

E-Learning Readiness in Higher Education Institutions in Nigeria during COVID-19 Pandemic

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Abstract. *Purpose:* The emergence of coronavirus disease 2019 (COVID-19) pandemic necessitated the closure of schools and higher institutions worldwide. Most schools resorted to online learning without considering its attendant effects. Most institutions in the developing countries that were stocked with traditional face-to-face learning method migrated to online learning unprepared. The study, therefore, evaluates lecturers' readiness for e-learning in higher education institutions in Nigeria amid COVID-19 pandemic.

Design/Methodology/Approach: To achieve this, a structured questionnaire was administered to 324 lecturers in selected federal, state, and private universities in Nigeria. The study adopts a quantitative research method. The quantitative data was analyzed using descriptive statistics.

Findings: Findings reveal that Nigerian universities were not ready for e-learning prior to COVID-19 pandemic as the needed critical components to take-off e-learning were not available. Study indicates that resource utilization, resource availability, and e-learning facilitations are the critical factors that affected e-learning readiness in Nigeria universities amid COVID-19. Other challenges include internet unreliability, unavailability of e-learning pedagogy, and lack of prerequisite skills for the instructors and the learners.

Research Limitations/Implications: A major limitation of the study is the failure to evaluate the challenges of e-learning readiness from the students' perspective. This limitation creates opportunities for further research into the subject matter. Despite this limitation, the findings from the study have potential implications for university management stakeholders, education policy maker, and e-learning implementation in Nigeria HEIs.

Originality/Value: Given the fact that e-learning is still a new method of teaching in HEIs in Nigeria, switching to this method of teaching unprepared poses a major challenge for both the learners and instructors. Therefore, it is crucial to evaluate facilitators and beneficiaries' readiness to embark on this new method of learning.

Keywords: e-learning readiness, online teaching, COVID-19, educational system, Nigeria HEIs

Introduction

The Corona Virus (COVID-19) pandemic brought a sudden transformation of how businesses are done on every sphere of the world economy. The educational system was not left behind, as schools were shut down to mitigate the spread of the virus. To maintain educational continuity, countries sort for different electronic driven teaching methods. Most

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countries resorted to free-to-air television, radio program, and e-learning (UNESCO, 2020). Among these methods, e-learning became the best alternative and most sought after, for education continuity amid COVID-19 in order to reduce the spread of the virus within the teaching environment (Murphy, 2020). However, there are several ongoing debates associated with e-learning. These include affordability, accessibility, learning pedagogy, flexibility and life-long learning (Dhawan, 2020). These debatable components are important in evaluating e-learning readiness, more especially at the point when most schools were not prepared for this method of teaching.

Electronic learning is a structured conveyance of learning and training through electronic resources. OECD (2005) defined e-learning as the use of Information and Communications Technology (ICT) to deliver learning. It is the manipulation of computer hardware, software, human-ware for the purpose of teaching and learning (Noble, 2017). This learning can be delivered through the internet, emails, computers, recorded video tapes, recorded audio tapes, teleconferencing (Welsh et al., 2003; European Commission, 2001). The emergence of the pandemic has led to the exponential growth and acceptance of this teaching delivery method by most education stakeholders. Even schools that have not used this teaching delivery method before, suddenly switched over to e-learning method without considering the required skills, devices, and materials (Sherman, 2020). This is worse in schools in developing countries where the only method of teaching prior to the crisis is the traditional face-to-face method (Adegore & Adegboire, 2021).

The shutdown of schools due to the spread of COVID-19 made some schools in the developing countries and other parts of the world shift to online learning methods unprepared despite its myriad of challenges. Nigeria higher institutions were not left behind as some tertiary institutions adopted this method of learning, even though, they were not ready, considering the infrastructural and human capacity deficiencies (Adegore & Adegboire, 2021). Beyond the infrastructural inadequacy, the few available infrastructures were not functioning optimally (Usoro & Akuchie, 2012). Olatokun and Opesade (2008) in their study, posit that Nigerian universities are not ready due to inadequate infrastructure, skilled manpower, and ICT policy. Nwangwu (2019) suggests that factors that influence the adoption of e-learning are “public/society readiness, financial readiness, training readiness, ICT-equipment readiness, and e-learning material/contents”.

In this study, some factors were evaluated to ascertain lecturers’ readiness to embark on e-learning amid covid-19 in Nigeria HIEs. Readiness is not just a mere say, rather having the competent, skills, and infrastructures base to go into a certain venture. Without these factors in place both the learners and the instructors will be negatively impacted. The study critically revealed some areas lecturers were handicapped before embarking on e-learning amid covid-19. Findings from the study reveal that internet reliability and availability were major challenges that effected e-learning amid covid-19. When internet availability becomes a challenge, most students will be disadvantaged as they will be unable to access the classroom due to lack internet in their area of residence. This is one of the challenges of adopting e-learning in HEIs in underdeveloped world like Nigeria. According to International Telecommunication Union (2019) report, internet dissemination in Nigeria is within the range of 42 percent. Insisting on e-learning amid COVID -19 will stem a digital divide. Also, even when the internet is available, reliability was challenge due to network congestion as many households were connected on the internet for their wards in primary, secondary, and tertiary schools. This finding is in line with (Armstrong & Parrish, (2021) and Chen (2020) studies posit network congestion and unavailability of internet as one of the major drawbacks of online learning amid covid-19. A possible implication of the findings is that with unreliable internet, students’ participation will be forestalled, thereby effecting learning effectiveness.

Also, the hasty shift to online learning was a major challenge to teachers as they had minimal time to prepare for the transition (Ikwuka et al., 2021). This supports Nwangwu (2019)'s claim that training readiness was a problem toward the adoption of e-learning in Nigeria HEIs. There are other factors for effective online education which must be considered in e-learning method of learning. Hodges et al. (2020) argued that for effective online education, the online design to be adopted is important and there is need for the instructors and learners to be conversant with the design. However, the design was absent in the decision to transit to online learning in Nigeria Universities. On the other hand, it is arguable that the lecturers, students and the society were not ready for the online learning. Even with the few available digital resources in the universities in Nigeria, the readiness to migrate to this method of learning may be in doubt.

Crawford et al. (2020) in their study conducted across higher education institutions in 20 countries found that most countries have challenges migrating from face-to-face teaching to online mode citing readiness as the major hurdle. According to Hetty Rohayani et al. (2015), e-readiness is imperative in successful implementation of e-learning in higher education. There are several studies that have explored on e-learning readiness in higher education (Mafenya, 2013; Oketch, 2013; Hamid, 2013). They cited skills, attitude, experience, organizational barrier, motivation, technology, content, ICT infrastructure as the major barriers. More recently, studies conducted on e-learning readiness in relation to COVID-19 and the imposed lockdown were mainly on policies and school settings (Churiyah et al., 2020; Aguilera and Nightingale. Lee, 2020). Beyond the policies and school settings, the instructors and students' readiness are of essence. The outcome of the e-learning is dependent on how prepared the lecturers are in using online facilities as a means of teaching. This is also applicable to most students who have never used online method as part of the learning process.

According to Kundu and Bej (2021), due to the swift shift to online education as a response to the pandemic, students were not satisfied with the online classes as they were not ready for it. Even though most students are technology driven given their social media involvement, they are reluctant to abandon the face-to-face learning method. Howard (2009) postulates that students prefer the face-to-face experience in the learning process because of the direct physical interaction between their lecturers and course-mates.

In addition, another study conducted on e-learning readiness in higher education in Nigeria cited society readiness, financial readiness, training readiness, ICT-equipment readiness, and e-learning material/contents readiness as major influencers towards the implementation of e-learning (Nwangwu, 2020). Chung et al. (2021) conducted a study at a Malaysian public university and considered five factors needed for the implementation of e-learning in public universities. These include self-directed learning, learner control, motivation for learning, computer/Internet self-efficacy and online communication self-efficacy.

Despite these inadequacies, some universities in Nigeria migrated to online learning. What this portends is the risk of compromise in academic quality and standards (Crawford et al., 2020). In this study, some factors were evaluated to ascertain lecturers' readiness to embark on e-learning amid covid-19 in Nigeria HIEs as readiness is not just a mere say, rather having the competent, skills, and infrastructures base to go into it. Without these factors in place, both the learners and the instructors will be negatively impacted. Reviewed literatures perceived readiness from infrastructural perspective which is not enough for effective learning. The study considered lecturers affordability of the major driver of e-learning, which is the internet, knowledge of learning pedagogy, internet availability, resource utilization and availability and other critical factors of high importance. Ultimately,

this study was conducted to investigate lecturers' readiness for e-learning during the COVID-19 pandemic.

Materials and Methods

Population Setting

In this study, a survey approach was applied to investigate online teaching effectiveness amid COVID-19 in HEIs in Nigeria. The universities (federal, state, and private owned institutions) were selected from the six geo-political regions in Nigeria. The 324 questionnaires were shared equally among eighteen universities selected through non-probability sampling approach. The data were collected between March 2022 and July 2022. The questionnaires were sent to 324 lecturers through email and WhatsApp. A constant reminder was sent to the respondents weekly through WhatsApp messages, text messages, and phone calls. This effort led to 205 questionnaires (63.27 percent) out of 324 questionnaires being properly completed and returned. The data was computed using the 205 returned questionnaires. The sampling population comprises 34.8 percent female and 65.2 percent male within the age range of twenty-seven and seventy years. Thirty-four percent of the return questionnaire were lecturers from federal universities while forty-one percent were from private universities and twenty-five percent from state Universities.

Variable and Measurement

In the study, appropriate measures were taken as the study questionnaire comprises of 17 choices, closed and open-ended, five-point Likert scale questions (ranging from "strongly agree" to "strongly disagree"). With the five-point Likert Scale, a cut-off point of three were used to denote the parameters that performed well. The instruments were sent to experts for content validity to ensure it measures all the expected areas (Adjei Budu et al., 2018). All the recommendations made by the experts were implemented. The reliability test of the instruments were also carried out using Cronbach alpha method to evaluate the internal consistency (Cronbach, 1951). The reliability coefficients of the instrument were 0.83 and 0.75 respectively. This indicates that the instruments were reliable and the internal consistency satisfactory. Finally, the data were analyzed quantitatively using descriptive statistics (Cooper & Schindler, 2003) using SPSS 25.

Findings and Discussion

A. Is Lecturers in Nigeria higher education institutions ready for e-learning prior to the COVID-19 pandemic?

The emergence of COVID-19 compelled some higher education institutions in Nigeria to resort to e-learning for education continuity and to meet up with the academic calendar (Azzi-Huck & Shmis, 2020; OECD, 2020). The rapid transition to this online class has not only benefited students but has created thrust for continued education (Rajhans et al., 2020). But the challenge with the swift transition is how many lecturers are ready to embark on this learning method without training see (Figure 1). Findings show that 50.46% of the respondents confirm that lecturers are ready for e-learning prior to COVID-19 while 49.54 percent of the lecturers were not ready for the online learning. Going by the result in Figure 1, there is a negligible difference of 0.92 percent between the numbers of lecturers that confirmed readiness to e-learning as against the lecturers unprepared. Therefore, it is important to evaluate other metrics to determine lecturer's level of readiness in using online procedures in teaching and the availability of basic prerequisites to support e-learning.

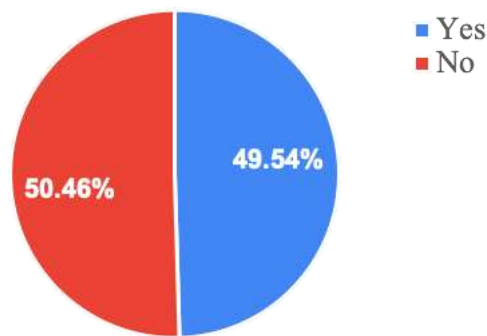


Figure 1: E-learning readiness in HEIs in Nigeria

B. Lecturers' readiness in using online teaching procedures in HEIs in Nigeria

In evaluating lecturers' readiness using online teaching procedures in HEIs in Nigeria, the first question addressed was, 'can lecturers afford the cost of internet'? The result shows a mean score of 2.22 which is below the cut-off point of 3. If the lecturers (instructors) cannot afford the cost of a strong internet connectivity, learning through online will not be realistic. For one to engage in online teaching internet affordability must be considered as e-learning is only achievable through strong internet connectivity (Palvia et al., 2018). For lecturers to have unlimited access to strong internet connectivity that can support e-learning in a developing economy government support and lower cost of internet access is required (Lai & Widmar, 2020); Agrawal et al., 2021). Affordability of internet access for both the instructor and the learners suggests how unprepared they are to embark on e-learning amid COVID-19.

The study analyzed internet service availability to the lecturers, given the fact that lecturers are in their respective homes due to the lockdown to mitigate the spread of the deadly virus. findings reveal mean of 3.73 The findings corroborate with the study of TEP Centre (2020), that about 28% of teachers reported that students were not joining the class due to non-availability of some digital tools. Even the ones joining, are not yielding positive outcome as they were not exposed to the tools prior to the pandemic. What this portends is that some teachers are not ready for e-learning amid the COVID-19. For an institution to be ready for e-learning, internet must be provided for both the learner and the instructors. According to Eze et al. (2018a) and Mutisya and Makokha (2016), limited internet facilities is one of the fundamental factors inhibiting e-learning implementation in universities in Nigeria. In Nigeria, internet distribution is within the range of 42% (International Telecommunication Union, 2019), which revealed that less than half population of Nigerians were not connected to the internet. Yet, this facility is needed for both the instructors and learners in an online learning environment. Comparing the internet affordability result with the internet availability outcome, it is obvious that even when internet available for 70 percent of the users, affordability becomes a challenge. This will disadvantage some instructors and learners, thereby widening the digital divide (Lai & Widmar, 2020).

Consequently, e-learning pedagogy availability before COVID-19 was examined. Investigation reveals that 61.95 percent of lecturers were not exposed to e-learning pedagogy prior to the pandemic. This lapse will affect students' performance as its application is required in evaluating the students learning progress. According to Moedritscher (2006), e-learning pedagogy is essential in e-learning method of teaching, more especially in curriculum delivery. In the case of Nigerian universities, 61.95 percent of the respondents

were not conversant with the learning pedagogy, thereby, lecturers' readiness teaching in an unknown environment is a challenge.

Furthermore, e-learning resources and utilization were evaluated. Findings suggest that e-learning resources were inadequate to support effective e-learning outcome as 59.52 percent of respondents affirm unavailability of resources. Also, the result of resource utilization see (Figure 1) posits that the few available resources were not properly utilized as lecturers were not ready to embark on it. This supports the findings of Akanbi (2020) that even when resources were available, utilization was a challenge. For proper resource utilization, consistent training is required for both the instructors and learners (Akanbi, 2020; Olutola et al., 2021; Eze et al., 2018b).

The study further analyzed how knowledgeable lecturers were with the usage of computers and the extent of e-learning skills acquired by the lecturers prior to COVID-19 pandemic. Findings reveal that 66.34 percent of the lecturers are knowledgeable in the usage of computers but have not acquired prerequisite e-learning skills. According to Eze et al. (2020), lack of technical know-how is one of the challenges affecting e-learning adoption in HEIs in Nigeria. The findings corroborates with the work of Xaymoungkhoun et al. (2012.), that suggest computer knowledge and computer self-efficacy as part of the factors affecting e-learning readiness in developing countries. This calls for universities management to intensify effort in ensuring that lecturers and students have the basic computer knowledge and e-learning skills to embark on e-learning activities.

The study examined lecturers' knowledge of e-learning applications prior to COVID-19. Investigation shows that 52.20 percent of the respondents have knowledge of the application while 40.53 percent have no prior knowledge. It is arguably that the respondent with prior knowledge of the application is from private universities. The result from the study on skill acquisition see (Figure 1) aligns with the findings as 60.49 percent of respondents do not have the prerequisite e-learning skills. This exposes lectures' level of unpreparedness to embark on e-learning amid COVID-19.

Also, lecturers' usage of e-resources prior to COVID-19 were investigated. Results reveal that 47.31percent respondents do not use e-resources while 46.83 percent use e-resources in delivering their lectures. These collaborate with the result from (Eze et al., 2020) that e-learning resources were inadequate to support e-learning. In institutions where traditional mode of teaching were dominant prior to the pandemic, providing all the supporting resources might pose a challenge, considering the total lock down in major cities of the world during the pandemic.

The study analyzed the facilitation processes lecturers adopted amid covid-19 using e-learning teaching method. In the facilitation process, the use of online discussion to facilitate learning was studied. The result reveals a mean score of 3.2. This shows that majority of the lecturers used the appropriate facilitation method in teaching as the mean cutoff was above three.

Moreover, investigations show that lecturers provide other e-learning resources to students through recorded video clips and audio as the outcome reveals mean values of 3.29 and 3.02 respectively. This is encouraging as it will help students to learn better and have a feel for a closer relationship with the lecturer. For online learning to be effective, facilitation is very crucial (Brennan, 2003). Facilitation and moderation are the goal of e-learning effectiveness (Gilly, 2011). Therefore, one can argue from the outcome of the result that prior to the pandemic, that Nigerian university lecturers do not facilitate the lectures online, besides that, do not provide e-learning resources to students. Theses expose their level of readiness to embark on online learning amid COVID. It is recommended that for effective online learning, stakeholders need to elucidate online facilitation process through training of the learners and instructors for competencies to navigate the platform (Kolapo, 2021).

Arguably, from the outcome of the study, 41.96% of lecturers did not use online facilitation due to lack of training and inadequate time to expose lecturers to the basic e-learning skills. This may possibly result in low outcome in students' performance as respondents result reveal a mean value of 2.41 which is below the cut-off point. Therefore, engaging in e-learning method of teaching unprepared will amount to producing graduates not competent to solve the nations problem. It is imperative to ensure that all the indices required to embark on e-learning for both the instructors and the learners are in place to achieve effectiveness in learning and teaching.

Table 1: Lecturers' readiness in using online teaching procedures in HEIs in Nigeria

	Strongly Agree (5)		Agree (4)		Undecided (3)		Disagree (2)		Strongly disagree (1)		Total	Mean	SD
	Frequ ency	%	Frequ ency	%	Frequ ency	%	Frequ ency	%	Frequ ency	%			
Can lecturers afford the cost of internet	9	4.39	50	24.39	5	2.44	54	26.34	87	42.44	205	2.22	1.33
Internet Service availability	86	41.95	50	24.39	6	2.93	54	26.34	9	4.39	205	3.73*	1.35
Is there available e-learning pedagogy prior to migration to online class	31	15.12	27	13.17	20	9.76	54	26.34	73	35.61	205	2.46	1.46
Are e-learning resources available for the online class	24	11.71	52	25.37	7	3.41	34	16.59	88	42.93	205	2.46	1.53
utilization of e-learning resources	51	24.88	23	11.22	4	1.95	34	16.59	93	45.37	205	2.54	1.70
Are Lecturers knowledgeable in using computers	83	40.49	53	25.85	15	7.32	47	22.93	7	3.41	205	3.77*	1.29
lecturers have prerequisite e-learning skills prior to COVID-19 pandemic	36	17.56	18	8.78	27	13.17	43	20.98	81	39.51	205	2.44	1.51
Is the e-learning application user friendly	87	42.44	20	9.76	16	7.80	27	13.17	55	26.83	205	3.28*	1.71
Lecturers use more of e-resources than hard copies prior to COVID-19	70	34.15	26	12.68	12	5.85	39	19.02	58	28.29	205	3.05*	1.68
Lecturers use online discussion to facilitate learning prior to COVID-19	79	38.54	25	12.20	15	7.34	34	16.59	52	25.37	205	3.22*	1.68
Lecturers provide other e-learning resources to students prior to COVID-19	80	39.02	25	12.20	17	8.29	40	19.51	43	20.98	205	3.29*	1.63
Is student's outcome better using e-learning teaching approach	22	10.73	45	21.95	16	7.80	34	16.59	88	42.93	205	2.41	1.48

Note: *Denotes indicators/parameters that performed well.

Conclusion

The study investigates lecturers' readiness for e-learning during the COVID-19 pandemic. The results reflect that for e-learning to be effective, high level of preparedness for both the learners and instructors are crucial. In Nigeria, prior to the pandemic, the face-to-face traditional teaching method is mostly used in the universities. However, due to the need for continuity of education, several institutions embarked on e-learning without evaluating their level of readiness. In this study, out of the twelve parameters considered in evaluating universities' level of readiness from the lecturer's perspective, only six parameters recorded a mean value above the cut -of -point of three (3). This shows that fifty percent of the parameters considered were below the expected outcome. The factor with the lowest mean factor is the affordability of the internet cost. This is a challenge because of the huge data requirement to engage in online classes.

Furthermore, availability of internet is a key factor in deployment and sustainability of e-learning. There is a need for universities to collaborate with different network providers to ensure network availability. Beyond the availability, university management should work together with the government at the federal and state level to subsidize the cost of internet to lecturers and students. A possible implication of the findings is that with unreliable internet and high cost of internet lecturers and students' participation will be forestalled, thereby effecting learning effectiveness.

Consequently, findings suggest that online facilitation is a critical factor in ensuring e-learning readiness. When lecturers are not skilled in online facilitation, students' learning experience will not improve. This learning experience can be achieved when the instructors have the prerequisite skills and right pedagogical knowledge to facilitate learning. Study also reveals lack of pedagogical knowledge and prerequisite e-learning skills. This may be because of the rush in the deployment of e-learning.

Draw from these findings, this study proposes that for e-learning readiness in HEIs in Nigeria, university lecturers are to be adequately trained on the usage of e-learning tools, applications, and the required e-learning skills. This is because having mastery of the applications with required skills will make learning more effective. This will also encourage maximum participation.

Policy Implications and Recommendation

The study contributes to pre and post pandemic management for academics and the industry by providing the basic pre-requisite knowledge and facilities to show readiness to embark on e-learning in HEIs amid or post pandemic. This can be extended to other sectors as almost all the sectors of the world economy were short down during pandemic. Most of the industries that were prepared for online business transactions carried out their businesses despite the shutdown. While some, more especially in the developing economies, their businesses were shut down completely because both the management and staff were not ready to embark on online businesses. Deducing from the result from the sampled data, Nigeria HEIs was not ready to embark on e-learning prior to the pandemic. It beholds on the stakeholders of HEIs to always think ahead more especially in this era, where pandemic, war, and banditry can affect education continuity which Nigeria is not immune to it. Other than the pandemic, the Ukraine and Russian war is also a lesson for any government that values its education systems. As a matter of policy recommendation drawn from the respondent's point of view, the stakeholders of HEIs should ensure the following were put in place in all the universities and other schools in Nigeria for education continuity, sustainability, and effectiveness in time of any obstruction to the academic system.

1. Wireless fidelity (Wi-Fi) should be deployed to in all HEIs in collaboration with the management, government, and the network providers. As a matter of urgency, internet should be subsidized so that both the lecturers and students can afford its usage.

2. Wi-Fi should be made available to major cities and some rural areas in Nigeria for easy accessibility in a situation where war or pandemic have made the lecturers and students study outside the university community.

3. The university management in collaboration with the federal and state government to build the infrastructural base and the required human capacity to drive this very crucial process.

4. Based on policy direction, the National Universities Commission (NUC) should enforce inclusion of e-learning pedagogy in the process of teaching in the universities

5. The university supervising body should put a policy paper in place to guide transition from a particular teaching method to another and after implementation, there should be post implementation audit to ensure the desire outcome is achieved.

Limitations and Implications for Further Studies

This study investigates e-learning readiness in Nigeria HEIs amid COVID-19. Therefore, it contributes to the literature on the area of improvement to achieve e-learning readiness, thereby improving student's outcome and effectiveness. The findings suggest the need for Nigeria HEIs to look at major critical areas that hampers on e-learning readiness and address it, rather than insisting on e-learning when the required e-learning resources and prerequisite skills are not readily available for students and lecturers studying remotely. However, a major limitation of the study is the failure to evaluate the challenges of e-learning readiness from students' perspective. It also failed to determine the level of learning participation by HEIs students in Nigeria amid COVID-19 and lessons to learn from the universities that delved into the online learning without being prepared.

Despite these limitations, the findings from the study have potential implications for policies and e-learning implementation in Nigeria HEIs.

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