

DEVELOPING ALTERNATIVE TEACHING CONTINUITY PLANS TO MOVE CLASSROOMS ONLINE AT COVID-19 ERA IN NIGERIA

CHAPTER THREE (B)

COVID-19 PANDEMIC: A PIVOTAL FACTOR IN RESTRUCTURING NIGERIA HIGHER EDUCATION SYSTEM

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Abstract

Nigerian Higher education system, and by extension, the entire education system faces a severe setback as such, the outbreak of the COVID-19 pandemic has brought the system to a standstill. There are very few if any Nigerian higher institution that has continued with their academic activities during this lockdown period. Switching to e-learning technology in our higher educational institutions is currently the only solution to this total lockdown. The switching will not happen overnight because so much is required which include physical and trained human resources. The state of Nigerian higher education, student's enrollment problems, challenges and opportunities of e-learning have been highlighted in this chapter. Nigeria faces a severe power shortage which is the backbone of e-learning. To solve this problem and for effective uninterrupted e-learning to occur, Nigeria has to make use of the internet by satellite as some African countries now employ it. Teaching and learning can take place via devices that have batteries and backups for a particular duration of the learning process. For instance, mobile phones, tablets, and laptops have batteries that can last a few days before recharging, which is enough to support e-learning in power deficient communities like Nigeria. COVID-19 pandemic has motivated stakeholders in the education sector to think and properly prepare on how to handle learning activities during the COVID-19 pandemic and to be able face any crisis that might eventually affect traditional education practice afterwards. Several e-learning tools are currently available for the delivery of instructions, students' assessment and feedbacks. Issues regarding higher institutions particularly in the area of e-learning are continually evolving, as such further research is suggested in this domain.

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Keywords: COVID-19, Internet, satellite, Higher education, e-learning, pandemic.

Introduction

Coronaviruses are enveloped, positive-sense, single-strand RNA viruses with the most massive known RNA genomes of 30–32 kb (Weiss & Leibowitz, 2011). Severe acute respiratory syndrome coronavirus (SARS-CoV-2 or COVID-19) that emerged in December 2019, hence the name COVID-19, is not the first pandemic outbreak in history. Two coronaviruses pandemic that threatens the world's health and economy are; Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) in 2002 and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2012 (Weiss & Leibowitz, 2011). COVID-19 appears to be different epidemiologically from SARS-CoV and (MERS-CoV) because COVID-19 is reported to replicates efficiently in the upper respiratory tract with the less sudden appearance of symptoms but very fatal when symptoms appear (Chan, et al., 2019). Another deference between COVID-19 and other coronaviruses is that a substantial quantity of the virus is produced during the prodrome period. Infected individuals interact with people around them in a usual way bringing about widespread of the virus unaware. While transmission of (SARS-CoV and (MERS-CoV) occurs only when infected individuals present a severe illness. This condition makes COVID-19 more fatal than other coronaviruses (Peiris, et al., 2003).

COVID-19 is globally spreading like wildfire in such a way that collaboration is urgently necessary to contain, prevent, and control the pandemic (Zhao, 2020). The only method to manage the pandemic is to reduce the spreading of the virus, as there are no recommended antivirals for COVID-19 (Lake, 2020), and vaccine development cycle takes a very long time (Al-Motawa et al., 2020). The first confirmed case of COVID-19 in Nigeria was seen in Lagos on 27 February 2020 form an Italian citizen who entered the country during the onset of the outbreak (NCDC, 2020). More than 200 countries across the globe are deeply involved in this pandemic, with 6,734,384 confirmed cases, 3,273,166 recovered, and 393,752 deaths. Africa has 115,639 confirmed cases as of 5th June, 2020 (Worldometers, 2020). While Nigeria has 11,166 confirmed cases, 3,329 discharged, and 315 deaths as of 5th June, 2020 (NCDC, 2020). This chapter will look at the impact of this pandemic on Nigeria's higher education system and the way forward in the post-COVID-19 era.

Nigeria's Higher Education System before COVID-19 Pandemic

Higher education is recognized as a critical force for transformation and progress. Higher academic institutions of a country must be prepared to provide the teaching, research, and service needed if the country is to advance (Teferra & Altbachl, 2004; Pitan, 2017). In the 1960s and 1970s, Nigeria's higher education system was hailed as an agent of modernization, social mobilization, and economic growth. This is because relevant data

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have shown that governments had made tremendous progressive accomplishments in higher education by giving adequate funding support. It is obvious to understand that these accomplishments progressively disappeared in the 1980s and 1990s. (Atteh, 1996). Regrettably, majority of Nigerian Higher institutions function without Internet facility, up-to-date libraries and laboratories, and outdated curriculum. The outbreak of the COVID-19 pandemic only come to worsen the condition of Nigerian higher education institutions, which are already in a state of severe decay (Jacob, 2020).

Higher Education Enrollment in Nigeria

Nigeria, Africa's largest tertiary education system, has its enrollment rate doubled from 0.7 million to 1.4 million between 2000 and 2005, respectively. Despite this, the Gross Tertiary Enrollment Rate (GTER) for sub-Saharan Africa is the lowest in the world. This is because the number of candidates getting admission is nothing compared to the fast-growing population of most countries in the region, including Nigeria (UIS, 2010).

Until the 1970s, Nigerian Higher institutions of learning set their own admissions standards. Due to the growing number of these higher institutions, this practice became challenging. Then to manage this problem, the Nigerian Government established the Joint Admissions and Matriculation Board (JAMB) in 1978 to oversee a centralized admissions test called the Unified Tertiary Matriculation Examinations (UTME). In 2016 after about four decades of its establishment, the JAMB announced that it did no longer have adequate funds to conduct the nation-wide UTME effectively. At a point, Nigeria thought of eradicating JAMB due to economic meltdown it was facing with the intention of saving cost (Oanda, 2020).

Many Tertiary institutions also conduct additional screening or post-UTME examinations before a final admission decision is made. These post-UTME requirements can be demanding and are often reported to be a source of frustration for Nigeria's higher institution applicants. In 2016, the JAMB announced many reforms, including stopping universities from preparing any written post-UTME exams. The position of the changes was undecided due to disagreement from higher institutions to stop post-UTME exams (Oanda, 2020).

About 1.8 million candidates sought admission to tertiary institutions annually. Yet, only 600,000 were accepted, which account for only 35 % admission rate during the 2018/2019 academic session. In the year 2020, 1.9 million candidates registered for the UTME. This figure is the highest number of registrations in the history of the board. Yet, there is not comparable readiness to admit the candidates. Nigeria's education system presently leaves over a million qualified college-age Nigerians without access to postsecondary education

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on an annual basis (Adebayo, 2019). The enrollment problem is unconnected to the number of higher institutions in the country, but instead connected to their quality because, as of 2018, Nigeria had 160 approved universities. These included 43 federal universities, 48 state universities, and 79 private universities. There were 128 Polytechnics and 177 Colleges of Education, both federal, state, and private. Nigeria also has several monotechnics and colleges of health technology owned by the Government and private. With all these higher institutions of learning in Nigeria, the enrolment problem is persisting, indicating that myriads of solutions need to be tried to achieve the desired goal. It is also apparent that the Government alone has not and will not meet this demand (Nwagwu, 1998).

These pathetic conditions of Nigerian higher education system have several contributing factors which include;

- (1) Neglect of the educational system by the Government over a long period.
- (2) Weak infrastructure, where old ones are not maintained and new ones not purchased/constructed.
- (3) Lack of adequate qualified teaching staff, which also brought about poor teaching pedagogy.
- (4) Lack of professional development of teaching staff to be up to date.
- (5) Lack of corporate governance where the Government is the dominant partner in educational policy reform, but their efforts have been less complemented by other stakeholders.
- (6) Lack of proper integration of all the relevant stakeholders into the policy design.

Some of the issues that need to be addressed in an attempt to get out of this situation are to;

- (1) Develop higher education institutions to a contemporary standard,
- (2) Provide an adequate number of courses the institutions offer, and
- (3) Proper funding should be made available for the institutions and the students (Okolie & Nwokoro, 2019; Oanda, 2020)

COVID-19 Pandemic and Nigeria Higher Education System: Continuity and Transformation

COVID-19 pandemic has disrupted the global educational system as most countries around the world have closed all educational institutions to contain the spread of the epidemic. The closure of the educational institution has negatively impacted 91% of the world's student population (UNESCO, 2020). Education systems all over the globe, notably Higher academic institutions, have been looking for ways to cope and adapt to the educational

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changes due to this pandemic (Wigginton, et al., 2020). Life science researchers have experienced a severe interruption of research processes with innumerable setbacks. This disruption came in the form of premature stoppage of on-going experiments, inability to move out for critical data collection, (in field and clinics), and the inability to access and use instruments. Closing down schools due to COVID -19 pandemic by extension has created a lot of setbacks on the progress of our higher institutions of learning. Some of these setbacks include reduced international education, disruption of the academic calendar, cancellation of local and international conferences and workshops, etc. (Wigginton, et al., 2020).

This decision of completely shutting down educational institutions came as a shock to many countries, including Nigeria. This is because preparedness was not there to handle the pandemic or continue with educational activities amidst the epidemic. This situation appears to mark a turning point for the world's educational system to restructure how teaching and learning are delivered in a crisis-stricken condition like this one. The first point of thought by all educational institutions is the use of e-learning platforms. E-learning means, incorporation of modern telecommunication equipment, notably computers, Tablets, and ICT resources into the education system for convenience and effective learning process (Eze et al., 2018). However, despite the immense benefits of the e-learning platforms available, not many Nigerian higher institutions of learning embraced it (Jacob, 2020). The sporadic pace of Information and Communication Technology (ICT) is seen in the innovative development of advanced countries such as America, the United Kingdom, and Canada. These countries have embraced e-learning platforms long before the outbreak of this COVID-19 Pandemic. For example, Japan conducts a virtual convocation ceremony for its students using robotics due to her advancement in (ICT) (Kacerauskas & Kusaityte, 2020; Adeoye, et al., 2020).

The higher education system in most African countries, particularly Nigeria, lags so much in the utilization of e-learning platforms as such educational activities have come almost to a standstill during this COVID-19 pandemic (Guragain, 2016). Numerous constraints are responsible for the backwardness in the utilization of e-learning resources in Nigeria, including:

- (1) **Lack of Adequate Electricity Supply:** - Many Higher Institutions of learning do not have constant power supplies, thereby discouraging technology and digital education and its applications.
- (2) **Lack of Access to Internet Connectivity:** - Internet connectivity is nonexistent in most Nigerian higher institutions. Those that have the connection don't have the required bandwidth and stability that will make it ineffective for e-learning.

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- (3) **Lack of Adequate Computers:** - E-learning cannot be possible without an interface such as; Mobile phones, Tablets, Television screens, and, most importantly, computers. Most Nigerian higher institutions have a grossly insufficient number of these interfaces to facilitate e-learning. Tertiary Education Trust Fund (TETFund) has made efforts to meet up the number of computers in Nigerian public higher institutions.
- (4) **Lack of Adequate Funding:** - Funding is a fundamental aspect of all facets of the educational system. Lack of sufficient financing, therefore, has made the realization of the e-learning process almost impossible.
- (5) **Lack of Favorable Policy Regarding Mobile Internet Services:** - Mobile telecommunication providers in Nigeria such as; MTN, Airtel, Gobacom, Etisalat, Nitel, etc. have stringent policies regarding their data packages which are very expensive as compared to other countries even within Africa. This is a severely limiting factor in e-learning. (Nwajiuba, et al., 2020; Leung & Sharma, 2020).

Achieving Effective E-learning in Nigerian Higher Institutions

One of the sure ways of raising the standard of Nigeria education, notably the higher education system, is the complete and uninterrupted access to modern technology (Akinyede & Adepoju, 2010). Connecting schools to the internet is a foundational aspect and driver of transformative learning. Almost half of the world's population is affected by the digital divide, of which Africa is the worst hit. Connecting remote Institutions to bridge the gap should be the focus of our leaders (Hiiran2019). If all the rural and urban institutions of Nigeria are to be covered with internet services, Standard fiber connections will be extremely costly and inefficient, as such, satellite connections are the best solution for better and sustainable internet connectivity (Liberty Writers Africa, 2019; Martins, 2020).

To realize an African Outer Space Program, one of the major programs of the AU Agenda 2063. The African Space Policy and Strategy were adopted by African Union Heads of State and Government during their Twenty-Sixth Ordinary Session on 31 January 2016 in Addis Ababa (African Union, 2016; Ospina, 2011) This space technology has been placed in the forefront as a significant feature of national development and transformation by some African countries. For instance, Rwanda has launched a satellite named Icyerekezo, in partnership with OneWeb, a global communications company, and the Rwandan Government. The satellite was launched to "bridge the digital divide" in rural schools in Rwanda. (Liberty Writers Africa, 2019).

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Potentials of e-Learning

- (1) E-Learning is likely to raise the number of people that will have education benefit in a less privileged society.
- (2) Individuals who are unable to attend a traditional full-time face-to-face school due to personal or financial constraints will have the chance to learn.
- (3) E-Learning may provide broader access to students ie, class size will increase with convenience.
- (4) High tuition fees that make higher education impossible for some people will be made affordable due to less cost of using e-Learning platforms.
- (5) E-learning is convenient and inclusive at any time.

Limitations of e-Learning

- (1) E-learning platforms do not give students the real feeling of interaction and learning from each other as it happens in traditional teaching methods.
- (2) Students might find it hard to concentrate due to surrounding distractions of some home comforts such as refrigerators, games consoles, etc.
- (3) The instructor might not get satisfactory responses from students as being face to face, although it is better than self-learning.
- (4) Equipment and network failures.
- (5) The need for backup plans and guidelines.

Nigerian Higher Education in the Post-COVID-19 Era

Due to the extent of the public transmission risk posed by students' interactions in schools, it is hard to forecast what the Global educational system will look like after COVID-19 (Weeden & Cornwell, 2020). The pandemic's unpredictable nature is a pointer to the impossibility of returning to normalcy in the educational institutions soon (Salovey, 2020).

The sudden outbreak of COVID-19 came at a challenging time. Institutions globally are left with no option than to key into e-learning, at least for some of their courses, if not all. A sudden switch from teaching a large number of courses in traditional or blended learning to entirely online teaching is highly unrealistic. It will take some time to actualize the e-learning process due to the many challenges that need to be addressed. Some of the challenges include; lack of infrastructure, insufficient recording devices and internet bandwidth if available, inability to access online and virtual content from remote locations, lack of sufficient trained professionals that will design and offer online education, etc. (Bowen, 2012).

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The switch over from traditional to e-learning process could have been realistic and more natural if Nigerian Higher institutions and the entire education system has keyed into online programs before the outbreak of the COVID -19 pandemic. (Salovey, 2020). For instance, Japan, South Korea, Hong Kong, and Singapore all have internet penetration rates of 85 to 95 percent. Hong Kong universities for instance, were able to achieve digital switchover within two weeks due to high internet penetration and virtually most learning activities can be carried out on mobile phones (Leu, et al., 2020).

There are significant opportunities for Nigeria to learn from the pedagogical developments of other countries. For instance, a country like China, one of the most technically enabled countries in the world, has 840 million internet users. Hong Kong, South Korea, and even South Africa have employed online instruction strategies not to disturb the student's academic calendar (Crawford, et al., 2020). Many international students at universities in mainland China and Hong Kong have had to log in from their home countries to continue their courses. Chinese international students studying in Australia were asked to log in from China for lectures after they have gone home for lunar year break and were prevented from coming back to Australia due to the COVID-19 pandemic outbreak (Crawford, et al., 2020). India has the third-largest higher education system in the world. However, internet access is widely distributed due to cheap data costs. Over 40 percent of the population is already online. Because of this, experts are hopeful that online education can be delivered with ease during this period and beyond (Leu, et al., 2020).

Wearing of masks and maintaining social distance at all times to stop the spread of the virus is currently the only solution to this pandemic. Any Nigerian higher institutions that do not embrace e-learning/online solutions will remain closed until lasting solutions in the form of drugs and vaccines are available for people to use.

E-learning Support Teaching Materials and Activities

Many countries across the globe have been using various e-learning pedagogies to facilitate teaching and learning, which wouldn't have been possible without the availability of e-learning teaching materials/activities. There are several e-learning teaching materials/activities currently available that are supported by internet services. Without the e-learning tools, internet service alone is useless (Crawford, et al., 2020; Lara, et al., 2020; Isaacson, 2013; Bradford, et al., 2020).

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Table 1: List of some commonly applicable e-learning tools

S/No	Online Tools	Applications
1	Zoom	Cloud-based video conferencing service. It can also serve as a virtual classroom with teacher and student participation through chat. Sessions can be recorded to be viewed later
2	Kaltura	Video e-learning solution for educational institutes and organizations to train students and employees.
3	Google Classroom	Simplify how to create assignments, get the grade out to the students, and provide feedback efficiently in a paperless way.
4	Canva	For easy creation of presentation and project instantly using various available online templates.
5	Flipped classroom model	Help in demonstrating events that have traditionally taken place inside the classroom to take place outside the school and vice versa
6	Kaizala	Used for posting training, quizzes, and assignment online efficiently.
7	MOOC	Offers learning opportunities to teachers across the globe by receiving a lot of input on varied topics, sharing views, etc
8	WebEx	Allow teachers to host video meetings with ease. Can also serve as a virtual classroom with teacher and student participation through chat.
9	Bevywise (IoT) Simulator	Allows the sharing of interactive models with your students without installing any software on their computers. Helps students to test and create templates, connect multiple devices to the Manager application.
10	MOODLE	An excellent tool for learning and assessing students' performance and generating feedbacks
11	Docebo	A Software that offers a learning portal for teachers and students, companies and their employees as well as partners and customers.
12	WizIQ Virtual Classroom	This is a virtual classroom that offers all the tools and resources needed to replicate physical classroom online.
13	Elucidat	This allows the creation of excellent interactive eLearning content efficiently than some of the online tools.

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14	Blackboard Learn	It is an online application tool for teaching, learning, and knowledge sharing. It is flexible, and centered on student achievement.
15	Adobe captivate	Allow creation of aesthetically-designed, fully-responsive eLearning content with a smart authoring tool in just a few minutes without programming. Also allow amplification of video-based learning by quickly adding interactivity to videos, which you record yourself, or bring in from YouTube, and drive up learner engagement.
16	Bamboo learning	Voice-based e-learning instructional tools cover a range of academic subjects, including math, listening comprehension, and social studies. The unique nature of voice technology promotes active conversational learning, which is highly beneficial during social distancing. Suitable mostly for Children.
17	Microsoft teams	This is a digital hub that brings conversations, content, and assignments together in one place, allowing educators to create vibrant learning environments, quickly converse with students, share files and websites, grade and assignments.
18	Google hangout (meet)	Video conferencing tools allow users to collaborate at a distance, instant message, video chat, and share photos, computer screens, and files. Also allow engagement of students in collaboration outside of the classroom.
19	Skype	Skype is a video conferencing platform that provides a variety of educational opportunities for active online classrooms. Students can connect with other students as well as their teachers, increase their knowledge, learning progress monitored and assessed.
20	Edubakery.com	It provides puzzles which can either be downloaded or created. Using the same or different vocabulary, you can construct crosswords, bingo cards, word searches, or word scrambles that will aid in learning processes.
21	Dave's ESL Cafe	It has one of the most extensive collections of lesson plans and quizzes and very active forums for ESL teachers and students.

CMAP=Concept Maps, **MOOC**=Massive Open Online Courses, **IoT**=Internet of Things, **ESL**=English as a second Language, **MOODLE**= Modular objective-oriented Dynamic Learning Environment.

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Conclusion

It is evident that the COVID-19 pandemic outbreak has stimulated stakeholders in the education sector to think outside the box for the best way to handle learning activities should any global crisis breaks out. The issue of e-learning platforms that people are massively turning to has been there for decades. Still, many countries, as well as educational institutions have never tried to utilize them. This situation has made it impossible for such countries and institutions to easily switch to e-learning during this trying period because it is impossible overnight. The broader awareness and the massive switch over to e-learning pedagogies, the portability of e-Learning may increase students' enrolment. Access to education will be extended to cover rural communities that are hitherto not carried along due to the digital divide. The flexibility of eLearning may provide an opportunity for individuals who are unable to attend a traditional full-time face-to-face school due to personal or financial circumstances, Even though e-learning is a flexible and innovative digital method of education, it might also lead to less quality assurance of the learning process. Compromises in the education quality can happen, mainly if the focus is more on revenue mitigation. Stakeholders in educational institutions need to be mindful of their capability to always monitor the quality of the learning strategy.

Suggestions

From the foregoing discussion the following points were suggested

- (1) Nigerian education policymakers should consider the peculiarities of the country by not just borrowing and adopting foreign policies that are not compatible with the country.
- (2) Stakeholder's collaboration should be widened to include all those who can bring about improving the standard of education, knowledge exchange, and skills development, e.g., Teachers and the private sectors.
- (3) Alternative funding sources should be sought by stakeholders particularly researchers in the form of grants and companies' involvement in research funding, as Government alone will not meet up to the expectation of the country's higher institutions' needs.
- (4) The capacity of our higher institutions is to be expanded against the proliferation of institutions that cannot accommodate many students to solve the current enrollment problem.
- (5) Monitoring and evaluation should be strengthened by stakeholders in the education sector to ensure quality delivery of educational instructions, particularly in the area of e-learning.

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- (6) Government need to know that providing internet by satellite is the best option for a country like Nigeria to allow the majority of the populace who live in rural areas to have uninterrupted access to the modern education system.
- (7) Issues regarding higher institutions, particularly in the area of e-learning, are continually evolving. Further research is recommended, as this chapter is a stimulant for new research in this domain.

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