Impact of COVID-19 on the Nigerian Educational System: Strengths and Challenges of Online/Virtual Education

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Authors' contributions

This work was carried out in collaboration between both authors. Author ATA designed the study and wrote the first draft of the manuscript. Author EAO managed the analyses of the study as well as the literature searches. Both authors read and approved the final manuscript.

Article Information

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ABSTRACT

Coronavirus disease 2019 (COVID-19) which originated in Wuhan, China, in December 2019, was declared as a pandemic by World Health Organization (WHO) on 11th of March, 2020 after it has spread to many countries of the world. It has also caused more than 171 countries of the world to close their educational institutions for several months in the year 2020. The impact of COVID-19 on education is bizarre and unprecedented in history because more than 1.5 billion students from across the globe have been affected by school closure. Most Nigerian students and other African or underdeveloped countries were more disadvantaged because most educational institutions in Nigeria still follow the traditional set-up of face-to-face lectures in the normal classroom settings. This opinion article highlights the importance of online education in a time of global pandemic and natural disaster. It also examines the strengths and challenges of online education.

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1. INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic in Nigeria is part of the worldwide pandemic caused by severe acute respiratory syndrome coronavirus 2 (SAR COV-2) [1,2]. Coronaviruses are common in certain species of animals, such as cattle camels and bats which can be transmitted to humans. Some health experts believe that the new strain of coronavirus likely originated in bats or pangolins [3].

The first transmission to humans was in Wuhan, China [4,5]. Since then, the virus has mostly spread through person-to-person contact. The most common way that this virus spreads is through close contact with already infected person. When people with COVID-19 breathe out or cough, they expel tiny droplets that contain the virus. These droplets can enter the mouth or nose of someone without the virus, causing the spread of infection to occur [6]. The disease is most contagious when a person's symptoms are at their peak though, it is possible for someone without symptoms to spread the virus [7]. Droplets containing the virus can also land on nearby surfaces or objects and when other people touch such surfaces or pick up the objects and then touches their nose, eyes, or mouth the virus spreads [6,7].

The first case of COVID-19 was reported in Nigeria by the Federal Ministry of Health on 27th February, 2020. This was the case of an Italian citizen who works in Nigeria and returned from Milan, Italy to Lagos, Nigeria on the 25th of February, 2020 [8]. Since then, the number of confirmed cases of infection keep rising both in Nigeria and across the globe. Nigeria placed a travel ban on 13 countries with high cases of the virus, the countries are; United States, United Kingdom, South Korea, Switzerland, Germany, France, Italy, China, Spain, Netherland, Norway, Japan and Iran. On 11th March 2020, World Health Organization (WHO) declares COVID-19 a pandemic. A pandemic is a disease that has spread across a large region; for instance, multiple continents or worldwide [9].

Over the years, humanity had fought various global health scourges which threatened to wipe human beings off the face of the earth. It is worthy to know that coronavirus is different when compare with the plagues and epidemics that have ravaged humanity throughout its existence, in the sense that none has greatly affected the education of everyone in the world like COVID-19 [10,11]. Few of these plagues are: The black death (1346-1353) that traveled from Asia to Europe, living devastation in its wake. Also, the Spanish flu (1918-1920) is among the worst pandemic in history, despite the common name of the pandemic, scientists are not entirely sure where the virus originated, though they do know it was caused by an H1N1 virus (similar to swine flu) that originated in birds [12]. In addition, the Asian flu (1957-1958) was another global pandemic that originated from China, the disease claimed more than 1 million lives worldwide. The Centre for Disease Control and Prevention (CDC) claimed that the disease spread rapidly and was reported in Singapore in February 1957, Hong Kong in April 1957, and the coastal cities of the United States in the summer of 1957 [5]. Furthermore, the West African Ebola epidemic (2013-2016) ravaged the West African countries with over 28,600 reported cases and 11,325 deaths. The first case to be reported was in Guinea in December 2013, then the disease quickly spread to Liberia and Sierra Leone [13]. However, all these plagues and pandemics mentioned above have ravaged the globe thereby interrupting the educational processes in several ways, sometimes, it leads to closure of schools which caused serious drawbacks for learners and deprives them of their right to education and postures them to future risk [14, 15].

As part of measures to contain the spread of COVID-19 in Nigeria, the Federal Ministry of Education, through the Permanent Secretary in the Ministry, on March 19th ordered the immediate closure of tertiary institutions, secondary and primary schools across the nation over the outbreak of the disease in the country. In addition to this, restriction was placed on inter-states movement, market places were locked, religious gatherings of more than 10 persons were banned, social activities such as parties, ceremonies and club meetings etc. were placed on hold [16,17]. All public and private schools have to shut the doors of their schools following the government directive. The pandemic has unmasked substantial inequities in the education sector. While some private schools in urban areas are engaging their students through online teaching, a large number of students who are less privileged or are in rural areas were left out [11]. Most schools lack facilities which hindered

them to partake successfully in online teaching like they do in the developed countries [14]. Thus, the scope of this opinion paper is to examine the effects of school closure due to COVID-19 on educational system in Nigeria. This paper also examines the strengths as well as challenges of online/virtual education which serves as a substitute to face-to-face method of teaching in Nigeria.

2. IMPACT OF COVID-19 ON NIGERIAN EDUCATIONAL SYSTEM

2.1 Impact of School Closure on Children

School attendance is one of the best public tools available to raise a child's skills, awareness and ability. However, this long period of school closure will have significant consequences on skill acquisition and growth of school children [18]. It is worthy to note that schooling provides adequate learning but when schools close, children are deprived the opportunities for academic growth as well as academic development. The disadvantages of school closure are enormous for under-privileged students who tend to have fewer or no educational opportunity outside school [14]. The closure of schools, colleges and universities does not only interrupt the teaching of students around the world, it also coincides with a key assessment period and many examinations have been postponed or cancelled as a result of COVID-19. For instance, Cambridge International Examinations that include Cambridge IGCSE, Cambridge, O Level, Cambridge International AS and A Levels, Cambridge AICE Diploma and Cambridge Pre-U examinations for May/June 2020 diet were canceled worldwide [19]. Though candidates could be awarded grades based on the forecast grades sent by their teachers, but, to some extent, this would not represent the true performance of the candidates as some teachers may be biased and either over-grade or under-grade their students while predicting scores for them [20]. Other International examinations that were canceled due to COVID-19 include International Baccalaureate, Scholastic Aptitude Test (SAT) and American College Test (ACT). Apart from these, students who sat for Senior Secondary Certificate in Examination (WAEC) in the West African countries had their examinations postponed. The implications of this on candidates is that, thousands of students will be forced to defer the start of their studies for their undergraduate studies to a later year since

2020/2021 admission processes would have ended before their results would be released.

2.2 Impact of School Closure on Families

COVID-19 Pandemic has made life uneasy for many families, it has created havoc in the lives of so many people [21]. Ever since the inception of schools' closure, only few parents who are wealthy arranged online education for their children at home, so that they will not miss-out too much on their education plan. A lot of pressure is put on the parents as they need to stay with their children to provide childcare and supervise their online teaching and learning processes. This posed them to wages loss, subject them to unnecessary burdens and impacting their productivity negatively. Some parents who cannot abscond from their daily job had to leave their children alone at home and this can make them to wallow in immorality and other risky activities [22]. On the other hand, majority of families who were less privileged abandoned their children education during the long time that schools were closed down. Disruption of education due to pandemic causes so many risks such as child labor, early marriage or unwanted pregnancies and exploitation among others for the children. Students' drop-out rates tend to increase and majorities of disadvantaged students may not return to classroom after the closures would have ended [23]. Moreover, when pandemic, disasters or crises occurs, schools and colleges need to be resilient and should find new ways to continue teaching and learning activities [24,25].

2.3 Impact of School Closure on Teachers

Many teachers (especially private school teachers) were not paid during the time schools were locked up. This made some of them to be unable to provide adequate needs for their families [22]. COVID-19 pandemic has created a lot of havoc in the lives of many teachers and they face a lot of psychological problems such as stress, fear, anxiety, depression, and insomnia that leads to lack of focus and concentration [21].

2.4 Impact of School Closure on University Students

The careers of this year's university students have been severely affected by the COVID-19 pandemic. Students have experienced major teaching interruptions in their studies, some private universities that engaged their students

with online teaching could not conduct examinations or assess their students as building a trust in their students is a major setback in an online learning environment [26, 27]. In general, the time of graduation for every university student have been indirectly elongated and they are likely to graduate at the beginning of a major global recession.

2.5 Impact of School Closure on Young Graduates

There is no doubt that some students who have just graduated from universities or other higher institutions could not secure a job; since industries, companies, government parastatals, schools as well as institutions were shutdown [28]. Some of them were not mobilized for the one-year compulsory national youth service in Nigeria, those that were in the orientation camps before the outbreak of COVID-19 were not posted to their place of primary assignment for the first 6 months of their service year due to the lockdown.

2.6 Impact of School Closure on the Society/Community

School environment is a commercial environment that generate income for so many people living near-by. School closure carries a high social and economic cost impacts across the community. Some people earn their daily income by selling sachet water, snacks, pencil, pen etc. to primary school or secondary school students. Moreover, universities, polytechnics, colleges of education or other higher institutions operate as mini-cities and majority of people living around them generate their income by engaging themselves in different business activities that include operating personal hostels, restaurant, cafes, shops, transport services, selling of food items etc. Towns that depend on college students to support their living are greatly affected and suffered a lot of economic damage due to school closure and absence of students on campus [29]. In addition, so many adjunct workers in the school system such as cleaners, gardeners and other external people that render some services to the school are suddenly relinquished without prior notice. Such people may likely face uneasy part of life if they do not have other things fetching them money.

3. ONLINE/VIRTUAL EDUCATION

Online/virtual education is the process of using online classroom environments to disseminate

information. Online teaching and learning processes involve some digital technologies that permit teachers and students not they are not necessarily be present in the same room. It is the only mode of teaching that can be of help in passing instructions to students in a time like this that social distancing is of utmost important [30]. Before the current COVID-19 crisis, digital technologies have also allowed us to move much of our lives such as health, education, social and economic life online [31]. Mostly, online teaching, open teaching, web-based teaching, computer-mediated teaching, blended teaching etc. have in common the ability to use a computer/mobile phone connected to a network or radio/television set that offers the possibility to teach from anywhere, at any time, in any rhythm, and by any means [32]. In such a leaning environment, students can be at home or somewhere else and still enjoy the lesson [33].

Online teaching and learning environment can be in two forms: (1) the synchronous learning environment and (2) the asynchronous learning environment. The synchronous learning environment is structured in a way that students attend live lectures, there are real-time interactions between educators and learners, and there is a possibility of instant feedback. Synchronous learning can provide a lot of opportunities for social interaction [34]. On the other hand, asynchronous learning environments are not properly structured as learning content is not available in the form of live lectures or classes; it is available at different learning systems and forums. Also, instant feedback and immediate response are not possible under such an environment [35].

Online education has played a vital role in the past as it has helped some institutions to overcome the barrier of educational continuity in the time of global crisis [36]. For instance, it was online teaching that University of Camerino resorted to when earthquake destroyed almost all their infrastructures and face-to-face interactions were not possible [32]. Online education also helped University of Canterbury to operate when it was faced with a great earthquake in 2011 [37]. Recently, this disaster is in the form of Covid-19 which has made all schools, colleges, and universities to shut down so as to curb further spread of the virus. Many academic institutions, proprietors, State and Federal Governments are, therefore, seeking the help of online education so that teaching and learning processes are not further hampered. For

instance, some state governments such as Lagos, Abia, Enugu, Ondo, Akwa Ibom, Nasarawa, Imo as well as Ekiti States in Nigeria proffered online-virtual education as the possible way out [38]. In general, a complete online education requires an elaborate lesson plan design, teaching materials such as audio and video contents, as well as technological support teams.

In addition, some schools, especially private schools make use of some online applications to engage their students while the school doors were physically closed. There are several of such online tools available which are important for an effective and efficient learning environment. Educators can use a combination of audio, videos, and text to reach out to their students in order to maintain a human touch to their lectures [39]. This also help in creating a collaborative and interactive learning environment where students can give their immediate feedback, ask queries, and learn interestingly.

3.1 Strengths of Virtual Education in Nigeria

- Online education is a student-centered method of learning that offers a great deal of flexibility in terms of time and location [40]. It has been the only method that is fit to rescue the present global crisis from hard times of global pandemic. Online teaching enables modification of our procedures and processes based on the needs of the students.
- The Anywhere-Anytime feature of online education has a great advantage in times of crisis-like situation such as man-made disasters, natural disasters or pandemics such as Covid-19. The closure of places and unsafe traveling by roads can create a lot of troubles but e-learning will at least not keep the students deprived of getting an education in their homes [41]. Trend in educational issues indicate that online education would transform the education sector by eradicating manual processes across schools and replacing them with modern and dynamic online digital learning which will eventually create more collaborative and interactive learning environment for students [42].
- One good thing about COVID-19 and online/virtual education is that it allows students to have enough rest and sleep and are no longer waking up to a very

early alarm clock. Before COVID-19 crisis, most Nigerian students were not getting enough sleep during the school period. Most teens found it difficult to sleep for at least 6 hours every night, whereas researchers noticed a high correlation between students' performance and hours of sleep [43,44]. American Academy of Pediatrics recommends 8-10 hours a night for teens ages 12-18 and 12 hours for children ages 6-12 [45]. With virtual learning, students can learn at their own pace, they can wake up at late hours, attend online classes for few hours, study for few hours, play for some time and then go back to sleep.

However, due to the sudden emergence of the COVID-19 pandemic, there are certain challenges facing online education and learning processes in Nigeria.

3.2 Challenges of Virtual Education in Nigeria

3.2.1 Lack of technical know-how on the part of the teachers and students

Online users face many technical difficulties that hinder or slow-down the teaching–learning process [46]. Teachers in the form of facilitators face a lot of troubles while working or preparing for online lesson because some of them lack adequate technical training [47]. Students may also face some challenges in assessing the online lessons as most of them are not technically oriented [48].

3.2.2 It is costly and time consuming

A lot of time and cost is involved in online teaching. A considerable amount of investment is needed for getting the devices and equipment, maintaining the equipment, training the human resources, and developing the online content.

3.2.3 Poor electric power supply

Epileptic power supply being experienced across the country is one of the challenges that rendered online teaching programs useless in Nigeria. Many Nigerians who live in the urban centers where we are expected to have power supply for 24 hours cannot boost of having it for at least 3 hours a day. On the other hand, there are thousands of students who cannot partake in online teaching because they live in rural areas that do not have means of power supply at all [49,50].

3.2.4 High poverty level among Nigerians

Not all the teachers and students have access to all digital devices, internet and Wi-Fi. Children in rural and underserved communities in Nigeria are being left behind as they are not equipped to adapt or transition to new methods of learning. A lot of Nigerian parents cannot afford to provide three square meals for their family not to talk of buying mobile phones or laptops, data charges and other online devices or tools for their children in order to participate in online learning [51]. Apart from this, parents will still not be able to go to their places of work as they need to be with the children to help them operate the device so that they do not damage the device.

3.2.5 Problem with slow learners

One of the weaknesses of online teaching is that there is no direct communication between the learner and the educator. All students and learners are not the same, there are variations in their level of confidence, capabilities as well as understanding [52,53]. Some students who are slow learners may not comprehend easily without the teacher being around to put them through. Some of these slow learners depends on their friends to re-explain the concepts of what has been taught by the teacher, but now that they are isolated from others how will they manage the situation? These learners may never catch up with their peers and they will continue to feel the effect of this gap long after the pandemic has ended [54,55]. The importance of collaborative learning among learners cannot be over-emphasized as is a means to bridge the gap between slow learners and fast learners [56].

3.2.6 Flexibility nature of online education

Lack of personal attention on the side of students is a huge challenge facing online learning. Online teaching is too flexible and lazy students may never find time to do it. Also, there is a low-level of readiness and seriousness among the students when it comes to finding time to attend online class [57]. Teachers are not visible to supervise and monitor what they are teaching, therefore students are free to do whatever they like with their time. Unless some lethargic students are being monitored by their parents, they will not be committed to online teaching, instead their attention may be diverted and use the online resources for other things like chatting with friends, watching movies, playing games etc.

3.2.7 Difficulty in assessing the students

Most of the schools that partake in online teaching during the lockdown find it difficult to assess their students [58]. When the teacher give assignment, how will he mark it and feed the students back except the assessment questions are objective. Some universities that use online medium to teach their students could not conduct examinations [59,60]. During or after each online lesson, students and teachers found it difficult to interact by asking and answering questions.

3.2.8 Disparity in scheme of work

Scheme of work differs from school to school, as the topic that is scheduled to be taught in first term in school may be scheduled for second term in another school. There is no clear stipulation by the government in their educational policies and there is no uniformity, adequate quality control as well as e-content delivery in the learning processes [61].

3.2.9 Network and internet connectivity problems

Unavailability of proper digital tools, internet connections or Wi-Fi connections can cause a lot of setback due to which many students might lose out from the learning process. Digital equity is very crucial in this tough time but unfortunately, it is not every teacher and student that have access to digital services [62].

3.2.10 Lack of conducive environments for learning at home

Lack of conducive learning environments for students is a major setback as students are easily distracted by noise and many other activities going on in their surroundings and could affect their academic performance [63]. Obed et al. (2018) opined that learning environment affects a child's ability to learn, and could be the determinative factor for some children as to whether they succeed or fail [64].

4. CONCLUSION

The catastrophe posed by coronavirus on education in Nigerian has revealed to us the benefits of online/virtual teaching. A large number of children whose education was completely disrupted for months due to COVID-19 pandemic is a great disaster to the national growth. The consequences could be felt in economies and societies in the years to come."

In Nigeria, nearly all school-children were affected by the lockdown. In a time like this, there is no other option than to adapt to the dynamic situation and accept the change as disasters will continue to occur and technologies will likely help us in managing them. One good effect of COVID-19 pandemic is that it has forced some schools which were earlier reluctant to change, to accept modern technology. At this present age, the importance of online education cannot be over emphasized. Coronavirus disaster could be beneficial to the education sector and could bring a lot of surprising outcomes if well utilized. With the help of online teaching, a large number of students can be taught by a single teacher at the same time. However, accessibility, affordability, flexibility, learning pedagogy, life-long learning, and unstable educational policies are some of the challenges that affect online pedagogy. It is line with these that the authors provide some creative solutions to the problems facing virtual method of teaching in Nigeria since it can be concluded that online teaching is the panacea to educational disruption in the time of pandemic and crisis. In countries such as Nigeria, education should be viewed as a high government priority by increasing the awareness of pressing need for the country's children to be educated, especially those from low-income families, as this will benefit the country's economy in years to come. Aid provided in this direction can be viewed as an investment in human capital; the more educated a country is, the more productive it is.

5. RECOMMENDATIONS

- Government should see the need to build good schools and equip them with modern digital facilities that can aid online education by providing digital devices as well as internet connections.
- Government should ensure inclusion of online teaching such as integrated digital learning platforms, videos lessons, broadcasting through radio and TV etc. to supplement the normal classroom teaching even when there is no pandemics or disaster.
- Government and educational stakeholders must ensure uniformity in curriculum and scheme of work used by teachers from schools to schools at every facet of education. It is the duty of educational inspectors to ensure that teachers and schools adhere strictly to the planned curriculum and scheme of work as online

teaching program should also be incorporated into the school timetable.
- Educators as well as students must be trained on how to handle and use online educational devices. Educators must spend quality time to prepare and make their lessons creative, interactive, relevant, student-centered and group-based.
- Parents should pay personal attention to monitor and supervise their children until they adapt to online teaching environment.
- Government aid is needed in terms of investing in educational tools of the future alongside a total revamp of the educational sector as reforms in the national curriculum post-pandemic would be an effective way to bridge the gap in inequality.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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