Alternative Schooling Platform (ASP) for Sustainable Uninterruptible Learning System: A Strategy to Cope with COVİD-19 Crisis in Nigeria

Isaac Olaposi Oladipo[*1]

Ajamu Oyelayo Oyedele[1]

Oluwakorede Fawale[2]

* Corresponding author
Email: oladipoisaac@gmail.com

1. Federal Polytechnic, Agricultural & Bio-Environmental Engineering, Ado-Ekiti, Ekiti State, Nigeria.

2. Federal Polytechnic, Department of Science Technology, Ado-Ekiti, Ekiti State, Nigeria.

ABSTRACT
This paper reviewed the effects of Coronavirus (COVID-19) outbreak on the educational sector in Nigeria to highlighting avenues for Nigeria to reassess itself and evolve an alternative schooling platform which can remain unhindered whenever the nation experiences any crisis. The paper pinpointed some features of novel platforms that are aimed at delivering ICT-supported remote schooling such as Artificial Intelligence (AI) supported Teaching and Learning platform, Kahoot, Digital Education Administration Tool (DEAT), Google for Education, Hangout and Book Creator. Some were offered at a reasonable cost during the period of COVID-19. Nigeria may be able to overcome her challenges if the lessons of the lockdown period could be used to plan and implement an education policy; Alternative Schooling Platform (ASP) for teaching and learning. Such investment will ensure stability of educational sector in Nigeria and improves the economic return on investment in education and make the sector more sustainable.

KEYWORDS
COVID-19; Coronavirus; E-learning; School closure; School calendar disruption; Alternative Schooling Platform

INTRODUCTION

The weakness of the current structure of Nigerian educational sector was revealed in the wake of global crisis which emanated from the outbreak of Novel Coronavirus (COVID-19). Coronavirus outbreak which was first discovered in Wuhan China in late December 2019 (Guan, *et al.*, 2020; Guzman, 2020; Palmer, 2020) had spread to over 190 countries around the world with 774,422 reported cases of infection and 37,078 deaths as at March ending (Tooma *et al.*, 2020; WorldOmeter 2020a; Sam *et al.*, 2020). While the figure rose to 13,615,264 infected patients, 584,176 Deaths and 7,959,237 recovered persons in mid-July (WorldOmeter 2020b).

The outbreak which was declared by World Health Organization as pandemic on 10th March 2020 eventually crept into Nigeria through an Italian expatriate (Daily Punch, 2020) Since then almost all sectors of the global social and economic life (Nigeria inclusive) have been affected with varying degrees of intensity ranging from heavy to very heavy. Aviation was about the first to suffer heavy devastation as many countries quickly effected entry restrictions to aircrafts. This resulted into flight cancellation in many international airports (Walayat, 2020; Wetsman, 2020). As at 16th of July 2020 COVID-19 Nigeria (2020) reported the number of confirmed cases of COVID 19 to be 34,259, number of active cases to be 19,500, number of discharged cases to be 13, 999 and number of death to be 761. Other major industries and social activities affected include, boarder control, health sector, sports and entertainment industry, hotels and hospitality industry, social and religious gatherings. (S&P Global 2020; Donihue and Thomas 2020; Gillagher, 2020).

In order to contain the rapid spread of COVID-19, the World Health Organization (WHO) recommended a number of prophylactic measures, such as personal hygiene (regular washing of hands with soap/detergent), using alcohol base hand sanitizer, wearing of facemask, hand gloves, avoiding touching of mouth, nose, eye and contaminated surfaces. (Belluz, 2020; Bernard et al., 2020; Sam et al., 2020).

McKie (2020) and Fottrell (2020) also recommended social distancing which suggested a maximum number of people in any crowd, the 1-2 meter distance that one must maintain from another person, refraining from conventional salutation protocols like shaking of hands, kissing, hugging, etc. Enforcing the social distancing rule compelled governments around the world to close down schools. Over 130 countries have implemented nationwide school closure. This action impacted over 80 percent of the world student population. There were over 1.37 billion students sent home as a result of the pandemic (UNESCO, 2020a; Wikipedia, 2020).

Consequences of School Closure

School closure came with its attendant high social and economic costs which include: interrupted learning, compromised nutrition, additional parental care, wage loss, negative productivity, extra burden on schools that remained opened. There was unintended strain on health care system due to mothers redirected attention away from health care engagement.

Working parents may be compelled to leave children alone which could lead to risky negative behavioral changes such as increase in peer pressure, promiscuity and substance abuse.

Students drop-out rate may be perturbed leading to reduced returning students whenever the opportunity surfaces for school reopening. School closure leads to denial of students of their optimal social engagements which are catalysts of learning. McCarthy (2020) and Mayberry, *et al.*, (2020) said that global educational system was seriously affected by the effects of coronavirus pandemic. This, according to Wikipedia (2020) include schools' closure in over 100 countries which affected over 1.3 billion students across the globe. Majority of schools were temporarily closed as a precautionary measure to stem further spread of the virus. These and many other effects have constituted a big threat to the right to education.

Compelling schools to close down in order to enforce the UNESCO future of educational initiative which highlighted the multiple roles of schools in provision of the needed knowledge for driving global solidarity and wisdom (UNESCO Advisory Board, 2020; Palmer 2020; Qu, 2020). The UK government declared that primary assessment including SATs and GCSE, AS Levels, and A Levels will not continue in Summer period of 2020. Examination regulatory bodies, Ofqual and Exam boards were asked to liaise with teachers to provide grades to students whose exams were cancelled (UK Dept of Education, 2020). Travel ban prevented hundreds of thousands of Chinese from returning to universities where they were studying or due to commence their chosen study programmes. Institutions in mostly affected areas may lose a whole semester or a session. Tooma *et al.*, (2020) predicted that Japan may not be able to start academic calendar for the year 2020 which ought to take place on April 1. Due to CODIV-19 outbreak. If travel ban, quarantine and lockdown continue into middle of the years, most institutions in the Northern Hemisphere will experience serious setback. Travel restrictions prevented hundreds of thousand students from attending classes. University staff caught in affected areas were unable to return to work as earlier planned. Many tertiary education providers have diverted their resources to install alternative study delivery mechanisms for classes such as online lectures.

In Nigeria, schools were closed down across the country alongside the closure of markets, shopping centers, recreation centers and there was movement restrictions when a lockdown was announced in March 2020. Students at the final year of their study programs could not write their terminal examinations particularly, the West Africa School Certificate Examination (WASCE) because of the apprehension of possible exacerbation of the infection among crowd.

Suggested Ways to Cope with School Closure

Lieberman (2020) issued a warning in the early time of the outbreak that schools should get prepared for possible disruption to daily social life as the COVID-19 raged on. He foresaw a possible school closure and suggested that education stakeholders should set up plan for teleschool. UNESCO (2020b) opined that students should be asked to submit assignments online thereby become familiar with the system. Ye (2020) observed that Chinese parents and schools have turned to online education system for alternative schooling avenue. The author observed

that Zhouyue Youcai Education Technology had switched to online mode in order to buoy its capacity to meet its annual financial target. Qu (2020) reported that China's Ministry of Education encouraged schools to adopt Internet Education platforms to deliver lectures and teaching. In view of this, the Ministry announced a plan to launch Internet Cloud Classroom to provide teaching materials for high school students.

Opportunities of Covid-19 Lockdown to Educational Sector

Though, the pains suffered during the imposed school closure and the inconveniences that trailed it was highly unbearable. However, there are a number of opportunities that the trying time have in stock for the global educational sector. According to UNESCO's Advisory Board on the Futures of Education, (2020) the landscape of Asian Higher Institutions could be fundamentally changed for the better. The commendable performance and the professionalism that the medical corps displayed all around the world, the deployment of state of the earth ICT, Artificial Intelligence (AI), Facial Recognition System, real life digital media coverage of events, the various equipment deployed towards curtailing and controlling COVID-19 pandemic and lots more could trigger a renewed interests of younger generation of the globe towards embracing science and technology oriented learning. That may rejuvenate the technological advancement path of the world and create a total transformation of the global education and socio-economic terrain.

Higher education sector may become more interconnected and reduce the practice of conventional practice of putting people within concrete walls. If online becomes the norm of education delivery, many students may come out of their timidity to become bolder and develop the courage to speak up. Lau and Ross (2020) affirmed that the lockdown period may teach the world a critical lesson to sharpen strategies in less pronounced practices like internationalization and e-learning. The barrier imposed on humanity by concern for personal safety will begin to fizzle away if and when online educational system becomes more prominent. Institutions will become more sustainable if they can learn to provide support for their students wherever they are as it is commonly practiced among Australian Universities.

Strategies to Sustain Schooling amidst Coronavirus Mitigation Measures

UNESCO, (2020a; 2020b) recommended the adoption of distance learning program, open educational application and platforms to reach learners remotely in order to reduce the effects of education disruption. Schools were enjoined to cancel extra-curricular group activities after school gatherings like devotional assembly, rallies, fieldtrips, sporting events and similar event that may involve crowing. Students were to be discouraged from gathering in restaurants, fellowships, debates, libraries, shopping malls in order to maintain the minimum social distance allowable.

Schools were encouraged to educate students on how to manage disease outbreak emergencies such as explaining the mechanism of coronavirus spread, symptom, spread

prevention and guide against infection. Schools should review continuity plans for teaching and learning in event of compulsory shutdown. Schools should implement e-learning plans including digital and distance learning options. The educational sector should begin to seriously consider conversion of face-to-face lessons into online lessons and institute training of teachers/instructors to implement the shift. Education stakeholders should start to evaluate ICT facilities availability, access, usage, monitoring and control (UNESCO, 2020a; 2020c).

African nations are very vulnerable to the outbreak and rapid spread of corona virus because of the poor and fragile public health delivery system and close multi-lateral ties with China. According to Smith (2020), there are more than 60,000 Africans studying in China, thousands of them staying in Wuhan and environment were caught up in quarantine and cut off from consular services, travel between Africa and China had been reduced drastically.

The Federal Government suggested that Universities and other Schools of Higher learning should deploy ICT in education delivery where possible. Some organizations like National Union of Teachers in collaboration with electronic media houses tried to engage teachers in core subjects to teach on television and radio broadcasts, at specific times when children at home could listen and watch. But many students particularly those in the rural areas could not connect due to lack of infrastructure in those areas. Nigeria cannot remain indifferent without getting prepared to take advantage of the current global stand-down to reorder her educational policies and infrastructure in line with global realities. Now is the time to re-structure the educational sector to ensure learning continuity amidst any social disruption either locally or globally. COVID-19 pandemic stimulated the release of some opportunities from which Nigeria can maximally explore within the available time frame.

Ed Technology, (2020) suggested that educational sector should map-out detailed strategies for emergency management. Government and sector leaders should consider available digital tools, resources and infrastructure within their reach to sustain class work in event of school closure.

Century Technology had developed Artificial Intelligence (AI) supported teaching and learning platform. This facility can ensure continued learning even when students are physically separated from their regular classrooms. It was made available free of charge for students in disaster-stricken communities anywhere in the world (Haren and Simchi-Levi, 2020). Also, Kahoot was a game-based digital platform which teachers can use to deploy their teaching materials to their students in a gamified learning session via video-conferencing and also allow them assign self-paced games for homework and assignments (Kahoot 2020).

Discovery Education developed a digital education Administration Tool (DEAT) for schools. This tool could be integrated into instruction materials to enhance efficient teaching and learning in schools. Google for Education, was a unit of Google incorporation provided free upgrade to its G-Suite for education during the lockdown time. The tool was made available free of charge to students to access. Productivity Application was a video conferencing system which schools and education service providers can use to upgrade their digital system and E-learning

options. The platform was also made available for interested organizations during this COVID-19 period.

Hangouts meet capabilities was another platform which was made available without any charge between January and June 2020. Also, Google meet which can be used to monitor students' attendance, while Google classroom which enables teachers to upload teaching resources, continuous assessment materials, set assignment submission deadlines for students, return scores and provide correction feedbacks. The platform also allows teachers to give support to individual students, help their understanding and better learning.

Book Creator was another application made available to schools and education providers. It was equipped with the capacity to integrate text, images, audio, video to create interactive stories, digital portfolios, research journals, poetry books, instruction manuals and many other. It had compiled list of concepts, ideas and instructions for using book creator in remote or distance learning. Book creator provided a platform for possible collaboration among authors. Again, this tool was offered at no cost for 90 days falling within the COVID-19 mitigation period to assist remote learning, connection and engagement. Quizlet was an interactive learning platform which could be used to supplement the conventional study materials. Teachers can explore numerous study sets to enhance their efficiency (Ed Technology, 2020).

Limitations of Nigeria in Taking Advantage of Covid-19 Outbreak

Nigeria education system was riddled with policy summersault. The frequency of change in the policy of education was almost hinged to the consistent change of the head of government. This factor made education stability extremely difficult. Planning for educational sector can hardly succeed because of incessant policy instability. Lack of standard education policy reflects in virtually all aspect of the education delivery system of Nigeria ranging from poor funding, paucity of infrastructure, poor learning resources management, unstable academic calendar, poor staff renumeration and frequent industrial action to mention, lack of qualified and well-trained teachers which results into overcrowding in classrooms (Huebler, 2008; Smith, 2020; UNESCO 2020a; 2020c). Nigeria was among the top rank 6 countries in Africa in the area of ICT development. Clement (2020) claimed that in 2020, Nigeria had 99.05 million internet users a trend that agreed with the report of Internet World Statistics 2020 which gave internet users in Nigeria as at 2019 as 126 million. His survey further showed that the number of Nigeria with access to Internet will rise to 131.7 million in 2023. Internet penetration in 2020 in Nigeria was said to be 46.6 percent of the population and may reach 65.2 percent in 2025. Despite this level, the country was still regarded by Wikipedia, (2020) as a place without reliable ICT infrastructure and reliable data (UNESCO 2006). The document was particularly concerned with the almost absence of ICT in the rural areas of Nigeria. This the author viewed those factors as major hindrances to ensure continuity of learning in Nigeria during crisis.

Lack of reliable power supply in Nigeria particularly in the rural areas had remained a major hindrance to most sector of Nigerian economy. Educational sector was among the worst hit

because electricity is needed to power laboratories workshops audiovisual, hostel facilities and many others. Students particularly in the rural areas cannot read and write their assignments after the sunset. This explains why most students from the rural area don't often measure up to the standard of their counterparts from the urban centers. So, adopting online model will be almost unachievable in Nigeria with the current status of power supply.

Poverty was another factor that must be considered in the viability of education switch program. Government announcement of total lockdown met with unanswered question in Nigeria of how will people survive staying at home without food, medication and other basic supplies? Nigeria must be ready to invest on the education and also alleviate the people's suffering for such a program to be successful. Higher percentage of Nigerian students come from poor homes that hardly afford tuition fees, lacking online connectivity, other accessories like laptop, android phones and even to pay for bandwidth data.

Low budgeting allocation to education is another area which hinders the grow of online lecturing. Nigeria have not met UNESCO 26% budget allocation to her education sector. This has been a bottle neck for development of stable ICT in higher institutions in Nigeria. Other aspects of life that Nigeria need to pay particular attention to include transportation system, health care delivery, security, insurgence, corruption involvement of parents in learning process. Without attending to all the above, it will be difficult to think of migrating the learning system to online and digital mode in Nigeria.

Derivable Benefits in Covid-19 Outbreak for Educational Sector

Alternative option of online schooling system will ensure continuity of schooling program in event of circumstances beyond physical control such as natural disaster, industrial action, students' unrest, physical disconnect between the teacher and students and even when there is continental distance separating the class from the student. Technological advancement had made closing that distance possible. So, Nigeria being a country that frequently experience constant reoccurrence of schooling disruption should not hesitate to take advantage of this time.

The huge resources committed to infrastructure constructing and maintenance in regular schools can better be effectively managed and numerous wastage loopholes can be removed. Higher institutions can once again become more sustainable when most printing work are replaced with soft resources. Many auxiliary resources which are provided in schools such as desks and chairs, beddings in hostels, medical centers, spotting facilities, etc. may not be necessary again. If such resources are at the homes of students, then issue of duplication of efforts will be eradicated. Such saved resources may be better invested in other sector of the economy for a better society.

A more efficient application of human and material resources could be achieved using online education system. For example, a single lecturer could serve multiple institutions

simultaneously thereby making optimal use of his time. Again, physical presence of teaching staff which requires office space, furniture and conveniences may no longer be necessary.

Possible evolution of a new order of education service delivery may emerge. An educational system where completion of a program will be evaluated not by 3 hour-examination rather by productivity, innovation and practical involvement of students' mind and body may occupy the central stage of schooling. The possibility of involving end users of educational program in curriculum development and implementation may become possible. In the end, students will be trained towards solving societal problems rather than becoming dependent on the society while carrying certificate around.

The Alternative Schooling Platform (ASP) concept being proposed in this paper involves the incorporation of remote teaching-learning techniques which could be delivered either synchronously real time mode or a supervised asynchronous mode using digital storage devices to distribute/exchange learning materials in the learning environment. ASP could be deployed over the internet with easy-to-use access software packages. ASP will not be a 'one-drop plug and play system' that will solve all the present learning problems at a go, but an evolving system that will be continuously edited and re-edited toward optimal effectiveness level.

CONCLUSION

Coronavirus outbreak will no doubt leave an indelible mark on the socio-economic life of the world. Many activities will hopefully regain their footings thereafter and may even come out stronger. The educational sector was not left out of the devastating attack as World Health Organization (WHO) took a pragmatic step to contain the spread of the outbreak. Most governments around the world closed down schools nationwide, an action that sent home more than one billion students. It is quite possible for schooling to continue on alternative platform but most nations did not prepare adequately for the outbreak.

Nigeria, haven experienced the ugly aspects of the conventional system of education such as persistent disruption of academic sessions with staff industrial actions, poor government funding, dilapidated infrastructure, paucity of study materials, corrupt practices at different levels of the educational sector and lots more. The same sector later suffered total shutdown since the beginning of the COVID-19 incidence. Nigeria must learn from history and get ready to take advantage of the situation to design and implement Alternative Schooling System (different from the old method) that will guarantee continuous learning any time there is crisis. Many alternative choices such as online courses, E-learning, Internet-education platforms, self-pace modular courses, distance learning and many other were mentioned here. Again, many corporate bodies have and kept developing study platforms that can support a partial or complete switch to alternative learning system. Though, there were numerous challenges and deficiencies that could hinder or outrightly discourage Nigeria and many developing countries from adopting alternative sustainable schooling system, but the cost-benefit ratio is enticing enough to consider investing in alternative learning platform.

REFERENCES

Belluz, J. (2020): Nine questions about the Covid-19 coronavirus pandemic, answered. Vox. https://www.vox.com/ Accessed 22/03/2020

Bernard S., Tilford, C. Burn-Murdoch J. and Fray, K. (2020): Coronavirus tracked: the latest figures as the pandemic spreads. Financial Time Magazine. https://www.ft.com/coronavirus-latest Accessed 24/03/2020

Clement, J. (2020). Nigeria: number of internet users 2015-2025. Statista. https://www.statista.com/statistics/183849/internet-users-nigeria/ Accessed 16/07/2020

COVID-19 Nigeria (2020): NCDC confirmed cases by state. https://covid19.ncdc.gov.ng/ Accessed 16/07/2020

Donihue, R. and Thomas, C. (2020): Mapping the novel coronavirus outbreak. Esri's StoryMaps the Center for Systems Science and Engineering (CSSE). https://storymaps.arcgis.com/stories/4f Accessed 21/03/2020

Daily Punch, (2020): Italian Expectorate tested Positive to coronavirus. The Daily Punch March 23 vol. 44 No. 22,163 issued: 20th March. p3

EdTechnology, (2020): Keep calm and trust in edtech: tools to support teaching amid coronavirus closures. https://edtechnology.co.uk/Article/tools-support-teaching-amid-coronavirus-closures/ Accessed 25/03/2020

Fottrell, Q. (2020): Coronavirus has killed more people than SARS, but the fatality rate is still far lower. Market Watch. https://www.marketwatch.com/story/coronavirus-is-less-deadly-than-sars-but-that-may-explain-why-its-so-contagious- Accessed 25/03/2020

Gillagher, J. (2020): Coronavirus: Largest study suggests elderly and sick are most at risk. BBC News. https://www.bbc.com/news/world-asia-china-51540981 Accessed 25/03/2020

Guan, W., Ni, Z. M.D., Hu, Y. Liang, W., Ou, C., He, J., Liu, L., Shan, H., Lei, C., Hui, D. S., Du, B., Li, L. (2020): Clinical Characteristics of Coronavirus Disease 2019 in China. The New English Journal of Medicine. https://www.nejm.org/doi/full/ Accessed 21/03/2020

Guzman, J. (2020): Here are the fatality rates of coronavirus for every age bracket — and they vary widely Changing America. https://thehill.com/changing-america/well-being/prevention-cures/485144-coronavirus-fatality-rates-vary-dramatically Accessed 22/03/2020

Haren, P. and Simchi-Levi, D. (2020): How Coronavirus Could Impact the Global Supply Chain. Harvard Business Review. https://hbr.org/2020/02/how-coronavirus-could-impact-the-global-supply-chain-by-mid-march accessed 26/03/2020 Accessed 23/3/2020

Huebler, F. (2008): International Education Statistics https://huebler.blogspot.com/ptr.html Accessed 24/03/2020

Internet World Statistics (2020): 126 million internet users in Nigeria as at 2019. https://www.internetworldstats.com/stats1.htm Accessed 16/07/2020

Kahoot, (2020): Kahoot! offers free distance learning tools during the coronavirus outbreak https://kahoot.com/coronavirus-remote-offer/ Accessed 28/03/2020

Lau, J. and Ross, J. (2020): Universities brace for lasting impact of coronavirus outbreak. https://www.timeshighereducation.com/news/universities-brace-lasting-impact-coronavirus-outbreak accessed 25/03/2020 Accessed 23/3/2020

Lieberman, M. (2020): Schools Should Prepare for Coronavirus Outbreaks, CDC Officials Warn. Education Week. https://www.edweek.org/ew/articles/2020/02/25/schools-should-prepare-for-coronavirus-outbreaks-cdc.html accessed 25/03/2020 Accessed 22/3/2020

Mayberry, K. Pietromarchi, V. and Mohamed, H. (2020): Coronavirus deaths in US rise to six: Live updates. Al-Jazeera. https://www.aljazeera.com/news/2020/03/algeria-egypt-confirm-coronavirus-cases-live-updates.html accessed 3/3/2020 Accessed 21/3/2020

McCarthy, K. (2020): The global impact of coronavirus on education. More than 290 million students have been disrupted worldwide by COVID-19. https://abcnews.go.com/International/global-impact-coronavirus-education/story Accessed 25/03/2020

McKie, R. (2020): Coronavirus outbreak: the key scientific questions answered. The Guardian Weekly. https://www.theguardian.com/world/2020/mar/01/coronavirus-outbreak-the-key-scientific-questions-answered Accessed 22/03/2020

Palmer, J. (2020): Are China's Coronavirus Figures Reliable? Foreign Policy https://foreignpolicy.com/2020/02/19/china-coronavirus-figures-reliable-communist-party-politics-xi-jinping-quarantine-hubei/ Accessed 19/2/ 2020

Qu, T. (2020): China's traditional schools embrace online learning as coronavirus forces students to stay at home. South China Morning Post. https://www.scmp.com/tech/enterprises/article/3048891/chinas-traditional-schools-embrace-online-learning-coronavirus Accessed 26/03/2020

S&P Global, (2020): Coronavirus Impact: Key Takeaways from Our Articles. S&P Global Rating. https://www.spglobal.com/ratings/en/research/articles/200204-coronavirus-impact-key-takeaways-from-our-articles-11337257 Accessed 26/03/2020

Sam, C., Whiteaker, C. Recht, H., Pogkas, D., Murray, P., Halford, D. and Brya, E. (2020); Mapping the Coronavirus Outbreak Across the World. Bloomberg. https://www.bloomberg.com/graphics/2020-coronavirus-cases-world-map/ Accessed 25/03/2020

Smith, S. (2020): What the coronavirus means for Africa. Africa Center for Strategic Studies. https://africacenter.org/spotlight/what-the-coronavirus-means-for-africa/ Accessed 26/03/2020

Tooma, M., Choo, T. and Kuang, H. (2020): Coronavirus outbreak - Implications for the education sector. Lexology. https://www.lexology.com/library/detail.aspx?g=77d95dd6-f6cf-409c-85e2-f05ce3a9e859 Accessed 25/03/2020

UK Dept for Education, (2020): Closure of educational settings: information for parents and carers. https://www.gov.uk/government/publications/closure-of-educational-settings-information-for-parents-and-carers/closure-of-educational-settings-information-for-parents-and-carers Accessed 25/03/2020

UNESCO, (2006): Nigeria Education Policy Analysis. UNESCO. http://www.ibe.unesco.org/fileadmin/user_upload/archive/Countries/WDE/2006/SUB-SAHARAN_AFRICA/Nigeria/Nigeria.htm Accessed 24/2/2020

UNESCO, (2020a): COVID-19 Educational Disruption and Response. https://en.unesco.org/themes/education-emergencies/coronavirus-school-closures Accessed 25/03/2020

UNESCO, (2020b): COVID-19: UNESCO convenes Education Webinar on equity in schooling. UNESCO's first webinar on the educational response to Covid-19 for government officials, practitioners and experts from over 50 countries convene on 21/3/2020. https://en.unesco.org/news/covid-19-unesco-convenes-education-webinar-equity-schooling Accessed 25/03/2020

UNESCO, (2020c); Pupil-teacher ratio by level of education (headcount basis). UNESCO Education. http://data.uis.unesco.org/index.aspx?queryid=180 Accessed 25/03/2020

UNESCO's Advisory Board on the Futures of Education (2020): Amidst global school closures UNESCO's Futures of Education initiative receives strong support. https://en.unesco.org/news/amidst-global-school-closures-unescos-futures-education-initiative-receives-strong-support Accessed 25/03/2020

Walayat, N. (2020): Coronavirus China Infection Statistics Analysis: Probability Forecasts 1/2 Million Infected. F X Street. https://www.fxstreet.com/analysis/coronavirus-china-infection-statistics-analysis-probability-forecasts-1-2-million-infected-202002231650 Accessed 23/2/2020

Wetsman, N. (2020): Everything you need to know about the coronavirus. The Verg.https://www.theverge.com/2020/1/23/21078457/coronavirus-outbreak-china-wuhan-quarantine-who-sars-cdc-symptoms-risk Accessed 26/3/2020

Wikipedia, (2020): Impact of the 2019–20 coronavirus pandemic on education. https://en.wikipedia.org/wiki/Impact_of_the_2019%E2%80%9320_coronavirus_pandemic_on_education Accessed 25/03/2020

WorldOmeter, (2020a): COVID-19 Coronavirus Pandemic. WorldOmeter https://www.worldometers.info/coronavirus/ Accessed 22/03/2020

WorldOmeter (2020b): Corona virus Pandemic. https://www.worldometers.info/coronavirus/?utm_campaign=homeAdvegas1? Accessed 15/07/2020)

Ye, W. (2020): Coronavirus outbreak forces China's after-school activities to shut down — or move online. CNBC. https://www.cnbc.com/2020/02/19/coronavirus-chinas-after-school-programs-to-shut-down-or-move-online.html Accessed 23/03/2020