

## SHIFTING FROM CLASSROOM LEARNING TO E-LEARNING IN NIGERIAN PUBLIC TERTIARY INSTITUTIONS: WAY FORWARD IN THE ERA OF COVID-19

**Job Onekutu SANI<sup>1</sup>, Nneka Angela OSEJI<sup>2</sup> & Florence Bosede AGUNSOYE<sup>3</sup>**

*Department of Library and Information Science, Federal University Lokoja, Kogi State, Nigeria<sup>1&2</sup>, Federal Collage of Education, Okene, Kogi State, Nigeria<sup>3</sup>.*

[sani.job4real@gmail.com](mailto:sani.job4real@gmail.com)<sup>1</sup>, [nnekaosejiangela@gmail.com](mailto:nnekaosejiangela@gmail.com)<sup>2</sup>, [agunsoyebosed@gmail.com](mailto:agunsoyebosed@gmail.com)<sup>3</sup>

### **Abstract**

**Purpose:** This paper examined the need for the engagement of ICT in public tertiary institutions in Nigeria to initiate the shift from the traditional teacher directed approach (Classroom Learning) to modern method (E-learning), where modern computers and handheld technologies play a momentous role in the era of COVID-19 pandemic. The idea of e-learning is for students to continue their education at home, in the hope of not missing out too much during the lockdown. This papers provides an overview of e-learning, the outbreak of coronavirus (COVID-19) and its effect on tertiary education, rationale for the shift from classroom learning to e-learning in the era of COVID-19, types of e-learning suitable for Nigerian public tertiary institutions in COVID-19 era, facilities for driving e-learning in public institutions in the era of COVID-19, challenges limiting the shift from classroom learning to e-learning in the era of COVID-19 in public tertiary institutions in Nigeria and the way forward for the effective adoption of e-learning in the era of COVID-19.

**Design/Methodology & Approach:** The methodology adopted is contextual analysis which involves the review of information resources on the subject matter ranging from journal articles, newspapers, text books, the internet, etc.

**Findings:** the study discovered that the outbreak of COVID-19 has greatly affected academic programmes in tertiary institution in Nigeria. Hence, the implementation of e-learning is the best alternative to solve the problem of access to tertiary education in the era of COVID-19 pandemic. It has become imperative for public tertiary institutions in Nigeria to embrace and fully implement e-learning in the era of COVID-19, since the learning approach has become the common phenomenon globally.

**Implication:** It has become obvious that going forward, there is a great need to re-think and re-strategize on effective ways to enhance teaching and learning in public tertiary institutions in the era of COVID-19 via e-learning platforms. To succeed, the need for a well-documented e-learning policy, adequate funding of e-learning, incorporation of blended learning, acquisition of facilities and infrastructures that support e-learning and training of staff and students are very imperative.

**Originality/Value:** The paper provides an insight into how public tertiary institutions can successfully engage e-learning so as to ensure seamless impartation of knowledge through teaching, learning and research via internet/ICT devices in order to be able to effectively meet up with academic programmes that may be disrupted by the partial or total closure of tertiary institutions in Nigeria.

**Paper Type:** Opinion Paper.

**Keywords:** Tertiary Institution, Classroom Learning, E-learning and COVID-19

### **Introduction**

All over the world, education, particularly the tertiary education is regarded as the bedrock of economic, political and technological advancement. This is why it is often emphasized that no nation can rise above its educational system (Jekayinfa, Yusuf, Yahaya & Yusuf in Okojie, Oloyede & Obanya, 2010). This forms the basis for the establishment of categories of institutions among which tertiary institution

plays a pivotal role in human capital and national development.

Tertiary education is the level of education given to an individual after secondary education in formal institution (universities, colleges of education, polytechnics and monotronics) including those running correspondence courses. It is an advanced place for the training of workforce for industrial and societal engagements (Okeke & Osuala, 2016). Public

tertiary institutions refer to all post-secondary schools owned by federal or state government such as federal or universities, colleges of education, polytechnics, technical training institutes, and vocational schools. Federal Republic of Nigeria (2004) highlights the goals of public tertiary education as thus:

- a. Contribute to national development through higher level relevant manpower training.
- b. Develop and inculcate proper value for the survival of the individuals and the society.
- c. Develop the intellectual capacity of individual to understand and appreciate their local and external environment.
- d. Acquire both physical and intellectual skills which will enable individual to be self-reliant and useful members of the society.
- e. Promote and encourage scholarship and cement national unity.
- f. Promote national and international understanding and interaction.

In Nigeria, Agbola (2019) quoting the executive secretary of Tertiary Education Trust Fund (TETFund) Suleiman Bogoro, noted that ninety-four percent (94%) of Nigerian students attend public tertiary institutions such as universities, polytechnics and colleges of education. He attributed the large percentage to the fact that private universities are much more expensive, adding that some of them even charge their fees in dollars. However, public tertiary institutions have made remarkable impact in imparting knowledge through teaching and learning since the beginning of formal education in Nigeria. Hence, the teaching and learning activities in tertiary institutions are mostly done in the confines of the classrooms learning environment (Matthew, 2014).

A classroom is a learning space, a room in which both children and adults learn. The classroom provides a space where learning can take place uninterrupted by outside distractions (Malik &

Rizvi, 2018). Classroom learning needs a certain number of participants or students to be active listeners and participate in that learning environment. The students and teachers need to be physically present in the classroom. Classroom learning promotes an open exchange of ideas and face-to-face interaction of the students and the teachers. The classroom learning also promotes socialization among the teachers and the students via team projects, peer evaluation, and group discussions (Sadeghi, 2019).

### **E-Learning**

Recent development in the telecommunication industry in Nigeria over a decade ago has brought about an unprecedented upsurge in the use of information technology for teaching and learning in tertiary institutions (Ushie, Okworo & Ukpanukpong, 2009 and Olatubosun, Olusoga & Samuel, 2015). Since the advent of Information and Communication Technology (ICT) and its penetration into the educational sector, teaching and learning in tertiary institutions have experienced remarkable transformation (Guiney, 2011 and Godswill, 2016). Particularly, the adoption of ICT initiated a shift from the traditional teacher directed approach to modern methods where modern computer and handheld technologies play a momentous role which is called E-learning.

E-learning can be viewed as the use of computer and internet technologies to deliver a broad array of solution to enable learning and improve performance (Ghirardini, 2011). The European Commission E-learning Action (2005) defines e-learning as the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration. It involves the delivery of teaching materials via electronic media, such as Internet, intranets, extranets, satellite broadcasting, audio/video tape, interactive TV, and CD-ROM and it could use Internet technologies to deliver a broad array of solutions that enhance knowledge and performance. E-learning is considered as new method of teaching rather than face to face

teaching. E-learning has the ability to offer and share materials in all kinds of formats as e-mails, slideshows, videos, PDFs, and word documents. It is also used for conducting webinars (live online class), communication with teachers via message and chat forum is also an option available to user. Using e-learning can be considered as bridged which make you feel as if you are inside the classroom. Nwana (2012) and Osuafor & Emeji (2015) emphasized that e-learning in education is the wholesome integration of modern telecommunication equipment, particularly the internet into the education system. The main drive of e-learning is to transform the old methods and approaches of curriculum implementation in order to bring about certain changes in the behaviour of the learners and the extent to which the changes take place.

The term e-learning is not a new phenomenon in promoting education in some parts of world. Presently, some institutions in Nigeria are using it to promote distance education (DE) and lifelong learning. However, the pace in the implementation of e-learning has been very slow, as just few public tertiary institutions could afford the implementation of e-learning.

#### **The Outbreak of Coronavirus (COVID-19) and its Effect on Tertiary Education**

The year 2019 and 2020 remains a very significant period in the minds of people around the world because of the outbreak of the dreaded pandemic diseases called coronavirus (COVID-19) in Wuhan, China in December 2019. WHO (2020) noted that Coronaviruses are a large family of viruses which could cause illness in animals or humans. In humans, several corona viruses are known to cause respiratory infections ranging from common cold to other severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most common symptoms of COVID-19 are fever, dry cough, and tiredness. Other less common symptoms which may affect some patients include aches and pains, nasal congestion, headache, conjunctivitis, sore throat, diarrhea, loss of taste or smell or a rash on skin or discoloration of fingers or toes. These signs are usually mild and begin gradually. The outbreak of the coronavirus has developed into

a global pandemic that impacted virtually all aspects of daily life (Henry & Agbadi, 2020 and Wang & Lund, 2020). The spread of the virus had led to high rate of deaths, closure of organizations and institutions, which affected every sector of the nation's economy.

International Association of Universities (2020) noted that more than 1.5 billion students and youth across the planet are affected by school and university closures due to the COVID-19 outbreak. Hence, the nationwide closures had impact on over 90% of the world's student population. 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 (Henry & Agbadi, 2020). The closure of schools, colleges, and universities by the Federal and State government was due to an urgent need of the current situation which prevailed in most states in Nigeria. Nigerian government started taking preventive decisions on COVID-19 just after World Health Organization recognized it as a pandemic disease. However, the shutdown of most universities, polytechnics and colleges of educations in country, in which the academic year was interrupted, has tremendous effect on the academic programmes. Some institutions had to quickly concentrate on scheduling their final exams before the lockdown commencement, while some affected institutions had to cancel examinations or stop lectures and other school activities so as to curtail the spread of the virus (Aiyedun, 2020).

Consequently, many students had to stay at home helpless and demoralized. Some had to engage themselves in watching movies, playing, even to the extent that some engaged in evil and criminal activities. Furthermore, the closure of higher institutions did not only interrupt learning by students around the world, it also coincides with a key assessment period and many exams have been postponed or cancelled. Also, the career of graduating students in various tertiary institutions for 2019/2020 session has been severely affected. They have experienced major teaching interruptions in the final part of their studies, assessments and are likely to graduate at the beginning of a major global recession (Burgess & Sievertsen, 2020). Although, this decision to

close down schools by the federal government came as a shock to many tertiary educational institutions 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 what should be done to curb this pandemic and reduce or possibly stop the effects on students and academic calendars. This forced all stakeholders in the educational sector and relevant government authorities to begin to rethink and re-strategize on measures to effectively overcome the scourge of the disease and to continue to impart knowledge through alternative method of teaching and learning.

### **Rationale for the Shift from Classroom Learning to E-learning in the Era of COVID-19**

The COVID-19 pandemic has affected educational systems worldwide, leading to the near-total closures of tertiary institutions. According to UNESCO (2020), 134 countries are currently implementing nationwide closures and 38 are implementing local closures, impacting about 98.5 percent of the world's student population. 39 countries' schools are currently open. In response to school closures, world organizations such as UNESCO, United Nations (UN), International Association of Universities (IAU) and World Health Organization (WHO) recommended the use of distance learning programs, open educational applications and other e-learning platforms that institutions and teachers can use to reach learners remotely and limit the disruption of education. The idea is for students to continue their education at home, in the hope of not missing out too much. These organizations are also supporting developing countries in their efforts to mitigate the immediate impact of school closures, particularly for more vulnerable and disadvantaged communities, and to facilitate the continuity of education for all through remote learning.

The move from face-to-face classroom learning to e-learning is more than replicating face-to-face learning online, it is about understanding how to mobilize and best engage students wherever they may be located. It is about

generating a sense of community and collaboration and it is an opportunity to work differently and make use of different opportunities that face-to-face learning may not offer. It is not a judgment of one being better than the other, but an acknowledgement that there are different ways of maximizing the impact of face-to-face and e-learning in the era of the dreaded pandemic (Khoury, Nasir-Eddeen, Saadeh & Harfoushi, 2011 and Raheem & Khan, 2020).

Therefore, the rationale for the shift from classroom (face-to-face) learning to e-learning is to ensure seamless impartation of knowledge through teaching, learning and research via internet and ICT devices in order to be able to effectively meet up with academic programmes that may be disrupted by the partial or total closure of tertiary institutions in Nigeria. Furthermore, the justification for the adoption of e-learning in Nigerian public tertiary institutions is in the following advantages:

- 1. E-learning Accommodates Everyone's Needs:** E-learning is best suited for everyone. This digital revolution has led to remarkable changes in how the content is accessed, consumed, discussed and shared (Algahtani, 2011 and Al-Adwan & Smedly, 2012). Online courses can be taken up by students in the comfort of wherever they may be located and course materials can be easily shared and accessed anytime.
- 2. Lectures can be taken any Number of Times:** Unlike classroom teaching, with online learning, you can access the content an unlimited number of times. This is especially required at the time of revision when preparing for an exam (Amadi, Nnamani & Omeire, 2014). In traditional form of learning, if you cannot attend the lecture, then you have to prepare for that topic on your own; in e-learning, you can attend the lectures whenever you want with ease.
- 3. Offers Access to Updated Content:** A prime benefit of learning online is that it makes sure that you are in synchronization with modern learners. This enables the students

in tertiary institutions to access updated content whenever they want it.

**4. Quick Delivery of Lessons:** E-learning is a way to provide quick delivery of lessons. As compared to traditional classroom teaching method, this mode has relatively quick delivery cycles. This indicates that the time required to learn is reduced between 25% - 60% of what is required in traditional learning. According to Zeitoun (2008) and Kyari, Adiuku, Abechi and Adelakun (2018), the reasons why learning time is reduced by e-learning are;

- i. Lessons starts quickly and also wrapped up in a single learning session. This enables training programs to easily roll out within a few weeks, or sometime even days.
- ii. Learners can define their own speed of learning instead of following the speed of the whole group.
- iii. Saves time as students do not need to travel to the school or venue of the lecture. They can learn at the comfort of the place they are located.
- iv. Students can choose to study specific and relevant areas of the learning material without focusing on each and every area. For example, they can skip certain areas they do not want.

**5. Scalability:** E-learning helps in creating and communicating new training, policies, concepts, and ideas. Whether it is for formal education or entertainment, e-learning is very quick way of learning.

**6. Consistency:** E-learning enables teachers to get a higher degree of coverage to communicate a message or course content in a consistent way to their students. This ensures that all the students receive the same type of teaching or training with this learning mode (Yang, 2010).

**7. Effectiveness:** E-learning has a positive influence on an institution's profitability. It makes it easy for students to have a quick grasp the course content and digest it which helps in enhancing academic performance of students, enhanced ability to learn and

implement the new skills and help in retaining information for a longer time (Amedu, 2014 and Anene, Imam & Odumuh, 2014).

**8. Reduction in the Community Spread of COVID-19:** Since e-learning provides the platform for students to learn from the comfortability of their various locations on like the physical contact of the classroom, the curves of the community spread of COVID-19 is reduced minimally.

#### Types of E-Learning Suitable for COVID-19 Era

Fundamentally, there are three types of e-Learning that could be implemented by public tertiary institutions in Nigeria in the era of COVID-19 namely: Synchronous training, Asynchronous training and Blended or Hybrid learning.

**1. Synchronous E-learning:** Synchronous meaning "*at the same time*" is a type of e-learning that works in real-time and resembles a virtual classroom that allows learners to ask questions and teachers to respond and clarify immediately through instant messaging (chat), teleconferencing and videoconferencing (Ferriman, 2013 and Adelabu, Adu & Adjorgri, 2014). With synchronized e-learning software or online courses, learners can interact with fellow students and lecturers during the program. Synchronous e-learning provides the opportunity and ability to log or track learning activities, possibility for continuous monitoring and correction is possible, possibilities of global connectivity and collaboration opportunities among learners and ability to personalize the training for each learner.

**2. Asynchronous E-learning:** Asynchronous meaning "*not at the same time*" allows the participants to complete the WBT [Web-Based Training] at their own pace, without live interaction with the instructor (Ferriman, 2013 & Amedu, 2014). Basically, it is information that is accessible on a self-help basis, 24/7. As opposed to Synchronous e-learning, it involves coursework delivered via the web, email and weblogs, threaded discussions, forums.

In this scenario, learners finish the program at their own pace employing the internet merely as a medium of support.

- 3. Blended or Hybrid E-learning:** This is an emerging new form of learning. As the name suggests, it is an amalgamation of synchronous and asynchronous learning methods (Lothridge, Fox & Fynan, 2013 and Dziuban, Graham, Moskal, Norberg, & Sicilia, 2018). Using both online training through virtual classrooms and also giving CD's and study material for self-study, which is now being increasingly preferred over any single type of training especially in developing nations of the world. It provides a learning environments that allows for both in-person and online interaction.

Blended or hybrid learning the most suitable type of e-learning for public tertiary institutions in the era of the dreaded disease in Nigeria. Blended learning will be very effective even beyond the era of covid-19, especially as most public tertiary institutions are characterized by large students ratio to few lecturers and these lecturers find it difficult to manage the large population of students in a class during lecture periods. Furthermore, large population of students in a class could lead to easy transmission of different types of diseases. Hence, the adoption of blended e-learning will help to decongest the classroom during lecture hours and also ensure effective teaching and learning.

#### **Facilities for Driving E-Learning in Public Institutions in the Era of COVID-19**

Ezeugbo and Asiegbu (2011) highlighted some of the important e-learning facilities needed for effective teaching and learning in tertiary institutions to include computer, internet, e-mail, satellite, multi-media, network, telephone, wireless technology, mobile phone and CD-ROM. Likewise, Nwana (2012) also enumerated some ICT resources as computer, scanner, printer, intranet, internet, e-mail, videophone systems, teleconferencing devices, wireless application protocols (WAP), radio and microwaves, television and satellites, multimedia computer and multimedia projector

as other vital devices needed to support e-learning. Amedu (2014) supported that E-Learning is the application of a whole range of technologies involved in information processing and electronic communications, such as computers, internet, e-mail, computer software, satellite, mobile communication gadgets, and other allied electronic devices for dissemination of knowledge and information. Therefore, government and other stakeholders of tertiary institutions should make available e-learning facilities beyond its present state without which e-learning cannot be successful.

#### **Challenges Limiting the Shift Classroom Learning to E-Learning in the Era of COVID-19 in Public Tertiary Institutions in Nigeria**

E-learning in Nigerian tertiary institutions is still a dream even in the face of COVID-19 pandemic. The major challenges limiting the shift from classroom learning to e-learning in the era of the pandemic in Nigerian public tertiary institutions includes the following: Salawudeen, (2010), Oye, Salleh and Lahad (2011) and Olukayode (2015) in general are as follows:

**Lack of Documented E-Learning Policy:** Successful rapid or gradual shift to e-learning is dependent on the availability of well documented policy which will determine the procedures, facilities specifications, personnel, training, etc. Most of the public tertiary institutions lack adequate policy on e-learning, which will greatly affect its successful implementation and sustenance.

**Inadequate Funding:** In the midst of poor budget allocation to the educational sector, especially the tertiary institutions, it will be difficult for government to successfully implement and sustain e-learning as it is a capital intensive project.

**Low ICT Literacy Level:** The full implementation of e-learning may not be possible when students and lecturers do not possess the requisite ICT competences. The fact that many students in public tertiary institutions are from remote villages or areas where they are unexposed to various technologies is a major

limiting factor. Such students have to be adequately trained so as to be able to access and utilize e-learning or else, they will completely be cut off from academic activities.

**Inequality of access to the technology itself by lecturers and students:** The cost of a personal computer (PC) and Laptop 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 or phones are not connected to the internet as this does attract extra cost which they cannot afford.

**Technophobia:** Most of the students have no computer education background, hence they are afraid of operating one, some go to the extent of hiring expert at a cost to fill their admission, registration and other documents meant for them to fill online. However, the very few who have access to the computer do not know how to use it and maximize its usage.

**Internet Connectivity:** The cost of accessing internet is still on the high side in Nigeria. Hence, some students find it a challenge to afford even despite the poor services.

**Limited expertise:** Most of the public tertiary institution has few technical staff to maintain their systems. Inadequately trained personnel are a challenge to the use of ICT for e-learning in most Nigerian public tertiary institutions.

**Attitude of Students:** ICT give room to independent learning and most students are reluctant to take responsibility for their own learning, but they preferred to be spoon-fed at all times.

**Software and License cost:** It is very expensive to get some of the software because they are not developed locally, they are developed in Europe and other developed countries to suit their own system and make their own living. The cost and even the interpretation of some of the software's put off some of the students who showed interest.

**Epileptic Electricity Supply:** Irregular and frequent interrupted power supply is a perennial problem in Nigeria which has been a major setback for technological development. Some of the students that reside in cities and

towns are faced with the problem of epileptic supply of electricity, while majority of them live in rural areas that are not connected to the national grid. The consequence of this is that students residing in such areas may find it difficult to engage in e-learning in the era of COVID-19.

### **Way Forward**

E-learning is the best alternative to solve the problem of access to tertiary education in the era of COVID-19 in Nigeria. It has become obvious that going forward, there is a great need to re-think and re-strategize on effective ways to enhance teaching and learning in public tertiary institutions in the era of COVID-19 via e-learning platforms. To succeed, the following must be ensured:

1. As a starting point, there is a need to deliberately articulate a policy to integrate information and communication technology into the mainstream of education and training in Nigeria.
2. Government policies and programs of e-learning in public tertiary institutions Nigerian should be financially supported by substantial public funding in this critical era.
3. Incorporating a blended learning method which would bring the benefits of both traditional and eLearning modes. This would mean creating a learning environment which would combine the benefits of all the delivery models such as face-to-face, self-paced and individualized learning along with online interactions.
4. Massive investment in ICT infrastructure to provide the needed technology support becomes imperative. The inadequacy of ICT infrastructure will totally hamper enhancement of access through e-learning adoption in tertiary institutions.
5. Administrators of public tertiary institutions on their part should embark on awareness and training of staff and students on the use of e-learning tools in teaching and learning with motivation attached.

6. Government should make Internet connectivity a priority for public tertiary institutions in the era of COVID-19, so as to be able to leverage on the promises and opportunities ICTs present. Internet access should be made available to lecturers, teachers and students irrespective of their location. Furthermore, public tertiary institutions could form a consortium to purchase sufficient bandwidth.
7. Teachers and students should be trained regularly through seminars, conferences, workshops, on e-learning to enable them acquire relevant competencies in e-learning process. Such training programmes should be in accordance with the safety instructions/regulations of Nigerian Center for Disease Control and other constituted committees to curtail the spread of the disease.
8. The tertiary institution administration should discard the idea of providing for e-learning alone. They should go into public and private partnership with other agencies and organizations that supports educational development.
9. The Nigeria tertiary institutions should put in place an effective e-learning board/committee that will oversee the implementation of e-learning, and facilitate increased access to capital for the project.
10. The tertiary institution administration in conjunction with the government should put in place modalities to enable undergraduate students acquire their personal computers.

### **Conclusion**

The outbreak of COVID-19 in 2019/2020 has greatly affected academic programmes in programmes tertiary institution most especially in developing countries like Nigeria. It is also important to note that higher institutions in developed nations were able to cope with the pandemic because they had already established effective structure, efficient facilities and manpower to drive e-learning effectively. What

Nigerian public tertiary institutions can learn from the experience of developed countries on e-learning can be summarized into following items: The need for efficient funding of e-learning, provision of adequate facilities, awareness/training and motivation and effective maintenance. More fingers are pointing to the Federal and State Government of Nigeria on these issues. E-learning in Nigeria's public tertiary institutions should be embraced and fully implemented in the era of COVID-19 since the learning approach has become the common phenomenon globally. Nigeria's tertiary institutions, particularly where students with learning difficulties and those who require special educational needs were included in regular program should be well equipped with necessary electronic equipment and materials. Therefore, it is imperative for public tertiary institution shift from classroom learning to e-learning in COVID-19 era so as to meet up with the timely achievement academic programmes and also be part of the global educational trend. Furthermore, these words from Bill Gates summarizes that the disease is both a symptom and cause of inequity. Today, it is COVID-19; tomorrow, it could be another pandemic. But in all, they are all fuelling the inequity gap for which every higher institution should be prepared overcome.

### **References**

- Adelabu, O. A., Adu, E. O. & Adjorgri, S. J. (2014). The availability and utilization of e-learning Infrastructures for teaching and learning. *Mediterranean Journal of Social Sciences*, 5(23), 1348 - 1355.
- Agbola, B. (June 20, 2019). 94% of Nigerian students are in public tertiary institutions. <https://www.premiumtimesng.com/news/more-news/336120-94-of-nigerian-students-are-in-public-tertiary-institutions-official.html>
- Aithal, P. S. & Kumar, P. M. S. (2016) Teaching and learning process in higher education institutions. *International Journal of Multidisciplinary Research and Modern Education*. 2(1), 662-676.
- Aiyedun, T. (2020). Effect of covid-19 on educational system in Nigeria. Accessed on 09/07/2020 at: <https://www.researchgate.net/publication/3415>

[49578 EFFECT OF COVID19 ON EDUCATIONAL SYSTEM IN NIGERIA/citation/download](#)

- Al-adwan, A., & Smedly, J. (2012). Implementing E-Learning in the Jordanian Higher Education System: Factors Affecting Impact. *International Journal of Education and Development using Information and Communication Technology*. 8(1), 121-135
- Algahtani, A.F. (2011). *Evaluating the effectiveness of the e-learning Experience in Some Universities in Saudi Arabia from Male Students' Perceptions*, Durham theses, Durham University.
- Amadi, A. Nnamani, U. & Omeire, E. U. (2014). ICT and adult literacy in Nigeria: problem and prospects. *Literacy and Reading in Nigeria*. 15(2), 43-57.
- Amedu, S. O. (2014). Assessment of the use of e-learning Facilities by home economics teachers in Delta State, Nigeria. *Journal of Education and Practice*. 5(16), 207-212.
- Anene, J. N., Imam, H. & Odumuh. T. (2014). Problem and prospect e-learning in Nigerian universities. *International Journal of Technology and Inclusive Education*. 3(2), 320-327
- Burgess, F. & Sievertsen, H. H. (2020). Schools, skills and learning: the impact of Covid-19 on education. Accessed on 09/07/2020 at: <https://voxeu.org/article/impact-covid-19-education>
- Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A. and Sicilia, N. (2018). Blended learning: the new normal and emerging technologies. *Int J Educ Technol High Educ* 15(3). <https://doi.org/10.1186/s41239-017-0087-5>
- European Commission (2005). E-Learning. Accessed on 09/07/2020 at: <http://www.elearningeuropa.info/doc.php?1ng=l&id=1195&doclng=1>
- Ezeugbo, C. O. & Asiegbo, E. C. (2011). Challenges in the application of e-learning in Continuing Education Programmes (CEP) in Nigerian Universities: Exploring Teachers' Perspective. *Ghana Journal of Education and Teaching (GHAJET)*, 12, 267-275.
- Federal Republic of Nigeria (2004). *National policy on education*. Lagos: NERDC Press
- Ferriman, J. (2013). 3 Types of e-learning. Accessed on 04/07/2020 at: <https://www.learn dash.com/3-types-of-elearning/>
- Ghirardini, B. (2011). *E-learning methodologies: A guide for designing and developing e-learning courses*. Rome: Food and Agriculture Organization of the United Nations.
- Godswill, E. (2016). E-learning and its prospects in Nigeria. Nasarawa State Polytechnic, Lafia. Accessed on 9/07/2020 at: <https://www.slideshare.net/GodswillEsegwu/elearning-and-its-prospects-in-nigeria-institutions>
- Guiney, P. (2011). *E-Learning Provision and Participation: Trends, Patterns and Highlights*. Wellington. : Ministry of Education.
- Henry, G. & Agbadi, M. (2020). Rethinking Inclusive Education: COVID-19 realities, post implications on education. <https://nairametrics.com/2020/05/21/rethinking-inclusive-education-covid-19-realities-post-implications-on-education/>
- International Association of Universities (2020). Covid-19: Higher Education challenges and responses. Accessed on 09/07/2020 at: <https://www.iau-aiu.net/Covid-19-Higher-Education-challenges-and-responses>
- Jekayinfa, A. A., Yusuf, M. O., Yahaya, L. A. and Yusuf, A. (2016). An overview of the philosophical, political and socio-economical factors that have impacted on the development of universities in nigeria. In Okojie, J., Oloyede, I and Obanya, P. [ed]. 50 years of university education in nigeria: evolution, achievements and future directions. University of Ilorin and National University Commision, Ilorin. 47-64.
- Khoury, A. H., Nasir-Eddeen, L. M., Saadeh, D. S. & Harfoushi, O. K. (2011). E-Learning: Justifications and Obstacles. *International Journal of Emerging Technologies in Learning*. 6(3). 53-56. DOI: 10.3991/ijet.v6i3.1610
- Kyari, S. S., Adiuku-Brown, M. E., Abechi, H. P. & Adelokun, R. T. (2018). E-Learning in Tertiary Education in Nigeria: Where Do We Stand? *International Journal of Education and Evaluation*. 4(9), 1-10.
- Lothridge, K., Fox, J. & Fynan, E. (2013). Blended learning: efficient, timely, and cost effective. *Journal of Forensic Sciences*. 45 (4): 407-416. [doi:10.1080/00450618.2013.767375](https://doi.org/10.1080/00450618.2013.767375)
- Malik, R. H. & Rizvi, A. A. (2018). Effect of classroom learning environment on students academic achievement in mathematics at secondary level. *Bulletin of Education and Research*. 40(2), 207-218.

- Matthew, I. (2014). The challenges of being a student of any public tertiary institution in Nigeria of today. *Journal of Studies in Education*. 4. 128. 10.5296/jse.v4i1.1261.
- Nwana, S. (2012). Challenges in the application of e-learning by secondary school teachers in Anambra state, Nigeria. *African Journal of Teacher Education (AJOTE)*, 2(1), 1-9
- Olatubosun, O., Olusoga, F. A. and Samuel, O. A. (2015). Adoption of e-learning technology in Nigerian tertiary institution of learning. *British Journal of Applied Science and Technology*. 10(2), 1-15.
- Okeke, E. C. & Osuala, I. Q. (2016). Tertiary education in Nigeria: the students predicament and manifestations in Imo State. *International Journal on Education and Evaluation*. 2(7). 25-31.
- Olukayode, S. A. (2015). Challenges and prospects of e-learning at National Open University of Nigeria. *Journal of Education and Learning*. Vol. 9(3), 207-216.
- Osuafor, A. M. & Emeji, E. O. (2015). Utilization of e-learning facilities by science teacher educators for teaching pre-service teachers in Nigerian Colleges of Education. *Asian Journal of Education and e-Learning*. 3(2). 160-167
- Oye, N. D., Salleh, M. and Lahad, N. A. (2011). Challenges of e-learning in Nigerian university education based on the experience of developed countries. *International Journal of Managing Information Technology*. 3(2), 39-48. DOI : 10.5121/ijmit.2011.3204
- Raheem, B. R. & Khan, M. A. (2020). The role of e-learning in Covid-19 crises. *International Journal of Creative Research Thoughts*. 8(3). 3135-3138.
- Sadeghi, M. (2019). A shift from classroom to distance learning: advantages and limitations: *International Journal of Research in English Education*. 4(1). 80-88.
- Salawudeen, O. S. (2010). E-learning technology: the Nigerian experience, Roger Printing and Publishing limited: Abuja.
- UNESCO (2020). Education: From disruption to recovery. Accessed on 09/07/2020 at: <https://en.unesco.org/covid19/educationresponse>
- Ushie, B. C., Okworo, G. S. & Ukpanukpong, R. A. (2009). Instructional Communication Technology (ICT) Divide and teacher education in Nigeria. *Nigeria Journal of Teacher Education and Teaching*, 7(3), 97-109.
- Wang, T. & Lund, B. (2020). Announcement information provided by United States public libraries during the 2020 Covid 19 pandemic. an original manuscripts/preprints reviewed and accepted for the public library quarterly on April 30, 2020. Accessed on 20/06/2020 at: <https://www.researchgate.net/publication/339953248>
- W.H.O. (2020). Coronavirus disease: What you need to know. Accessed on 09/07/2020 at: <https://www.afro.who.int/new/coronavirus-what-you-need-know>
- Yang, G. (2010). The effect of e-learning for the teachers in Information Society. Proc. Second International Workshop on Education Technology and Computer Science, pp621-624.
- Zeitoun, H. (2008). *E-learning: Concept, Issues, Application, Evaluation*, Riyadh: Dar Alsolateah publication.