricity supply (15.2%) and, high cost of data subscription (11.5%). These key elements (electricity, internet, and data supply) are supposed to facilitate and promote online learning but they have turned out to be problematic to students' online learning in Nigerian public tertiary institutions.

Students also indicated distractions from the neighborhood (7.7%) as one of the challenges which make online learning uninteresting. This is particularly peculiar to the students who reside outside the university environment. Other challenges identified by the respondents include a lack of orientation or

guidance on the use of most of the online learning platforms (about 3%).

Additionally, absence of social/physical interactions between and among the teacher and the students; financial-related issues such as inability to afford internet-enabled devices; limited capacity of most of the online learning platforms; and sudden malfunctioning of digital devices during an online learning session were identified as part of the undesirable experience for someof the respondents. Only about 9% of the study respondents are comfortable with online learning as they could not think of any problem which impair learning through this method.

Table 4: Challenges faced by the respondents in online learning

Variables	**Frequency**	**Percent (%)**
Network/Internet-related issues	156	41.6
Poor electricity supply	57	15.2
Distractions	29	7.7
High cost of data	43	11.5
Lack of adequate orientation on the use of theonline learning platforms	11	2.9
The limited capacity of the online learning platforms	2	0.5
Financial related issue	5	1.3
Absence of physical interactions	15	4.0
Sudden malfunctioning of devices	1	0.3
None	33	8.8
Others	23	6.1
Total	**375**	**100**

Source: Field Survey, 2022

While about 47% of the respondents had a preference for online learning despite its numerous challenges, only about 9% derive satisfaction from this method of teaching and learning (refer to Tables 3 & 4).

4.4 Network Speed and Accessibility to online learning platforms

Table 5 provides the rating of accessibility to the online learning platforms as experienced by the learners. Based on their experience, only 27% of the entire study sample had very good internet access or speedy access to online learning platforms, whereas, about 25% of the respondents had serious difficulty accessing the internet to participate in online lectures and/or assess online materials posted by their facilitators. As reported in the finding of Olatunde, Ogunode & Eyiolorunse (2021) and Ogolodom *et al* (2022), this is an indication that these categories of students are not able to access the learning platforms for effective online learning as desired or as the teachers would expect.

Table 5. Internet Speed/Access to Online Learning Platforms

Internet Access	Frequency	Percent
Very Good	102	27.2
Good	180	48.0
Not good	93	24.8
Total	**375**	**100.0**

Source: Field Survey, 2022

4.5 The frequency with which electricity supply affects accessibility to online learning

Considering the centrality of electricity supply to the functionality of internet connectivity andonline learning generally, the researcher probed further into the frequency with which learners experience a power failure and which also translates to online learning failure in most instances.The result as presented in Table 6 reveals that about 47% of the students in the public tertiary institution in this study are being impaired from benefitting from effective online learning due to unstable or non-availability of electricity power supply.

Table 6. Poor Electricity Supply and Online Learning Experience

Respondents' Experience	Frequency	Percent
Not too Often	198	52.8
Often	50	13.3

Very often	127	33.9
Total	**375**	**100.0**

Source: Field Survey, 2022

5. DISCUSSION

The respondents of this study are largely a digitally inclined generation with a strong inclination and the wherewithal to learn online as corroborated by Kola (2014) and OECD (2016). However, their preference for physical learning over online depicts the frustration experienced by students under pervasive unconducive online learning environments in public tertiary institutions in Nigeria. Unlike the findings of Stoian, Fărcașiu, Dragomir & Gherheș (2022) and Ogolodom *et al* (2022), students rather prefer to travel down to the school or walk meters to lecture halls to receive lectures as this method seems more effective than online mode considering all the associated challenges. This is a negative signal which could be detrimental to the development of the inherent digital skills in Nigerian University graduates and could hamper their potential to compete favourably with their peers who learn in online-friendly environments in other parts of the world (OECD, 2016).

While the respondents emphasized internet connectivity as the predominant problem confronting the effectiveness of online learning, poor electricity supply remains a perennial and foundational problem that may perpetuate internet instability in Nigeria. Internet service would be limited whenever there is an electrical power failure. Invariably, electricity failure is synonymous with internet failure. This situation is consistent with the findings of Oye (2011); Olatunde, Ogunode & Eyiolorunse (2021); Egolum, (2021); Bubou & Job (2021) and Ogolodom *et al.* (2022).

While these challenges persist, the high cost of data subscription was becoming unbearable for this large student populace. Students are equally required to pay for internet services provided by their schools as no free Wi-Fi is available for learners. The public tertiary institutions in the country are the solace for both low- and medium-income earners to educate their wards. However, with the absence of financial support such as scholarships and bursaries, undergraduate students with poor financial backgrounds would prefer physical lectures which would not require any financial commitment to participate. Lack of guidance on the use of online learning tools was also noted by the study participants as those tools were not provided in the category of institutions under study. Online learning would be truly uninteresting where students are left to sort themselves out in the midst of those highlighted challenges as indicated by the respondents. These findings are similar to the arguments of Malale, Gomba, & Dichaba,

(2018); Eiriemiokhale & Idiedo (2020); Subuola, Oresajo & Akintola (2021); Bubou & Job, 2021; Egolum, (2021), and Ogolodom *et al* (2022).

The study participants also experienced a more serious problem which constantly reduced the length of their active learning contact hours study due to the low speed with which they were able to access the internet to either participate in online lectures and/or assess online materials posted by their facilitators. This challenge must have aggravated the learners' preference for physical mode of learning to either synchronous or asynchronous online learning in the public institution under study. However, with enhanced quality internet access, learners would be more attracted to online learning (Olatunde, Ogunode & Eyiolorunse, 2021; Ogolodom *et al*. 2022).
Students who reside outside the campus environment are found to be facing more challenges than their counterparts who reside in the university hostels where internet service and electricity supply could be worse in addition to uncontrollable distractions which they constantly face (Lawn, Zhi & Morello, 2017; Bubou & Job, 2021).

More importantly, the students valued social/physical interactions among peers as well as their facilitators. This confirms some of the earlier findings that online learning (interaction with machines) cannot replace human interaction with its natural and emotional satisfaction derivable thereof (Lawn, Zhi & Morello, 2017). This physiological need could be met by promoting blended learning in the various institutions

6. CONCLUSION AND RECOMMENDATIONS

Considering the host of challenges confronting learners in the online learning environment in public tertiary institutions in Nigeria, the study concluded that, it is not certain that a majority of the institutions would be able to support online learning successfully in case of any unforeseen future disruptions. As could be seen from the results of this study, some of the challenges identified as inhibitingtheir accessibility of online learning such as poor network service from network providers, high data subscription costs, poor electricity supply outside the campus for students who live off campus, distractions such as noise from the neighbourhood, financial problems faced by indigent students arising from the stringent economic condition, and sudden failure of digital devices, are beyond the control of the university management. Despite the fact that Covid-19 has subsided, public tertiary institutions in Nigeria are still not able to proffer solutions to the problems that prevented the institutions from migrating online during the pandemic.

While some of the factors identified as inhibiting students' accessibility to online platforms are beyond the university administration's control, the study recommends that the university should provide stable internet facilities accessible within the campus and outside the campus, especially, in the areas

where students are clustered, at a low cost to support the indigent students among others. Public institutions should as well prepare to host blended learning so as to avoid future loss of academic calendars by institutionalizing technologies for teaching and learning. This would be made possible with the support of the government and other stakeholders since it is impossible for schools to achieve the desired technological transformation and innovation without appropriate policies in place. Appropriate training should be considered for students and their facilitators on the use of various teaching and learning technologies for better results. There is also the need for the National University Commission to emphasize compliance with the minimum benchmark to enhance effective online learning in the country.

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