

ELECTRONIC LEARNING DURING THE COVID-19 PANDEMIC LOCKDOWN AND THE CHALLENGE OF USAGE AMONG SELECTED UNDERGRADUATE STUDENTS OF PRIVATE AND PUBLIC UNIVERSITIES IN NIGERIA

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Abstract

This paper examined the various electronic learning platforms adopted by students in both private and public Universities in Nigeria and the challenges associated with their usage during the COVID-19 pandemic lockdown in 2020. With the ripple effect of the coronavirus cutting across all countries and sectors, about 91% of the global student's population was affected by this global health catastrophe. The objective of this study is to compare the experiences of private and public University students to determine whether there is a significant disparity in the accessibility, affordability, and ease of use of the various e-learning platforms that were adopted during the global pandemic lockdown. The study employed the survey method in eliciting useful information from undergraduate students at Covenant University, and the undergraduate students at the University of Lagos. The population of study consisted of 374 undergraduate students from both schools. Questionnaire was physically administered to students in Covenant University while a google form was created for students in the University of Lagos due to the inaccessibility of students whose lecturers are currently on an industrial action. Data was analyzed using descriptive techniques in frequencies, percentages, and linear regression analysis. Results from the study revealed that 68.1% of students in Covenant University utilized more e-learning platforms like Moodle, Coursera, Zoom and WebEx unlike their counterparts in the University of Lagos who used only Moodle and Zoom by 43.6%. Also, 87.5% of Covenant University undergraduate students made use of their laptops mostly for their e-learning classes while 56.4% of their counterparts in the University of Lagos mostly made use of their smartphones. Findings revealed that students from the public University faced major challenges such as unstable internet connectivity, limited financial capability in buying devices such as laptops and lack of skill and competence in navigating the e-learning platforms while students in the private University on the contrary had relatively stable internet connectivity, could afford laptops and smart devices and had the requisite skills to properly navigate their e-learning platforms. The study concludes by recommending the provision of substantial financing that will aid in the acquisition of relevant technology to promote and support e-learning in public Universities in Nigeria. It also suggested the inclusion of public University students in adequate training on how to navigate the e-learning platforms, thereby equipping them with requisite skills needed in maximizing the benefits of e-learning. By so doing, the Nigerian educational system would be better prepared in facing future emergencies that may warrant remote learning.

Keywords: E-learning platforms, COVID-19, Emergencies, Challenges

1 INTRODUCTION

COVID-19, commonly known as Coronavirus disease, is a severe acute respiratory disease that was reported at the end of 2019 in Wuhan, China. It was then announced a global health emergency by the World Health Organization in January 2020 and was declared a pandemic in March 2020 (Lawal, 2021). According to World Health Organization, (2022) as of February 2022, over 409 million confirmed cases and 5.8 million deaths have been reported worldwide. With this global emergency touching both developed and developing countries, Egypt was the first African country to disclose a COVID-19 infection, with approximately 270,000 cases reported across Africa, 7,000 deaths, and 121,000 recoveries (David, 2020). According to Aronu, Ekwueme, Sol-Akubude, Okafor, (2021), the Nigeria Centre for Disease Control (NCDC) declared the first case of the virus in Nigeria in February 2020 with a record of 53, 477 cases, 41,017 discharged patients, and over 1, 000 fatalities.

With this significant catastrophic effect of the pandemic on humanity, many companies, airlines, hospitality, industrial sectors, sports, alongside the world's political, social, economic, religious, and financial systems were severely disrupted. So, to curb the further spread of the virus, governments declared a shutdown on all social and economic activities for an infinite length of time in the early month of 2020 (Kaushik & Guleria, 2020). According to Falola, Ogueyungbo, Adeniji, Adesina, (2022), the education sector was not left out of this catastrophe as schools at all levels were also shut down worldwide. With the suspension of activities in the educational sector, this resulted to grievous serious consequences for more than 1.5 billion registered students of all ages from across the world, accounting for almost 90% of the worldwide student population (Adeyeye, Ojih, Ben-Enukora, Adeyeye 2022).

According to Goudeau, Sanrey, Stanczak (2021), this unprecedented circumstance required instructors, parents, and students to adjust rapidly to a new educational context: remote learning, globally. According to Agbele & Oyelade (2020), in March 2020, the Federal Ministry of Education, ordered the immediate closure of educational institutions at all levels as part of the steps to restrict the spread of COVID-19 in Nigeria. This thus resulted to the migration or shift from the traditional method of teaching to the online environment. Online learning provided a realistic choice for sustaining educational continuity in the pandemic situation. Universities adopted the Ministry of Education's recommendation to move to virtual teaching, utilizing existing institutional software and available digital platforms. Lecturers and teachers were required to provide online academic resources that could be accessed from home to maintain educational continuity while maintaining the appropriate physical distance. Students in elementary and secondary schools were compelled to work with different forms of assistance, which were often offered online by their teachers. For college students, lockdown often entails returning to their hometowns while maintaining contact with their instructors and classmates using video conferences, email, and other digital technologies (Goudeau et al., 2021).

For many institutions around the world, it was a first-time experience having to migrate to the online teaching environment which unavoidably posed several challenges. Several Nigerian universities had not planned for any contingency that may impede education, such as the COVID-19 pandemic lockdown, but management teams at some institutions were able to give direction and assistance to guarantee that learning activities continued, and students were evaluated online.

Videla, Rossel, Muñoz, Aguayo (2022) asserted that the pandemic brought the chance to extend learning outside of the typical classroom setting via online education. However, the availability and students' access to technological devices such as laptops, cellphones, and tablets have a positive influence on electronic learning.

However, some of the challenges and obstacles related with online teaching and learning include accessibility, affordability, flexibility and ease of use. (David, 2020) opined that that 89% of students in Sub-Saharan Africa do not have access to personal computers, and 82% percent do not have access to the internet, implying that these online programs were not able to accommodate all learners. Furthermore, around 60% of Nigerians do not have access to the internet with about 169.2 million Nigerians, or 83% of the population, have access to mobile phone connections; however, half of these, or 84.5 million individuals, live in municipal areas. The population with access would be geared towards higher socioeconomic homes and urban households, with a staggering majority of private school learners already having a learning advantage

over their community school counterparts. However, there is a dearth in literature as to the comparison of the availability and utilization of the e-learning resources in both private and public institutions, and the challenges of students with the use of these resources in both public and private universities in Nigeria.

The main objective of this paper is to examine the experiences of private and public University undergraduates to determine whether there is a significant disparity in the accessibility, affordability, and ease of use of the various e-learning platforms that were adopted during the global pandemic lockdown. It specifically aimed at examining the types of e-learning platforms that were accessed, to determine the affordability of e-learning devices, to investigate the challenges encountered by these undergraduates and to determine the preference for online or face-to-face mode and effectiveness of e-learning for teaching in both institutions.

2. METHODOLOGY

The paper used a descriptive cross-sectional research design using a survey data gathering method. Covenant University in Ota, Ogun State, and the University of Lagos in Akoka, Lagos State are the institutions studied for this study. Undergraduates from Covenant University and the University of Lagos made up the study population with the adoption of multi-stage sampling techniques. The colleges and faculties were then divided into clusters and respondents were chosen randomly. The University of Lagos has an estimated undergraduate student population of 44, 183, whereas Covenant University has an estimated undergraduate population of 7, 536. The sample size of 396 was calculated using the taro Yamane sample size calculation. This was increased by 30% to account for any marginal error that may occur because of incomplete or lost questionnaire. Following the 30% increase, a sample size of 514 was generated, which was then split between the two institutions. This resulted in each institution generating 257 anticipated answers. The paper's inclusion criteria focused on undergraduates who were enrolled before the COVID-19 pandemic lockdown began. They comprised all 200-level students, 300-level students, and students in their final year.

Furthermore, undergraduates enrolled after the pandemic year 2020 were not included in the exclusion criteria for this article. As a result, it excludes undergraduates presently enrolled at the 100 level. Close-ended questions were included in a well-structured questionnaire. Data from this study was analyzed using the Statistical Package for the Social Sciences (SPSS). It used descriptive statistics to analyze the socio-demographic statistics of students, as well as frequencies, percentages, and regression analysis to assess the e-learning platforms that were available and adopted for use, the most used technological device, the cost of use, and the challenges that were encountered during the pandemic.

The overview of data consisted of a total of 241 questionnaire which were retrieved from Covenant University, out of a total of 257 that were distributed in four undergraduate halls of residence. However, due to continuing industrial action by the Academic Staff Union of Universities (ASUU) in Nigerian Federal universities, including the University of Lagos, a Google form was created and sent to friends and acquaintances over the WhatsApp platform. With daily follow-ups and reminders, this resulted in a total of 133 answers in a week. A total of 374 responses from both schools were then analyzed.

Results

The distribution of respondents based on their characteristics include school, gender, age group, religion, and current level.

2.1. Socio-demographic characteristics of respondent

University	Frequency	Percent
Covenant University	245	65.5
University of Lagos	129	34.5
Total	374	100.0
Gender		
Male	134	35.8
Female	240	64.2
Total	374	100.0
Age Group		
16-19 years	145	38.8
20-23 years	180	48.1
24-27 years	20	5.3

28-31 years	29	7.8
Total	374	100.0
Religion Affiliation		
Christianity	341	91.2
Islam	25	6.7
Others	8	2.1
Total	374	100.0
Current level of study		
200 level	42	11.2
300 level	99	26.5
400 level	127	34.0
500 level	106	28.3
Total	374	100.0

Source: Fieldwork, 2022

The distribution by university shows that 65.5% of the respondents are from Covenant University while 34.5% are covered in University of Lagos. The gender distribution revealed 35.8% (male) and 64.2% (female) as shown in Table 1. The age group revealed that 38% of respondents belonged within 16-19 years, 48.1% belonged to 20-23 years, only 5.3 belonged within the age group of 24-27 years while 7.8% belonged to 28-31 years. Also, the respondents who are affiliated with the Christian religion were about 91.2% while 6.7% belonged to the Islamic religion while 2.1% belonged to other religions (Table 1). The current level of respondents in 200 level shows to be 11.2%, 300 level students belonged were 26.5% while 400 level respondents were 34.0%, 28.3% of respondents showed to be in 500 level as shown in Table 1.

2.2. E-learning platforms accessed during the pandemic

E-learning Resources	Covenant University		University of Lagos	
	Yes	No	Yes	No
Zoom	243(68.1%)	-	114 (31.9%)	2(10%)
Total	243 (67.7%)		116 (32.3%)	
Moodle	215(90.3%)	4(16%)	23 (9.7%)	21 (84%)
Total	219 (83.3%)		44 (16.7%)	
Google Classroom	31 (39.7%)	109(87.9%)	47 (60.3%)	15(12.1%)
Total	140 (69.3%)		62 (30.7%)	
WhatsApp	98 (52.1%)	75(94.9%)	90 (47.9%)	4 (5.1%)
Total	173 (64.8%)		94 (35.2%)	
Telegram	170(68.8%)	24 (28.8%)	77 (31.2%)	5 (17.2%)
Total	194 (70.3%)		82 (29.7%)	
Coursera	226 (96.2%)	3 (10.3%)	9 (3.8%)	26(89.7%)
Total	229 (86.7%)		35 (13.3%)	

Source: Fieldwork, 2022

The table 2 shows result for the tools and resources utilized by the two institutions, both Covenant University and University of Lagos. It reveals that 68.1% of respondents made use of the zoom platform in Covenant University while none was recorded not to have used it. In University of Lagos, 31.9% of respondents made use of the zoom platform for e-learning while only 2% was recorded not to have used it. It shows that 90.3% of respondents made use of the Moodle platform in Covenant University while 16% did not make use of this. In University of Lagos, it shows that only 9.7% of respondents made use of the Moodle platform while 84% of respondents did not make use of this platform. In Covenant University, only 39.7% of respondents made use of the Google classroom platform while about 87.9% of respondents did not make use of this. In University of Lagos, 60.3% of respondents made use of the google classroom while 12.1% of respondents did not make use of it. The table further shows that 52.1% of respondents made use of the WhatsApp platform in Covenant University, while 94.9% of respondents had no use of the platform during the pandemic lockdown. In University of Lagos, 47.9% of respondents made use of the WhatsApp platform while 5.1% did not make

use of this platform. The telegram platform was utilized by 68.8% of respondents in Covenant University while 82.8% did not make use of this platform. Also, in University of Lagos, 31.2% of respondents made use of this platform while 17.2% did not. The Coursera resource was adopted by 96.2% of respondents in Covenant University while only 10.3% did not make use of this platform. Likewise in the University of Lagos, 3.8% made use of the platform while 89.7% of respondents did not make use of this platform.

2.3. Most Used technological devices in terms of affordability

Devices	Covenant University	The University of Lagos	Total
Smartphone	82 (43.6%)	106 (56.4%)	188
Laptop	154 (87.5%)	22 (12.5%)	176
Desktop	9 (90%)	1 (10%)	10
Total	245 (65.5%)	129 (34.5%)	374

Source: Fieldwork, 2022

The table above reveals that 43.6% of respondents made use of their smartphones the most in Covenant University while 56.4% of respondents in the University of Lagos made use of their smartphones the most for the use of e-learning classes. It also shows that 87.5% of respondents made use of their laptop in Covenant University while only 12.5% of respondents made use of theirs in the University of Lagos. The table also shows that 9% of respondents made use of a desktop in Covenant University while 10% made use of a desktop in University of Lagos.

2.4. The Challenges of using E-learning

Selected Indicators	Covenant University		University of Lagos	
	Yes	No	Yes	No
Unstable internet connectivity	192(63%)	53(76.8%)	113(37%)	16(23.4%)
No access to tech device	13(39.4%)	232(68%)	20(60.6%)	109(32%)
Erratic Power supply	157(59.9%)	88(78.6%)	105(40.1%)	24(21.4%)
Heavy Workload	138(68.3%)	107(62.2%)	64 (31.7%)	65(37.8%)
Limited Financial Capability	122 (56.5%)	123 (77.8%)	94 (43.5%)	35 (22.2%)
Lack of Motivation	199 (68.9%)	46 (54.1%)	90 (31.1%)	39 (45.9%)
Distractions from home	202 (67.1)	43 (58.9%)	99 (32.9%)	30 (41.1%)
Limited skill and competence	151 (63.7%)	94 (68.6%)	86 (36.3%)	43 (31.4%)
Communication with lecturers	159 (66.8%)	86 (63.2%)	79 (33.2%)	50 (36.8%)

Source: Fieldwork, 2022

The table 4 reveals that several indicators were used to measure the challenges that respondents faced in both Covenant University and the University of Lagos. In Covenant University, 63% of respondents affirmed to have experienced unstable internet connectivity while 76.8% of respondents did not experience such. In the University of Lagos, 37% of respondents affirmed to have had unstable internet connectivity while only 23.4% of respondents did not experience such. The table shows that 39.4% of respondents in Covenant

University affirmed to have no access to a technological device while 68% did not have that setback. In the University of Lagos, 60.6% of respondents affirmed to have no access to the use of a technological device while 32% did not have that challenge. The table above also shows that 59.9% of respondents experienced erratic power supply while 78.6% of respondents did not have that challenge. In the University of Lagos, 40.1% of respondents affirmed to have experienced that challenge while 21.4% did not have that challenge. In Covenant University, 68.3% of respondents affirmed to have had heavy workload while 62.2% did not. In University of Lagos, 31.7% of respondents affirmed to have had this same challenge while 37.8% did not. It shows that 56.5% of respondents experienced limited financial capability while 77.8% did were not financially limited to use the e-learning platforms. In University of Lagos, 43.5% of respondents had the challenge of finances while 22.2% did not have this challenge. It also shows that 68.9% of respondents had the challenge of being motivated while 54.1% did not experience this. It also shows that 31.1% of respondents had the challenge of being motivated in the University of Lagos while 45.9% of respondents did not have this challenge. Distractions from home were a challenge for 67.1% of respondents in Covenant University while 58.9% did not have this challenge during their e-learning experiences. Also, in the University of Lagos, 32.9% of respondents had the challenge of having distractions from home while 41.1% did not have this challenge. The table shows that 63.7% of respondents in Covenant University had the challenge of having limited skill and competence in using e-learning platform while 68.6% did not have that challenge. In the University of Lagos, 36.3% of respondents had the challenge of having limited skill and competence to make use of the e-learning platforms while 31.4% of respondents did not have this challenge. Lastly, 66.8% of respondents in Covenant University had the challenge of communicating with their lecturers effectively while 63.2% did not have this challenge. In the University of Lagos, 33.2% of respondents also have the challenge of communicating with their lecturers while 36.8% of respondents did not have that challenge.

Comparison between preferred mode (Face-to-face and online) and effectiveness of e-learning platform for teaching

This hypothesis tested the preference for online or face-to-face mode and effectiveness of e-learning platform for teaching. The two variables are captured in categorical forms, thus, the use of Analysis of Variance (ANOVA) which is used to determine whether the means of the independent variable are equal. The hypothesis is however, presented in Null format as follows:

H: there are differences in preferred mode and effectiveness of e-learning platform for teaching.

The decision level (also refers to as Critical Region) by default says:

- Reject Null hypothesis (H_0) if the F-calculated is greater than F-tabulated.
- Accept the alternative hypothesis (H_i) if the F-calculated is greater than F-tabulated.

The main point of reference is the **F-statistic** and the corresponding **p-value**. The larger the F-statistic, the greater the variation between sample means relative to the variation within the samples. F-value is used to determine whether the test is statistically significant or not. Specifically, the larger the F-statistic, the greater the evidence that there is a difference between the group means. In terms of computation, the F-statistic tells the **ratio of two variances** that measures the dispersal of the data points around the mean. The data would reveal higher variances when the individual data points are far from the central point. Thus, higher variance could lead to the rejection of alternative hypothesis instead of the accepting it. The result of the analysis is as presented:

ANOVA

Comparison between preferred mode (Face-to-face/online) and effectiveness of e-learning platform for teaching

Sources	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.209	1	1.209	5.854	0.016
Within Groups	76.847	372	0.207		
Total	78.056	373			

Source: Fieldwork, 2022

From the result, the F -calculated = 5.854 while the F -statistic at 95% Confidence Interval = 3.84 (i.e. $F_{\alpha, 1, 373} = 3.84$). It therefore means that F -calculated is greater than F -tabulated.

Since $F_{(5.854)} > F_{(3.84)}$, then the H_0 (null hypothesis) is rejected and H_1 (alternative hypothesis) is accepted.

The test therefore leads to the conclusion that there are differences in preferred mode and effectiveness of e-learning platform for teaching. That is, the preferred mode is a function of the effectiveness of the platform for teaching. Students would only prefer online or face-face depending on the effectiveness of the teaching.

3. DISCUSSIONS

In line with studies previously carried out by (Adeyeye et al., 2022), students in Covenant University affirmed that they had heard of these resources and made use of it before the online pandemic lockdown classes. The findings revealed that students in the Covenant University made use of the Zoom, Moodle resource more than the students in University of Lagos. However, the findings revealed that the use of Google Classroom was more popular in the University of Lagos than in Covenant University. WhatsApp platform was not so much in use compared to how much it was used in the University of Lagos. Also, Telegram was more popular in use in Covenant University compared to how much it was used in the University of Lagos. This can be accrued to the fact that telegram has always been in use in Covenant University. Lecturers and students use this platform for the purpose of communication for academic-related activities. The findings also revealed a high level of use in Covenant University due to its use before the pandemic lockdown.

Findings from the study revealed that students in University of Lagos made use of a smartphone for their e-learning classes more, than students in Covenant University. This could be because smartphones are not allowed in some Nigerian private schools of which Covenant University is part. This is also supported from the study findings, that laptops were utilized more frequently at Covenant University than in the University of Lagos. (Edumadze et al., 2022), revealed that 86% of students who have at least one smart phone device use it for academic work. However, this may not totally be true because one of the standing rules in Covenant University is the restriction on the use of smartphones, which is established in a bid to avoid distraction for students to maximize utmost concentration on their academics. Also, smartphones are not the only device that can be used to achieve academic efficiency and improve academic outcomes.

In line with Ugochukwu-Ibe & Ibeke, (2021) unstable electricity, especially, high cost of data bundles, skill and competency have been affirmed to cause hindrances for students during the e-learning processes in the pandemic. Also, Agbele & Oyelade, (2020a); Obaleye et al., (2022) also affirmed that unstable internet access, no access to technological devices and distraction, have caused several challenges to students' learning processes during the pandemic lockdown. In tandem with studies by Ashraf et al., (2021), communication has also proved to be a barrier for learners' learning processes. This study is also in line with Heng & Sol, (2020) who attested that learners were often faced with heavy workload while using e-learning during the pandemic.

Findings further revealed that erratic power supply and limited financial capability were more of a challenge for students in the University of Lagos than the other. However, students in Covenant University, affirmed to having heavy workload during the pandemic unlike students in the other school, and this is in line with studies by (Heng & Sol, 2020). This could be because of the maximum participation and the constant engagement of students in Covenant University by their lecturers even before the pandemic. In terms of communication with their lecturers, students in Covenant University seemed to have this challenge than their counterparts in University of Lagos, and this is also in tandem with recent studies by (Ashraf et al., 2021). According to (Ugochukwu-Ibe & Ibeke, 2021) students in University of Lagos affirmed to have limited skill and competence with the use of the e-learning platforms unlike students in the private school. Also, the studies revealed that students in Covenant University were more distracted than students in University of Lagos, and this was similarly found by (Agbele & Oyelade, 2020b). However, students in University of Lagos appeared to have been limited with finances in terms of accessing data bundles for their e-learning classes unlike students in Covenant University, this is backed up by recent studies by (Ugochukwu-Ibe & Ibeke, 2021) who also affirmed that students were financially limited with the high cost of data. Also, motivation appeared to be more of a challenge for students in Covenant University than their counterparts.

The hypothesis tested also reveals that there are differences in preferred mode and effectiveness of e-learning platform for teaching. That is, the preferred mode is a function of the effectiveness of the platform for teaching. Students would only prefer online or face-face depending on the effectiveness of the teaching.

The findings from this study have contributed substantially to extant literature in the field of education. It suggests workable models that may aid, promote, and support e-learning in public Universities in Nigeria

thereby mitigating the challenges that are being faced in these institutions of higher learning. It also suggested ways in which public University students can be adequately equipped with the requisite skills that would be needed in maximizing the benefits of e-learning. Finally, this study may be useful by policy makers in the educational sector in mapping out the e-learning needs assessment of public Universities in Nigeria. This will be relevant in re-positioning the degenerating public Universities and making them better prepared in facing future emergencies that may warrant remote learning.

4. CONCLUSIONS

Students from both public and private institutions must benefit from education to achieve the sustainable development aim of providing inclusive and high-quality education for all. To allow learners and educators to become used to the functionalities of diverse electronic resources, skills, and training in the use of information and communication technology should be implemented. Governmental agencies can also assist students with technical tools such as laptops, ensuring that no one is left behind in the learning process. To promote maximum engagement of students in e-learning in times of crisis, institutional stakeholders should ensure that learners are provided with data packages. Telecommunications companies can collaborate with both private and public institutions to ensure that students have enough data bundles for academic reasons. Several studies have also found that kids are easily distracted from home, which may be used to educate parents and guardians about the importance of aiding and a suitable learning environment if students are required to learn from home. Teachers and lecturers may also guarantee that effective communication flows in times of emergency when online learning is required, which inevitably reduces the amount of physical interaction possible. The government should implement broadband internet to guarantee that students in both rural and urban regions have access to the internet to promote successful learning processes.

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