

## **PUBLIC AWARENESS, ACCESSIBILITY AND CHALLENGES OF E-LEARNING DURING COVID-19 PANDEMIC**

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### **Abstract**

*The closure of schools is one of the social impacts of the Covid-19 pandemic. Therefore, this study investigated public awareness, accessibility, and challenges of e-learning during the Covid-19 pandemic. Descriptive research survey was adopted in the study. The population comprised all parents of pre-tertiary learners in Lagos state, Nigeria. A validated structured questionnaire was electronically administered to 500 respondents who were selected using purposive sampling technique which was since respondents have at least a child in a primary or secondary school. Data were analyzed using mean and standard deviation. Responses implied that parents are aware of the use of e-platforms for continuous teaching and learning and that e-learning could serve as an alternative to the conventional mode of learning. Other findings revealed parents' position that e-learning could lead to distraction and dropout of students. The study therefore recommended that government should provide subsidized electronic devices to instructors and learners for effective teaching and learning process. There should be an inclusion of e-learning into the primary and secondary schools' curricula and provision of intranet services in public places to ensure academic continuity in the face of a pandemic.*

**Keywords:** Challenges, Covid-19, E-learning, Global Lockdown, Opportunities

### **Introduction**

At the dawn of the year 2020, people all over the world had plans, hopes, dreams and aspirations which they would want to achieve in the year. Governments, corporate bodies, schools and individuals had budgets to be implemented as the year goes on. However, due to the outbreak of the deadly corona virus disease (Covid-19) which was reported to have started in Wuhan, China in the late 2019, most of these aspirations are on hold as the whole world faces global lockdown. On the 30<sup>th</sup> of January 2020, the World Health Organization (WHO) officially declared the Covid-19 epidemic as a public health emergency of international concern. Governments around the world temporarily closed down schools in order to curtail the spread of the disease.

UNESCO (2020) reported that about 90.2 % of total enrolled learners in 189 countries have been affected by the pandemic. In Nigeria, there is a total lockdown of all institutions of learning. This has negatively affected millions of learners and disrupted the school curricula. External examinations such as Senior Secondary Certificate Examination (SSCE) and Unified Tertiary Matriculation Examination (UTME) had been put on hold. According to UNESCO (2020) report, there are about 40 million affected learners in Nigeria. There are possibilities that the over 39 million learners currently on lockdown may not return to the classroom when the pandemic is finally over. This is especially so with the girl-child who is the most vulnerable (early marriage, underage pregnancy) in an environment like Nigeria. Governments' efforts to attain the Sustainable Development Goal (SDG 4) which is to ensure inclusive and equitable quality education and promote lifelong learning for all seems threatened. The constant threat of disease outbreak as much as other factors such as conflicts and natural disasters kept the reins on human development and expansion including education (Ministry of National Education and Youth, 2008). It has been reported

that throughout history nothing killed more people than the virus, bacteria and parasites that cause diseases (Relman *et al.*, 2009). Just like every other disease outbreak, the Covid-19 outbreak sent millions of people all over the world indoor. Thus, generating concerns in all sphere of human endeavours like education. The pandemic of 1918 and the world war 1 was said to have brought about correspondence study which has metamorphosed into the e-learning (Ministry of National Education and Youth, 2008; Cauchemez *et al.*, 2009).

Electronic learning can be defined as learning that takes place partially or entirely over the internet (U.S. Department of Education, 2010). E-learning is a platform which has assisted millions all over the world to attain the desired formal education through the concept of providing education to anyone, anywhere at any time as long as there is access to the internet. It serves as an alternative platform to face-to-face teaching and learning. Many developed and developing countries have imbibed e-learning into their educational sector (Ikpe, 2011; Ngampornchai & Adams, 2016). No wonder countries in Asia and the United Kingdom still have their children in school through e-learning despite the lockdown caused by the ravaging pandemic. In the Nigerian context, where tertiary institutions have embraced blended learning, the government should also look at the possibility of electronic teaching and learning for the primary and secondary schools while the lockdown last and in planning for future pandemics.

The concept of e-learning has always been used because of its cost effectiveness (Bartley & Golek, 2004) and as an avenue for self- improvement (Ogunsanmi, 2011). Also, Navarro and Shoemaker (2000) found that student learning outcomes for online learners were as good as or better than traditional learners regardless of background characteristics and that the students were greatly satisfied with online learning. Electronic education opens the opportunity for flexibility. Learners and instructors can interact at their convenience and focus on the content of the subject. Chaney (2001) also stated that online courses have the potential to open the pathways for more opportunities for students in small, rural, or low socioeconomic school districts to take courses that generally would not be offered. This also is an opportunity to reach the unreached in the time of crisis as posed by the pandemic. Learners with disabilities or learners who are at a disadvantage of attending the traditional education settings have access to education via e-learning. These include students in remote areas, expelled students, drop-outs, school-phobics, single parents, people in the hospital or special homes because of illness or injury.

Despite the overwhelming benefits of e-learning, it is faced with challenges. One of which is the level of acceptance. As put forward in a study conducted by Folorunso *et al.* (2006) on critical factors affecting the acceptability of e-learning, they deduced that the low acceptance of e-learning was due to the low awareness level, low computer literacy level, unreliable platform and internet services, and the high cost of implementation. Also, constructing materials for e-learning is as diverse as organizing the classroom for traditional learning. Electronic teaching that will benefit the learners and produce positive learning outcomes is a herculean task. Communication is another dominant factor that poses a challenge in e-learning. According to Gilbert (2015), interaction and communication have been identified as key factors in the success of an online course, leading to enhanced student satisfaction and motivation. The have and have not is a challenge when looking at the issue of electronic education. Many communities in the developing world like Nigeria with 40 % of its citizens living below the poverty level (National Bureau of Statistics, 2020) do not have access to technology like the internet and social amenities like electricity. In Gilbert's (2015) study conducted with some secondary school students in America on online education, findings revealed that the most frequent challenge the respondents noted was the lack of reliable internet at home which makes them source for internet elsewhere like

from the public library. Roddy *et al.* (2017) also pointed that intensive online learning environments should take account of potential barriers that can lead to increased attrition, such as perceived isolation, competing work/family commitments, poor motivation, lack of engagement with content, and technical challenges.

### **Statement of the Problem**

The unsurpassable barricades to equal opportunities and quality education for all students brought about by the Covid-19 pandemic may result in high rates of half-baked, dropouts and poor academic performance of children in the primary and secondary schools across the country. There is suspension of face-to-face teaching and learning in every state of Nigeria. Although, many developed nations had migrated to online interactions, the developing nations like Nigeria are still struggling on how to keep their students at home and at the same time engage them in e-learning. On the 19<sup>th</sup> of March, 2020, the Federal Ministry of Education through a circular granted an approval for the closure of all schools in Nigeria for a period of one month beginning from March 23<sup>rd</sup>, 2020 to prevent the spread of the Coronavirus. Hence the federal government launched free e-learning portals for primary and secondary school students via the 'school gate' and the 'mobile classroom.com.ng' apps. Many states also came up with their own strategies for engaging students online while at home. It is because of all these observations that this study is being undertaken to investigate public awareness, accessibility and challenges of e-learning during the global lockdown.

### **Research Questions**

- (i) What is the level of awareness in utilizing electronic platforms for teaching and learning?
- (ii) How accessible are the e-learning platforms to end users during the pandemic?
- (iii) What are the various media for facilitating e-learning?
- (iv) Are there challenges associated with e-learning in the face of the Covid-19 pandemic?
- (v) What solutions can be proffered to ensure academic continuity during a pandemic?

### **Methodology**

This research was conducted using a descriptive survey design. The statistical population were parents and guardians with children/wards in pre-tertiary schools in Lagos state, Nigeria. Purposive sampling technique was used to select parents/guardian with at least a child/ward in a private or public, primary or secondary school and a total of 500 respondents were surveyed. A structured questionnaire titled "Public awareness, accessibility and challenges of e-learning during covid-19 pandemic" was developed as the instrument for data collection for the study through the google-form platform and the link was electronically sent to respondents. The questionnaire was divided into two sections (A and B). Section A elicits information on the respondent's biodata. Section B contains 5 parts with 27 items: investigating public awareness on learning through e-platforms (5 items), examination of accessibility to e-learning platforms (5 items), examination of the various media for e-learning (5 items), investigation of the challenges caused by Covid-19 on e-learning (6 items), possible solution on teaching and learning during the pandemic (6 items). The instrument was patterned in line with a five-point Likert-type rating scale of SA (Strongly Agree); A (Agree); Neutral (N); D (Disagree) and SD (Strongly Disagree). The instrument was content validated by experts in Distance Learning Education and Information Communication Technology of the University of Lagos. The reliability of the items in the questionnaire were computed to determine the internal consistency of variables in representing the opinions of the participants. The researchers used the Cronbach Alpha test and with the Alpha value  $\alpha = .720$ . The data obtained were analyzed using simple

percentage and frequency for section A while section B was analyzed using Mean and Standard Deviation under SPSS 23.0 for Windows operating system.

## Results

### Demographic Response

The biodata obtained from the respondents shows that 61.2% of the respondents were female while 38.8% were male. An indication that more female responded to the research objectives. Analyses also shows that 37.0% of the respondents were between the age of 30-39 while another 33.6% were between the age of 40-49. Indicating that, averagely the respondents were between the age bracket of 30 to 49 years of age which is the child rearing age of the average human. The educational qualifications of the respondents show that most have at least Higher National Diploma (HND) or B.Sc. degree (63.8%) while only 0.4% have only First Leaving School Certificate. This can imply that most respondents are learned. The result also shows that majority of respondents have at least one child/ward in primary or secondary school. The result of the demographic analysis is presented in Table 1.

**Table 1: Demographic information of respondents**

<b>Gender</b>	<b>Frequency</b>	<b>Age</b>	<b>Frequency</b>
Female	306 (61.2%)	20 – 29	45 (9.0%)
Male	194 (38.8%)	30 – 39	185 (37.0%)
<b>Total</b>	<b>500</b>	40 – 49	168 (33.6%)
		50 and above	102 (20.4%)
<b>Qualification</b>	<b>Frequency</b>	<b>Total</b>	<b>500</b>
FLSC	2 (0.4%)		
O' Level	9 (1.8%)	<b>Occupational Status</b>	<b>Frequency</b>
NCE/OND	14 (2.8%)	Civil servant	222 (44.4%)
HND/BSc	319 (63.8%)	Private sector	167 (33.4%)
M.Sc. and above	156 (31.2%)	Self-employed	80 (16.0%)
<b>Total</b>	<b>500</b>	Unemployed	31 (6.2%)
		<b>Total</b>	<b>500</b>
<b>Number of children in Primary and Secondary school</b>	<b>Frequency</b>		
1	146 (29.2%)		
2	178 (35.6%)		
3	96 (19.2%)		
4	41 (8.2%)		
5	16 (3.2%)		
above 5	23 (4.6%)		
<b>Total</b>	<b>500</b>		

### Analysis of Research Questions

**Research Question One:** What is the level of awareness in utilizing electronic platforms for teaching and learning?

**Table 2: Public awareness in utilizing electronic platforms for teaching and learning**

S/N	Questionnaire Items	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	SD
1.	E-learning platforms provide better learning experience	54	213	91	117	15	3.39	1.07
2.	E-learning platforms are simple and easy to use.	62	297	65	67	9	3.67	0.92
3.	E-learning is an alternative to face-to-face teaching and learning	157	224	35	72	12	3.88	1.08
4.	E-learning platforms facilitate quality interactions between instructors and learners	49	145	73	198	35	2.95	1.17
5.	Learning through e-platforms ensures continuous teaching and learning during lockdown	215	244	25	12	4	4.31	0.74
<b>Mean (<math>\bar{X}</math>)</b>							<b>3.64</b>	<b>1.01</b>

The analysis of responses on public awareness in utilizing e-platforms for teaching and learning during the Covid-19 lockdown is presented in Table 2. The results show that the respondents are aware of the use of e-platforms in facilitating teaching and learning during the lockdown as the mean result is above 3.64. In this study, positive response is measured with mean equal to or greater than 3.0 and negative responses are measured with mean below 3.0. The respondents did not show a positive outcome to the item on e-learning platforms facilitating quality interaction between instructors and the learners but 91.8% (459/500) agreed that learning through e-platforms ensures academic continuity during the lockdown.

**Research Question Two:** How accessible are the e-learning platforms for teaching and learning during the pandemic?

**Table 3: Accessibility of e-learning platforms during covid-19 pandemic**

S/N	ITEMS	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	SD
1	E-learning depends on accessibility to internet, ICT and electronic devices like smartphones, desktop or laptop	205	195	35	35	30	4.02	1.14
2	E-learning is an expensive platform	247	107	69	47	30	3.99	1.26
3	Lack of basic infrastructure can hamper access to e-learning in schools	140	200	35	95	30	3.65	1.24
4	Technological skills are needed for e-learning to take place	109	230	66	65	30	3.64	1.13
5	E-learning platforms provide adequate support to the learner	70	135	105	130	60	3.05	1.25
<b>Mean (<math>\bar{X}</math>)</b>							<b>3.67</b>	<b>1.20</b>

In Table 3, the result on accessibility to e-learning platforms for teaching and learning in the era of a pandemic is presented. The general mean is 3.67 signifying positive response. The

respondents agreed that learning via the e-learning platform depends on accessibility to electronic devices. Majority of the respondents (340) also agreed that the lack of basic infrastructures can hamper access to e-learning in schools. There is however, a slight difference between respondents who agreed to the item that e-learning platforms provide adequate support to the learner and those who disagreed.

**Research Question Three:** What are the various media for facilitating e-learning?

**Table 4: Examination of the various media for facilitating E-learning**

S/N	Questionnaire Items	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	SD
1	Electronic media resources for uploading and downloading of educational materials are readily available	90	224	81	87	18	3.56	1.08
2	Social media tools such as telegram, Whatsapp, Facebook can be used to facilitate e-learning	240	226	20	10	4	4.38	0.73
3	The internet bandwidth and speed are adequate for e-learning	74	184	95	124	23	3.63	1.22
4	Recording equipment and software are readily available	64	175	114	120	27	3.26	1.12
5	I am aware of the various digital educational tools for e-learning such as Edmodo, Thinglink, TED-Ed, Ck-12	38	165	116	141	40	3.04	1.11
<b>Mean (<math>\bar{X}</math>)</b>							<b>3.57</b>	<b>1.07</b>

Table 4 shows the respondents' responses to various media for facilitating e-learning. The total mean responses of this research question is 3.57. From the study, it was revealed that the respondents have a positive attribute towards the various media used for facilitating e-learning. This shows that they agreed to the questionnaire item that media for the upload and download of course materials for e-learning are readily available and that they are aware of the various digital educational tools for e-learning. The item on the utilization of social media tools in facilitating teaching and learning showed a high positive value of 4.38 with 466 of the respondents in agreement.

**Research Question Four:** Are there challenges associated with in e-learning?

**Table 5: Challenges associated with e-learning**

S/N	Questionnaire Items	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	SD
1	Practical subjects cannot be learnt through e-learning	143	149	74	118	16	3.57	1.21
2	It is difficult to assist the children on e-learning platforms.	73	167	67	165	28	3.18	1.20
3	It is expensive to maintain internet services for my children	195	211	42	44	8	4.08	0.98
4	E-learning is associated with distractions	107	222	60	93	18	3.61	1.12
5	Engaging in e-learning will increase students' dropout.	75	131	100	138	56	3.06	1.26



6	Devices like smartphones and laptops are beyond the reach of the average Nigerian	146	213	54	71	16	3.80	1.10
<b>Mean (<math>\bar{X}</math>)</b>							<b>3.55</b>	<b>1.15</b>

Table 5 shows the responses of the respondents on challenges associated with e-learning. As the results indicate, challenges affecting e-learning is high ( $\bar{X}$ ) = 3.55). From the Table, the number of respondents who indicated that practical subjects cannot be learnt through e-learning is 292. Also, 406 agreed that maintaining internet services for their children is expensive while 359 of the respondents agreed that devices such as laptops and smartphones for engaging in e-learning is beyond the reach of an average Nigerian.

**Research Question Five:** What solutions can be proffered to ensure continuity of schooling during a pandemic?

**Table 6: Possible solutions to ensure teaching and learning during the pandemic**

S/N	Questionnaire Items	SA (5)	A (4)	N (3)	D (2)	SD (1)	Mean	SD
1.	Subsidized ICT gadgets are needed for e-learning to take place during a pandemic	256	216	14	12	2	4.42	0.70
2.	Partnership between telecommunication providers and government create effective e-learning in the period of a pandemic/lockdown	271	179	34	14	2	4.41	0.77
3.	Providing Intranet services will bring effective teaching and learning in communities lacking social amenities	203	207	39	43	8	4.11	0.98
4.	A review of curricula to include online teaching and learning will curb future crisis in the period of a pandemic	207	239	40	12	2	4.27	0.74
5.	Private sector investment in education will enhance e-learning in government owned schools	164	236	64	32	4	4.05	0.89
6.	Government can enhance the education sector by providing Wifi in public places	302	169	13	14	2	4.51	0.72
<b>Mean (<math>\bar{X}</math>)</b>							<b>4.30</b>	<b>0.81</b>

The result on possible solutions to ensure continuous schooling system even in the event of a lockdown as occasioned by the Covid-19 pandemic is presented in Table 6. The mean response measured in the research question is 4.30 which depicts a high positive response. It is also evidence from the individual mean responses that most respondents agreed that provision of subsidized ICT gadgets, government's partnership with telecommunication companies, provision of intranet services, private sectors' investment in education and provision of wifi in public places can ensure a continuity in teaching and learning in the face of a pandemic.

## Discussion

Public awareness, accessibility to and challenges of e-learning in the face of the lockdown brought about by the Covid-19 pandemic was explored in this study. Results on public awareness in the use of electronic platforms for teaching and learning during the pandemic, revealed that the respondents showed positive disposition towards e-platforms for learning as being simple, easy to use and providing a better learning experience. This finding is consistent with the work of Journell (2010) who stated that the majority of students' in online history class responses centered on the perception that e-learning offered a quicker

and easier approach to learning than what they would have received in the classroom. The respondents also agreed to the fact that e-learning platform is an alternative to face-to-face learning. This is true as more and more countries are keeping the young ones at home to mitigate the spread of Covid-19 and these countries are making concerted efforts to ensure academic continuity of the children's education.

In another dimension, Tunmibi *et al.*, (2015) affirms that e-platform promotes better communication and helps teachers and students to share accountability for learning and achievements. Hence, with the level of awareness and advancements in e-learning, developing countries like Nigeria need to go all the way out to imbibe e-learning into her educational system. This will not only boost her acceptance in the technologically advancing world, it will also foster academic development of her citizens as more will acquire formal education. In developing countries such as Thailand (Ngampornchai & Adams, 2016) e-learning has become an important part of national efforts at improving public education. While countries like Botswana (Ikpe, 2011) embraced e-learning as a means of solving the problems of large classroom, increasing enrolment and limited staff. An inclusion of e-learning into the primary and secondary school curricula will eliminate issues such as computer illiteracy (Folorunso *et al.*, 2006)) and lack of technological skills (Bediang *et al.*, 2013) often expressed by learners seeking admission into tertiary institutions. The findings also revealed that majority (>90%) of the respondents agreed that e-learning platforms ensure academic continuity in the face of a lockdown. This supports the argument that governments need to invest more into the educational sector. The Nigerian learners' counterparts in many developed nations did not truncate their education as a result of the pandemic. In planning for future pandemic there is need to introduce blended learning into the primary and secondary school curricula.

On the assessment of accessibility to e-learning platforms, the respondents agreed that e-learning depends on accessibility to the internet, ICT and electronic devices. This correlates the study of Nyagome *et al.* (2017) who reported that lack of adequate ICT laboratories and unreliable internet services negatively affected e-learning adoption in a Ghanaian high school. The results also revealed that the respondents affirmed the item that technological skills are needed for e-learning. This also aligns with the report of Bediang *et al.* (2013) who showed that many medical students of a medical college in Yaoundé could not function in an online class as they lack basic technological skills. This present study also revealed that the lack of basic infrastructure can hinder the facilitation of teaching and learning through e-learning platforms. The ideal that the e-learning platforms provide adequate support to learners did not receive clear affirmation. This correlates the findings of Gilbert (2015), that learners feel isolated in an online class. The fact that social interaction with peers is reduced and physical presence is not felt in an e-learning class creates bias for this form of learning especially with young children and teenagers. Supporting Roddy *et al.* (2017) submission that intensive online learning environments should take account of potential barriers that can lead to increased attrition, such as perceived isolation. The respondents also showed a positive response to e-learning being an expensive platform. The National Bureau of Statistics (2020) reported that about 40 % of the Nigerian citizens live below poverty. It may be difficult to engage learners in e-learning in a country where majority cannot afford a daily meal.

Findings on the various media for facilitating e-learning showed that there was wide awareness of the devices used in e-learning. The respondents agreed that the devices for the upload and download of course materials were readily available. Sung *et al.* (2016) had earlier stated that mobile devices such as laptops, personal digital assistants and mobile phones have become a learning tool with great potential in both classroom and outdoor learning. Also, majority affirmed that social media tools could be used to facilitate e-



learning. This correlates the work of Strong *et al.* (2012) who invested students' satisfaction with e-learning and concluded that including social media tools in e-learning courses, may assist students to enhance their social presence in the respective course.

This present study identified some challenges associated with e-learning as pointed out by the respondents. One of these challenges is that practical subjects cannot be learned through e-learning platforms. There had been numerous arguments for and against this notion. Just as Acosta *et al.* (2018) reported that students in an optometry class prefer a blended mode of learning against the virtual laboratory. Also, Heppen *et al.* (2016) found that compared to students in face-to-face credit recovery class, students in online credit recovery course reported that it was more difficult learning Algebra online and they scored lower in an algebra posttest. However, You and Kang's 2014 study stated that the online class assist the self-regulated learners to use various cognitive and metacognitive strategies to accomplish their learning goals. They also stated that students can revisit the virtual laboratory as many times as possible to comprehend lessons taught. Kamtor (2016) study also lay credence to this, by reporting that students from a secondary school taught the subject of Chemistry via virtual laboratory had better academic performance and motivation than those taught via the conventional mode. Most respondents also agreed that e-learning is associated with distraction and can lead to increase in students' dropout from schools. This can be so for a society that is struggling with poverty coupled with the economic hardship brought about by the Covid-19 pandemic and the high rate of unemployment in the country. Researchers have also reported cases of perceived isolation (Gilbert, 2015) and other attritions like work/family distraction (Roddy *et al.*, 2017) as reasons for increase in dropout rate.

Furthermore, on possible solutions to ensure academic continuity in the face of the Covid-19 pandemic the respondents agreed that governments intervention in providing subsidized ICT gadgets and partnership with telecommunication companies will increase access to e-platforms for teaching and learning in primary and secondary schools. They further agreed that provision of intranet services, private sectors' investment in education and provision of wifi in public places can ensure a continuity in teaching and learning in the face of a pandemic.

## **Conclusion**

This study investigated public awareness, accessibility and challenges of e-learning during the covid-19 pandemic. It was observed that there was huge awareness of the utilization of e-platforms for teaching and learning even in the face of the pandemic. There are various media (social and edutelecast) and devices (laptop, mobile phones) that can be used for e-learning. The ICT and electronic devices for facilitating e-learning are readily available but are beyond the reach of an average Nigerian. The challenges faced with the utilization of e-platforms for academic continuity include high dropout rate, financial constraints, social differences and lack of infrastructural amenities. Consequent upon this, government and private sector need to collaborate to improve the education sector of the country.

## **Recommendations**

The following recommendations were proffered based on the findings of the study:

- (i) The government at all level should provide subsidized ICT and electronic gadgets for all stakeholders for e-learning to achieve the desired result.
- (ii) Government should include e-learning into the pre-tertiary curricula to prepare for future pandemics.

- (iii) As part of corporate social responsibilities private sector should partner with the government to develop the education sector to attain the Sustainable Development Goal four.
- (iv) Government should invest in technological research that can produce durable and inexpensive devices for the benefit of the masses.

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