

CHALLENGES OF IMPLEMENTING E-LEARNING IN NIGERIA EDUCATIONAL SYSTEM IN THE COVID-19 PANDEMIC ERA

Mmesoma Philomina OBODODIKE¹

John Bosco O. COKEKEOKOSIS²

^{1,2} Federal College Of Education (Tech) Asaba, Delta State, Nigeria

Abstract

This paper discussed the challenges of implementing e-learning in Nigeria educational system in the COVID-19 pandemic era. Globally, the world is faced with the COVID-19 pandemic, which has held the economy at ransom not exempting the educational sector. This pandemic has brought about recent changes and disruptions in the educational sector which serves as a catalyst for the development of any nation. Educational sector globally is seen to be shifting towards e-learning in order to cushion the effect of this pandemic. However, developing countries evidence from the Nigeria experience is posed with the challenge of shifting from the traditional teaching method to the e-learning during the pandemic. The challenges arise because of the varying degree of preparedness of the institutions, lack of infrastructures, paucity of funds and policies issues in the Nigeria education sector. It is in tandem with this prevailing issues that this study examines the Nigeria educational system based on the global pandemic. This paper further discussed the concept of COVID-19 pandemic, the necessity of e-learning and challenges as well as opportunities and

implementation of e-learning in Nigeria. Hence, the study conclude that the present world pandemic is making the educational sector to look inward. Institutions are now embracing e-learning which serves as alternative to the face-to-face contact learning thereby helping the institutions cover gaps the pandemic might cause the institutions academic calendar. The study recommended amongothers; that government should be proactive in ameliorating the challenges identified in this study and build on the opportunities e-learning offers educational institutions even post COVID-19. Also, for e-learning to be effective, appropriate measure should be given to maintenances, provision of stable internet provider to support easy and fast learning andteaching.

Keywords: *Challenges, Implementation, E-Learning, Educational Sector, COVID-19.*

Introduction

The vision of Nigeria educational system is to be pace-setting education in terms of learning, character building and service to mankind with a mission to produce competent, self-reliant and resourceful graduates-citizens with high moral standards in our society. Over the years, institutions of learning have played dominant roles in the developed world to inculcate social values to their citizens. Thus, higher institutions are usually in the forefront of curbingany social, economic and political challenges, especially with the power of research being focused on areas that will promote human development and solve existential problems (Odim, Annastashia and Solomon, 2018).

Moreover, discontinuity in education has adverse effects on the students, the parents and the nation as a whole. Over the years, the major cause of discontinuity in Nigeria education is strike which according to Amadi and Urho (2015) is an organised work stoppage by a body of workers to enforce compliance with demands made on an employer or a group of employers. To Odim, Annastashia and Solomon (2018), it is an aspect of industrial conflict used by workers to express their grievances, Furthermore, Edinyang and Ubi (2016)

revealed that strike is a social ill not different from corruption because it eats into students' time which makes it difficult for students to be fully and properly 'baked' within the designated educational time frame. As a result, 'products' that are ill equipped in both character and learning are turned out to the society (Edinyangetal).

Recently, another form of discontinuity in education emerged nationwide. This discontinuity in education is caused by global issues that affect almost every continents of the world and as a result led to total lockdown. This discontinuity in education was caused by COVID-19, a newly discovered coronavirus. In 2019, the Centers for Disease Control and Prevention (CDC) started monitoring the outbreak of a new coronavirus, SARS-COV-2, which causes the respiratory illness now known as COVID-19 (UNESCO, 2020).

The coronavirus which is popularly known as COVID-19 has disrupted the global educational system as most countries around the world have resulted in temporarily closure of all educational institutions in an attempt to contain the spread of the pandemic. According to the report by UNESCO (2020), the closure of educational institution has impacted over 91% of the world's student population. The ripple effect of this pandemic has been felt by both the educators and students in primary, secondary, colleges and universities as academic sessions were disrupted after the coronavirus was declare a public health emergency. This has left many students and educators in a rude shock as some of this institution were at the point of preparing for examination, admitting of new students, beginning of a new semester, amongst others. Educational institutions around the world including Africa have resulted in looking for ways to cope and adapt to academic changes because of this pandemic.

The COVID-19 outbreak has opened up the importance of online education and distance learning however, just a handful of the world's education that is taught online. According to Olatunji (2020), in the United States of America, about 15% of the total undergraduate students are enrolled for online

learning and distance learning. The pandemic has resulted in a more severe consequence on schools that do not possess the online learning platform.

The COVID-19 pandemic ravaging the world have taken its effects on many sectors of the economy especially in Nigeria. This effect is also evident in the Nigeria educational sector as the academic session was halted by the Federal Ministry of Education in order to curtail the spread of this virus in educational institutions. Although, this decision came as a shock to many educational institutes as many of these institutions were not prepared for the sudden disruption, others have seen it as a step in the right direction. The challenge then remains how will this pandemic affect students and academic calendars, hence the use of e-learning as an alternative learning method.

The e-learning is not a new phenomenon in promoting education in some parts of world. Presently, some educational institutions in Nigeria are using it to promote distance education (DE) and life-long learning. E-learning can be defined as the online delivery of information. It is the integration of learning with technology (Okure, 2018). It is instruction delivered through purely digital technologies such as CD ROM, the internet and private networks (Landon, 2015). In addition, Hedge and Hayward (2014), defined e-learning as an innovative approach for delivering electronically mediated, well-designed, learner-centered and interactive learning environments to anyone, anyplace, anytime by utilizing the internet and digital technologies in concern with instructional design principles. This is all about learning with the use of computers. In this age, learning with the use of computer is simply online ways of acquiring knowledge through the internet or through the offline – CD-ROM. The online involves the use of Internet Explorer/Navigator. It may be in form of Audio, Visual, and or Audio/Visual. The convergence of the internet and learning, or Internet enabled learning is called e-learning (Electronic Learning). The applications and process of e-learning include computer-based learning, web-based learning, virtual classroom and digital collaboration where contents is

delivered via the internet, intranet/extranet, audio and or video tapes, satellite TV and CD-ROM (Islam, 2014).

However, despite the immense benefits of the e-learning platforms available, not many Nigerian educational institutions have embraced it. Poor budgetary allocation, corruption and unpreparedness are contributing factors to the inability of many educational institutions to embrace e-learning during the global COVID-19 pandemic in Nigeria. A ten year (2010-2019) budgetary allocation to the Nigerian education sector as shown in Table 1 has been very poor. With budgetary allocations like these comes deficiencies that does not allow for growth of e-learning and creates challenges when institutions try to embrace e-learning during pandemics such as the COVID-19.

Table 1: Nigeria Budgetary allocation to Education (2010 - 2019)

Year	Budget (₦Trillion)	Educational Allocation (₦ Billion)	Percentage of Budget (%)
2010	5.160	249.09	4.83
2011	4.972	306.30	6.16
2012	4.877	400.15	8.20
2013	4.987	426.53	8.55
2014	4.962	493.00	9.94
2015	5.068	392.20	7.74
2016	6.061	369.60	6.10
2017	7.444	550.00	7.38
2018	8.612	605.80	7.03
2019	8.830	620.50	7.03
Total	60.973	4413.17	7.24

Source: Ndujihe (2019) - Vanguard Newspaper; Ameh and Aluko (2019) – Punch Newspaper

Table 1 reveals that for the 10-year period, the education sector got an average of 7.24% as against the 15-20% recommended by UNESCO. This definitely will not allow infrastructures such as ICT platforms, electricity, teacher-tutor training amongst others needed to allow e-learning grow in Nigeria to be available.

However, some schools particularly the private tertiary institutions in Nigeria have embraced e-learning as a means to ensure that their academic calendar is not totally distorted. These tertiary institutions have devised the use of information and communication technology tools to facilitate learning during this pandemic. Several e-learning platforms have been adopted by universities although these platforms are in exhaustive. They include, Zoom, Microsoft teams, google hangout (meet), skype, Bamboo learning, google classroom, Docebo, WIZIQ, Adobe captivate, Elucidat, Blackboard learn amongst others. Private universities seem to be at the forefront of e-learning capacity in Nigerian universities as a result of their innovative and flexible operations. Regrettably, it appears that most public tertiary institutions have not been able to embrace the e-learning platform to the detriment of their students and the society at large. Various factors might be responsible for these in the public tertiary institutions such as student population, training of lecturers and students, sustainable internet facilities amongst others. The aforementioned factors play a key role for the set back of public tertiary institutions academic activities during the COVID-19 pandemic in Nigeria.

Private tertiary institutions have also embraced the e-learning platform to continue with the academic calendar due to the financial commitment to their workforce as shutting down will bring about difficulty in revenue generation. However, the public tertiary institutions largely depend on government subvention and TETFund assistance because of the discounted tuition paid by their

students as compared to their counterparts in private educational institutions. The sporadic pace of ICT is seen in the innovative development of advanced countries such as Japan which conducted a virtual convocation ceremony for its students using robotics (Kacerauskas&Kusaityte, 2020). In America, universities such as Harvard university have embraced e-learning platforms but in most African countries such as Nigeria, traditional forms (physical contact) of learning has been the norm. Despite the benefits of the e-learning platform, there has also be constraint in the full actualization and utilization of this platform due to the poor system of education and high extent of corruption in Nigeria. Thus, this paper focuses on challenges of implementing e-learning in Nigeria educational system in the Covid-19 pandemic era.

Concept of COVID-19 Pandemic

The novel Coronavirus disease 2019 (COVID-19), first identified in Wuhan China in December 2019, has rapidly spread to almost every region of the world. The disease is caused by a new and severe type of Coronavirus known as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS- COV-2). The infection has no immediate treatment and vaccine, and it has according to World Health Organization (WHO, 2020) become a worldwide pandemic causing significant morbidity and mortality. There are 1,603,428 confirmed cases, 356,440 recoveries from the illness and 95,714 deaths worldwide as of April 9, 2020 (Worldometers, 2020). On February 27, 2020, an Italian citizen became the index case for COVID-19 in Nigeria and as at April 9, 2020, there were 288 laboratory-confirmed cases of COVID-19 in Nigeria with 51 discharges and 7 deaths (Nigeria Centre for Disease Control, NCDC,2020).

To prevent further spread of the virus, civil societies and government agencies embarked on enlightenment campaigns for good hygiene and social distancing. Temperature screening was conducted at airports and those returning from countries with numerous confirmed cases of COVID-19 were implored to self-isolate. The NCDC in association with State governments also began tracing

and tracking of possible victims and their contacts. On March 18, 2020, the Lagos State government suspended all gatherings above fifty people for four weeks and ordered all lower and middle level public officers to stay-at-home (Ewodage, 2020). Similarly, the Federal government, on March 30, 2020 introduced various containment strategies such as closing of the national borders and airspace, schools, worship centers and other public places, canceling of mass gathering events and placing the Federal Capital Territory, Lagos and Ogun states on lock down for an initial period of fourteen days (Radio Nigeria, 2020). COVID-19 testing laboratories were set up in Lagos, Abuja and Irrua in Edo State while State governments opened isolation centres and imposed dawn to dusk curfews in their territories.

COVID-19, from the family of Coronavirus (others include Severe Acute Respiratory Syndrome (SARS) , Hemagglutinin Type 5 and Neuraminidase Type 1 (H5N1), Hemagglutinin Type 1 and Neuraminidase Type 1 (H1N1) and Middle East respiratory Syndrome (MERS), is a contagious respiratory illness transmitted through the eyes, nose, and mouth, via droplets from coughs and sneezes, close contact with infected person and contaminated surfaces. It has an incubation period of approximately one to fourteen days. The symptoms include cough, fever and shortness of breath, and it is diagnosed through a laboratory test. The contagion could lead to severe respiratory problems or death, particularly among the elderly and persons with underlying chronic illnesses. Some infected persons however, are carriers for the virus with no symptoms while others may experience only a mild illness and recover easily (Sauer, 2020). As there is currently no cure or vaccine for the COVID-19; medical treatments are limited to supportive measures aimed at relieving symptoms, use of research drugs and therapeutics.

Knowledge of infection pathways and relevant precautions to take is needed to control the pandemic. While the scientific community continues to research possible vaccines or drugs for the viral infection. It is expected that

adequate knowledge will motivate individuals to make decisions which may prevent and curb the epidemics. Knowledge such as regular hand washing, using hand sanitizers, wearing face masks, respiratory etiquettes, social distancing and self-isolation when sick are vital to reducing widespread infection (Leppin&Aro, 2019). Consequently, individuals may need to be informed about the potential risks of infections in order to adopt the right precautionary measures.

At early stages of a pandemic, precautionary measures are needed to protect against possible danger and curtail the disease spread. In line with this therefore, the Nigerian government (just like other governments around the world) introduced various containment strategies which have interfered with individuals' daily lives and have led to severe economic loss and social disruption. People were coerced to stay at home, businesses and offices were closed, exempting healthcare facilities / workers and essential commercial establishments. For Nigerians making a living in the informal economy, their livelihood is now threatened by the lockdown since much of their activities and businesses involve face-to-face contact. In Nigeria there is no social safety net, no access to food stamps or unemployment benefits, most people earn their living on a daily basis. Regardless of this however, there has so far been a high degree of compliance with the government directives, Nigerians are engaging in vigilant hand washing, practicing social distancing and self-isolation, and avoiding going to work, school or crowded areas. Even most religious leaders agreed to stop large gatherings, forbid the shaking of hands and directed church members to pray at home and use hand sanitizers (Makinde, Nwogu, Ajaja&Alagbe, 2020; Olatunji, 2020).

On the other hand, some Nigerians due to superstitions and ignorance of the science behind the infection prefer only to pray (even violating the social distancing rule by attending churches or mosques during the lockdown) and use anointing oils, talisman, herbs or rituals (Abati, 2020) to prevent contracting and spreading the virus. Some also use social media platforms (e.g. Whatsapp,

Twitter, Facebook and Instagram) to spread fear, project fake news concerning the source of the virus, promote prejudice against China, incite panic buying, proffer fake cures and undermine medical advice, deliberately or ignorantly (Hassan, 2020). They opined that lockdown, self-isolation and social distancing are un-African solutions to the pandemic (Abati, 2020). The coronavirus pandemic (COVID-19) has no doubt adversely affected the global economy. It has forced many businesses to temporarily shut down and governments across the world to place a restriction on movement while exempting providers of essential services who are to strictly observe social distancing rules while providing services as a way to contain the spread of the virus.

Unfortunately, the educational sector is a part of the receiving end. According to UNESCO, an estimated 1.725 billion learners have been affected as a result of school closures, representing about 99.9% of the world's student population as of April 13th, 2020.

Furthermore, the continuous advances in information technology have enabled the realization of a more distributed structure of knowledge transfer through the development of e-learning. The developing countries have embraced ICT and consequently e-learning so as to keep pace with unimaginable speed in the area of technology. The use of ICTs in Nigeria and African countries generally is increasing and dramatically growing. Since e-learning systems allow students to take courses at their own time and pace, it is more convenient than their in-person counterparts. The flexibility of e-learning stating that students can even refer back to previous lectures without affecting the learning pace of other students. Forums and communities built around the massive online open courses (MOOC) add to the usability of these e-learning programs (UNESCO and COL, 2012).

Meaning of E-learning

The term e-Learning means something different to almost everyone who uses it. Some use the term to refer to pieces of content packaged using technical

infrastructures. Some think only of web-based self-study, while others realize e-learning can encompass real-time learning and collaboration. Almost all agree that e-learning is of strategic importance and should be highly adopted for current learning style. Parks (2013) posits that the word “e” should refer to “everything, everyone, engaging and easy” in addition to electronic”. E-Learning refers to the use of internet/ICTs i.e. Information and Communication Technology to enhance and support teaching and learning process,

According to Eze, Chinedu-Eze and Bello (2018), e-learning is concerned with the holistic incorporation of modern telecommunication equipment and ICT resources into the education system. The term e-learning connotes electronic method of learning which is associated with computerized learning in an interactive interface at the convenience of both the learners and lecturers. E-learning also implies educationally technology. The benefits of the e-learning include better content delivery, interactivity, quality content delivery and confidence of both learners and lecturers in the educational sector. Despite the advantages of the e-learning, it is still at its infancy and early adoption stage in Nigeria due to its dynamic structure. Nevertheless, e-learning is seen as the only option to keep the educational system running in the event of the pandemic (Anaeke&Anaeke, 2020). This implies that utilization of e-learning in Nigeria for instructional delivery encounters various problems.

Challenges of E-Learning in Nigeria During Covid-19 Pandemic

E-learning is still confronted with a lot of challenges in Nigerian educational system especially during this pandemic as this is the only medium available for learning. One of these challenges is epileptic power supply in Nigeria especially in rural areas as there is no guarantee of at least two hours” power supply at a stretch. Irregular power supply in Nigeria is seen as an age-long problem which has affected almost every aspect of Nigeria economy with no exception to the educational sector. This unstable poor power supply has caused

a major setback for technological advancement of many educational institutions in Nigeria. Most rural areas in Nigeria where some students are resident are not even connected to the national grid and as such, this student will experience difficulty in utilizing the e-learning platform effectively. Also, shortage in power supply have brought difficulty in powering of educational gadget such as smartphones, laptops and desktop computers needed for learning.

Another major obstacle to e-learning in Nigeria is tied towards the high cost of internet data services. The internet service required to connect to this e-learning platform sometimes requires a lot of data. The cost of purchasing the data bundle is so high which might be difficult for both students and lecturers. In cases where there is even data, poor internet connectivity by network providers is of major concern especially when it comes to video conferences where both the students and lecturers have to interact. The cost of accessing the internet in Nigeria is still on the high side. Hence, some students find it a challenge to afford. The cost of a personal computer (PC), Laptop and smart phones suitable for e-learning are still very high in Nigeria considering the income level of an average worker in the country. Few students that are privileged to have a PC/Laptop are not connected to the internet as this do attract extra cost which they cannot afford. Also, this poor internet connectivity and high cost of data has resulted in low attendance of students during the online classes (Eze et al). This low online class attendance has also been linked to the poverty situation in the country as some families and students might not be able to afford basic needs such as food and clean water let alone the expensive gadgets or resources to sustain them for online learning. According to Eze, et al another challenge posed by the e-learning education is the incapability of lecturers to assist learners develop the skills and training required to make the e-learning platform effective. E-learning creates room for complete absence of physical personal interactions between students and lecturers and among their colleagues.

Opportunities Applicable to Use of E-Learning

Despite the challenges posed by integrating and embracing the e-learning system, it has become the most preferred platform to learn during global pandemic periods such as the COVID-19 where movement is restricted and institutions of learning are on lockdown. The e-learning system is the new era of learning that depends on the user mode (Aina, 2020). The adoption of e-learning system for Nigerian educational system will enhance the efficiency of knowledge as both students and teachers/lecturers will have easy access to a large amount of information within the global village. In most tertiary institutions, class space for teachers/lectures is usually a problem as sometimes there is clash in timetable or overpopulated students.

The e-learning system will completely reduce the issues of insufficient classrooms for teachers as student can easily take the lectures online without any disruption at their convenience. Also, e-learning afford students and lecturers to participate in class in their comfort zone with basic amenities they need when compared to the traditional teaching method where sometimes these basic amenities are unavailable for conducive learning. This is supported by the findings of Pingle (2019) that undergraduates in India have a higher acceptance level of comfort working with computers and other e-learning packages than the traditional face-to-face classroom.

E-learning provides a platform for students to interact with themselves through the discussion forum which eliminates the barrier of participation. It also allows for effective communication and fosters relationship between students and lecturers. It also allows students to study at their open pace and convenience as the lecture material is readily available and the content delivery of the lecturer is quite accessible to them. Hence, it increases satisfaction and decreases stress. The knowledge of e-learning will expose both lecturers and students to the reality of the world outside the classroom since the world is a global web. The e-learning exposure will ease the student's integration into organizations where such platforms are operational.

E-learning can be said to be cost effective as it reduces travel time and infrastructural development in terms of buildings. Arkorful and Abaidoo (2016) discovered that the cost benefit of e-learning in training students is lesser than that of physical (face-to-face) contact. This was arrived at after considering some factors namely: the number of students trained; distance to be travelled; time of training. Guragain (2016) also posit that the value of face-to-face class contact content development, distribution and maintenance cost are exclusively high as compared to e-learning which is of lower cost. All these shows that adoption of e-learning tends to solve educational challenges especially at a time such as the COVID-19 pandemic.

Prospects for Implementation of E-Learning in Nigeria Education Institutions

There is emerging evidence that e-learning can help to improve attainment and raise standards of education. The evaluation of the National Learning Network (NLN) in further education uses qualitative data to show that learners are becoming more sophisticated in their e-learning expectations and that ICT is increasing permeating college life. Below are the major vision, view, possibility and prospect of implementing e-learning in Nigeria educational system:

1. Empower Learners:- As stated by National Policy on Education (NPE, 2014) one of the primary aim of the philosophy of Nigeria Education is to produce a self reliant citizen that can be useful to themselves, their society and to the development of the country at large. E-learning engage learners with more active learning process, people in group or individual irrespective of their age could take responsibility for what and how they learn, achieving their personal goals as self-directed lifelong learners.
2. Creative and Innovative Teaching and Learning:- With E-learning, teaching and learning of curriculum content could be more creative and innovative in preparation for the 21st century global knowledge society.

3. E-Learning Offer Flexibility: - A more responsive education system would adapt to the needs of all learners, wherever and however they need to learn. Wide range of curriculum content deployment to learner that will make the philosophical framework of Nigeria education to be ascertain on the level of equity. NPE recognize equal education for all citizen and with E-learning, the goal can be achieve.
4. E-learning Achieve Better Value:- Education leaders, evaluators and including classroom lecturers and teachers could develop innovative ways of deploying their resources, exploiting e- learning alongside with other teaching methods to improve quality and economies of scale.
5. Generate a Professional Workforce and Fulfilled Citizens: - E-learning would enable a community, group and a workforce for the knowledge society would have a high proportion of people capable of continually updating their knowledge and skills, e-learning will help in managing knowledge transfer and contribute to practitioner knowledge in all its forms. This will improve unity as stated by NPE.

With the advent of e-learning to implement curriculum content in the Nigeria educational system will not only help to make the teaching and learning of the content brought by the teacher active but also to revolutionize education system during pandemic. Kajetanowtez and Wierzejewski(2015) pinpointed that e-learning has no rival when it comes to generation of intrinsic motivation and initiation of organized active learning in education. Kajetanowtezetal, equally see e- learning as an efficient means of promoting self- study cum frequent testing in the form of formative evaluation which engender proper monitoring of educational progress and periodical achievement. Overall research report shows that e-learning provide positive effect on learners achievement. These include the fact that it promotes interest and vocabulary development in students and also provide experiences not easily obtained through other learning strategies and contribute to the efficiency, depth and variety of learning.

Conclusion

This paper concluded that the present world pandemic is making the educational sector to look inward. Institutions are now embracing e-learning which serves as alternative to the face-to-face contact learning thereby helping the institutions cover gaps the pandemic might cause the institutions academic calendar. The adoption of e-learning during the COVID-19 pandemic has exposed a lot of lapses and gaps to be filled in the Nigerian educational system. The challenges of e-learning in Nigeria ranges from irregular power supply, high internet subscription costs, poor internet access amongst other factors. The applicable opportunities associated with the embracing e-learning includes lecturers/learners convenience, exposure and cost benefits. Hence, the efficacy of e-learning platforms that will foster continued learning cannot be ignored. Thus, this study proposed e-Learning as advancement in Nigerian pedagogy amid COVID-19 Pandemic lockdown by proposing a method that will put an end to discontinuity in education that emerged as a result of COVID-19 pandemic lockdown.

Recommendation

Based on the findings of this study the following recommendations were made:

1. That government should be proactive in ameliorating the challenges identified in this study and build on the opportunities e-learning offers educational institutions even post covid-19.
2. For e-learning to be effective, appropriate measure should be given to maintenances, provision of stable internet provider to support easy and fast learning and teaching.
3. Basic knowledge on how to operate computer and computer related tools should be given to both the students and teachers.
4. Curriculum planner should try to integrate effective practical attainment strategy and how learner of e-learning can be evaluated in order for optimum

functionaleducation.

5. Electricity is one of the driven force and backbone of computer and computer tools, so Government should finance and connect the rural areas particularly to a stable electric grid.
6. The responsibility for computer study programme development for students and staff should be extended to all stakeholders and should not be limited to the ministry of education.
7. Finally, this paper recommends that the Federal Government should look into this proposed framework with the e-learning platforms used and practice continued education during the lockdown session and can also come up with other e-learning platforms that might have not been included here to achieve effective and continued education despite the ongoing global pandemic lockdown.

References

- Abati, R. (2020). *Corona Blues*. Retrieved on April 7th, 2020
- Aina, J.K. (2020). Mitigating the impact of COVID-19 on the teaching and learning of science in the Nigerian higher education. *International Journal of Innovation and Learning*, 4(6); 334-337
- Amadi, E. C &Urho, P. (2015). Educational management planners' view of strike action and its effects on educational management in Universities in Rivers state. *Singaporean Journal of Business Economics and Management Studies*, 4(7); 45 – 55.
- Ameh, J. &Aluko, O. (2019). *2019 budget: Education gets 620.5bn, against UNESCO"s advice*. Retrieved from: <https://punchng.com/2019-budget-education-gets-n620-5bn-against-unescos-advice/>.
- Anaekwe, M.C&Anaekwe, G.U. (2020).COVID-19 pandemic and social media: implications for health, science and technology education in Nigeria In E.C. Okigbo, J.N. Okoli, J.O.C. Okekeokosisi& N.N. Samuel (eds). *Role of education in the pandemic period in Nigeria*. Awka: College of Education Ikwo Printing press Ltd.

- Arkorful, V. & Abaidoo, N. (2016). The role of e-learning, the advantages and disadvantages of its adoption in Higher Education. *International Journal of Education and Research*, 2(12);397-410.
- Edinyang, S. D. & Ubi, I.E. (2016). Effect of strike action on human development among Social Studies Secondary School Students in Uyo Local Government Area of Akwa-Ibom State, Nigeria. *Global Journal of Human Resource Management*, 1(2); 1 – 8.
- Ewodage, R. (2020). *COVID-19: How We Plan To Implement Social Distancing In Lagos Markets, Transport System—Sanwo-Olu*. Available online at [https://www.channels tv.com/2020/03/22/covid-19-how-we-plan-to-implement-social-distancing-in-lagos-markets-transport-system-sanwo-olu/](https://www.channels.tv.com/2020/03/22/covid-19-how-we-plan-to-implement-social-distancing-in-lagos-markets-transport-system-sanwo-olu/).
- Eze, S. C., Chinedu-Eze, V. C. & Bello, A. O. (2018). The utilization of e-learning facilities in the educational delivery system of Nigeria: a study of M-University. *International Journal of Educational Technology in Higher Education*, 15(34); 1-20.
- Guragain, N. (2016). *E-learning benefits and applications*. Helsinki University of Applied Sciences Thesis. Retrieved from: https://www.theseus.fi/bitstream/handle/10024/105103/Guragain_Nischal.pdf?sequence=1.
- Hassan, I. (March 26, 2020). *The other COVID-19 pandemic: Fake news*. Available online at <https://africanarguments.org/2020/03/26/the-other-covid-19-pandemic-fake-news/>.
- Hedge, N. & Hayward, L. (2014). Redefining roles. University e-learning contributing to Life-long learning in a networked world. *E-Learning*, 1:128 – 145.
- Islam, M.T (2014). *Educational Technology for 21st century*. Observer magazine, Dhaka, May 9, 1997, pp. 3–4.
- Kacerauskas, M. & Kusaityte, J. (2020). *Japanese University Found a Genius Solution for Their Graduation Ceremony During the Coronavirus Pandemic*.

- Kajetanowicz, R.A. & Wierzejewski, A. (2015). *Teacher training by distance: The Nigerian experience*. In John Daniels (Ed) proceeding of the 1995 ICDE conference. Birmingham, UK.
- Leppin, A. & Aro, A.R. (2009). Risk perception related to SARS and avian influenza: theoretical foundations of current behavioral research. *International Journal of Behavioral Medicine*, 16(1);7–29.
- Makinde, F., Nwogu, S., Ajaja, T., & Alagbe, J. (2020). *COVID-19: Adeboye, Oyedepo, Okonkwo, Adeyemi, others hold online services*. Available online at <https://punchng.com/covid-19-adeboye-oyedepo-okonkwo-adeyemi-others-hold-online-services/>.
- Ndujihe, C. (2019). Education sector gets paltry N3.9 trillion out of N55.19 trillion in 10 years. Retrieved from: <https://www.vanguardngr.com/2018/04/education-free-fall/>.
- Nigeria Centre for Disease Control (NCDC) (April 9, 2020). *COVID-19 case update*. Available online at <https://twitter.com/NCDCgov/>. Retrieved on April 9th, 2020
- Odim, O. O., Anastashia I. A. & Solomon, A. A. (2018). Effect of Strikes on Management and Planning of Educational Activities in Nigerian Universities. *Global Journal of Educational Research*, 17: 1-8.
- Okure, S.J. (2018). *Using e-learning (of ICT) technologies: Towards sustainable development in Nigeria: Managing education for sustainable development in developing countries*. Ibadan: Nigerian Association for Educational Administration and Planning (NAEAP).
- Olatunji, H. (2020). Coronavirus: Catholic Church In Lagos Suspends Sprinkling Of ‘Holywater’, Handshakes During Mass. Covid-19 Knowledge And Perceptions In Nigeria.
- Oluebube, O.R. (2017). Mapping and the Internet; challenges and opportunities in Nigeria. *Journal of the Nigerian cartography association*.
- Parks, E. (2013). *What's the "e" in e-learning?* Ask International.com

Pingle, S.S. (2019). Higher education student's readiness for E-Learning. *Techno LEARN*, 1(1); 155-165.

Sauer, L.M. (2020). *What Is Coronavirus?* Available online at <https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus>.

UNESCO (2020). COVID-19 *Educational Disruption and Response*. Retrieved from: <https://en.unesco.org/covid19/educationresponse> University.

Worldo Meters (2020). *Coronavirus Update (Live)*.