

Implementing SDGs 4 and 9 as Remedies to Educational System in Post COVID-19 Pandemic in Nigeria

Rashid A. Aderinoye

Professor of Adult and Open Distance Learning
Department of Adult Education, University of Ibadan, Nigeria
rashid.aderinoye@yahoo.com

Rosheedat O. Adeniji

Doctoral Researcher, Department of Adult Education
University of Ibadan, Nigeria
larrysla2002@yahoo.com

Solomon O. Ojediji

Doctoral Researcher, Department of Adult Education
University of Ibadan, Nigeria
solomonojediji@gmail.com

***Abstract:** This study examined SDGs 4&9 as remedies to educational systems in post COVID-19 pandemic in Nigeria using a descriptive research design of the survey type. Two hundred and eight (208) Nigerians aged 18 years and above participated in the study and were selected using convenience sampling technique. A set of questionnaire titled SDGs 4&9: remedies to educational system in post COVID-19 pandemic in Nigeria were used as data gathering instrument. Data collected were analysed using descriptive statistics of simple percentages and frequency counts. Findings revealed amongst others that SDGs 4 and 9 are capable of improving teaching and learning during and after COVID-19 and related diseases. Recommendations were made based on findings of the study to the effect that Nigeria as a country should strive towards achieving the Sustainable Development Goals way before the set date of 2030, among others.*

Keywords: Female, SDGs; Remedies; Educational System; COVID-19; Pandemic; Nigeria

Introduction

Coronavirus is the current greatest challenge the world is facing after world war two, it is a global socioeconomic attack ravaging the world which extended its venom to every nook and cranny of human existence. The crisis was first reported in Wuhan city, China late last year and has since then spread to every continent except Antarctica (UNDP 2020). It has put a deep and long-term effect on the social, political, economic, and educational sectors of every nation of the world within its seven months of outbreak. Economies are dying in bits day in day out, crisis in the health sector are alarming, businesses and commercial centers are shutting down, schools are being closed indefinitely and lots more, all due to the pandemic. Thus, nations need to plan, prepare, act, and recover.

Nigeria is not left out of the fight; the first case in the country was reported in February 2020 and has continued to add up every day till date with about 62,111 confirmed cases as at October 26, 2020 (NCDC, 2020). The effect is felt in all sectors and specifically high in the educational sector as there was total discontinuation of educational activities in Nigerian schools ranging from primary to secondary and tertiary levels of education respectively, at the wake of the pandemic. This disruption in educational activities is inevitable due to the restrictions in people's movement, lockdown of the economy, social distancing and so on to contain the spread of the pandemic. This is necessary because the World Health Organization concluded that the present major remedy to the coronavirus disease is reducing contact among people since there is no known and approved vaccine or cure for the virus.

Prior to the COVID-19 pandemic in Nigeria, the educational system has always been plagued by several obstacles, some of which include insurgency, almajri phenomenon, inequality of quality education, lack of well-equipped educational facilities, lack of innovative means of academic dissemination, among others. According to a report

published by UNICEF, 10.5 million of children between the ages of 5-14 years are out of school and 1 in every 5 out of school children in the world is from Nigeria (UNICEF, 2020). The emergence of COVID-19 pandemic exposed the complications within the Nigerian educational sector.

It is however worthy of note that some countries of the world, especially the developed countries, have an entirely different experience regarding the effect of COVID-19 on their educational sector. For instance, in many of these countries, online and digital forms of teaching and learning were ongoing even in the face of the COVID-19 pandemic. According to the World Economic Forum (2020), in the United States of America, some states are forming partnerships between their district schools and educational technology providers; the Los Angeles Unified School District and PBS SoCal/KCET collaborated to offer local educational broadcasts focusing on varied age groups with several digital options. Another example can be drawn from the efforts of media organizations in driving special packaged online learning such as BBC in the United Kingdom as they engaged celebrities to teach some contents of curriculum-based learning to children across the UK. The case was different in Nigeria. While some schools in major cities tried to maximise the affordances of technology for teaching and learning, many children from remote and underserved communities were left out due to unavailability of appropriate technologies (World Economic Forum, 2020). Nigeria was also believed to have witnessed the shutting down of schools during the pandemic due to lack of ingenious and formidable educational facilities that meet the demand of the 21st century. The Nigerian educational sector is said to lack adequate facilities that can help fight back in an era like this, plagued with the outbreak of a disease such as COVID-19. It is, therefore, necessary for the country to promptly take actions into critical ways of revitalizing the system of education, look beyond recovery, and forecast the nearest future on how to face and deal with such challenges.

Central to the actualization of standard educational system is ensuring a fair, equitable and lifelong quality education for all, promoting resilient infrastructure and innovation. A type of education that will cater for the low-income groups, disadvantaged groups, and people with low socio-economic backgrounds. Therefore, achieving the SDGs 4 and 9 urgently will be necessary to tackle COVID-19 pandemic. Although the Nigerian government has been working on the attainment of the SDGs, efforts must be increased at this period to help fight the war against coronavirus, and related diseases. To this vein, SDGs 4 and 9 which are to ensure inclusive and equitable quality education; and build resilient infrastructure, promote sustainable industrialization, and foster innovation, respectively must be highly considered to help resuscitate Nigerian education now and in the nearest future.

The Nigerian educational system is being faced with myriad of challenges, including insurgency; unequal distribution; lack of adequate facilities; almajri brucites; to mention a few, which are heightened and made clear with the current wave of the COVID-19 pandemic. Inability to utilize innovative means of disseminating information to students, inadequate teaching aids and technology, among others are issues affecting the delivery of educational contents in Nigerian schools. Online teaching and learning, which is now the new normal globally, can only be achieved with standard policy reformation and implementation.

It is, therefore, imperative to bridge the gap of inequality in quality education among Nigerian citizens and provision of appropriate educational facilities that can meet the demand of today's system of education, which are the focuses of SDGs 4 and 9. This informed the need for this study, which aims to investigate the possibility of SDGs 4 and 9 to be used as remedies to educational system in post COVID-19 pandemic in Nigeria.

Objectives of the Study

The general objective of the study is to investigate the possibility of SDGs 4 and 9 being applied as remedies to educational system in COVID-19 pandemic in Nigeria. The specific objectives of this study aimed to:

1. identify the reasons for total stoppage of educational activities due to COVID-19 in Nigeria.
2. determine instructional delivery strategy that will create access to education for all.
3. assess how the achievements of SDGs 4 and 9 can help the continuation of education in the face of COVID-19 and related diseases in Nigeria.
4. establish how best Nigeria can achieve SDGs 4 and 9.

Research Questions

The following research questions were raised for the study:

1. What are the reasons for total stoppage of educational activities during COVID-19 in Nigeria?
2. What instructional delivery strategy can best create access to education for all?
3. To what extent can the achievement of SDGs 4 and 9 help improve the system of education during and after COVID-19 and related diseases in Nigeria?
4. How best can SDGs 4 and 9 be achieved in Nigeria?

Literature Review

Education

Education is a powerful phenomenon that allows individuals to deduce meaning from different context and help in improving lives in tremendous ways. John Dewey (1916:239) says, “education is not preparation for life; education is life itself”. It gives a broad understanding of the world around us and makes it possible to be extraordinary and stand out equally with others regardless of the race, creed, and gender of an individual. According to Malcolm X (1962), “education is the passport to the future, for tomorrow belongs to those who prepare for it today”. It is pertinent to note that education is the one and only tool that can liberate people and make them prepare for the future with full potentials and agility.

Education in general terms is a process of assisting individuals to lead the fullest potentials in life. Sarumi (2001) posited that education is a holistic concept and thus has aims that are dependent on the values of specific society. According to him, education in the developing nation like Nigeria should include promotion of national unity; issues on social inequalities; provision of industrial manpower and pleasure; training for vocational competence; production of middle and high level manpower for economic development; promotion of international understanding; promotion of public morality; assistance in self-realization and promotion of public enlightenment; and actualisation behaviour. It enables mounting socioeconomic mobility and an important factor in overcoming poverty (UN, 2020).

As important as education is, it should be available to every citizen of a nation without bias and prejudice. Education system should be well-equipped with appropriate technology and infrastructure to meet the needs of people and give them opportunity in the current and future worlds. The Article 26 of the United Nation’s Universal Declaration of Human Rights states that, “everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all based on merit”. It further states that “education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms. It shall promote understanding, tolerance and friendship among all nations, racial or religious groups, and shall further the activities of the United Nations for the maintenance of peace” (UN, 2015:54). This was strictly followed by the inclusion of quality and equal education for all in the Sustainable Development Goal 4.

Methods of Instructional Delivering

There are various methods of instructional delivery, part of which include face-to-face method; digital/online method; and blended method.

1. **Face-to-Face Method:** This is the traditional method of instructional delivery whereby teachers and learners meet within the four walls of a classroom for teaching and learning.
2. **Online Method:** Online or digital method of instructional delivery involves the use of technology-mediated learning platforms for teaching and learning process. Here, classroom instructions are replaced by online learning experience and it can include varying degrees of interaction or just time alone in independent study and learning activities (Cleveland-Innes and Wilton, 2018).

3. **Blended Learning Method:** Blended learning can simply be defined as the use of traditional classroom teaching method together with the use of online learning for the same students studying the same content in the same course (Cleveland-Innes and Wilton, 2018). It is a practice of providing instruction through the combination of both face-to-face and technology-mediated learning where students are not required to be physically present in one place during the online aspect but connected digitally for learning.

Sustainable Development Goal 4: Quality Education

The Sustainable Development Goal 4 is centered upon ensuring inclusive and equitable quality education and promotion of lifelong learning opportunities for all. Progress has been made over the years towards increasing access to education, although about 260 million children were still out of school globally in 2018. Worse still, the spread of COVID-19 pandemic in 2020 caused close to 1.6 billion children to be out of school by April 2020 due to schools' closure worldwide (UN, 2020). This is a complex situation when such several students have never been out of school at the same time, with disruptions in learning and upending lives, particularly with the marginalized and most vulnerable groups. The pandemic has an exacerbating effect that may endanger the commendable progress made so far in improving the level of education worldwide.

Equal and standard basic education are challenges in Nigeria prior to COVID-19 where children and youths from low income earning families struggle with learning and are faced with the risk of dropping out of school at early stages of their lives. This is usually caused by numerous factors such as insecurity, strike actions, poverty, among others. COVID-19 worsened this disparity as the compulsory closure of schools further had negative impact on marginalized and vulnerable children who never had the opportunity to continue to learn at home like some of their counterparts. Home schooling, remote learning, and blended learning options are likely to be impossible for this category of students and they might not even ever be able to return to school. This may result in a reversing effect on the progress and achievement of SDG 4 and others (United Nations, 2020).

International bodies such as UNESCO responded to the pandemic by ensuring that children have continued access to learning through multi-sectoral partnership with the UN family, civil society, media, and IT experts to design innovative solutions. They helped countries in mobilizing resources, implementing innovations and render solutions to provide education remotely. In Nigeria, the government is also making efforts on audio-visual learning through content delivery on radio stations for basic primary education.

Equipping individuals (both youths and adults) with learning and skills is necessary in investing in their future, allowing them in realizing their potentials and broadening their choices for productive and satisfying lives (Commonwealth, 2017). Such education must be all encompassing and made available to all regardless of their backgrounds, status and earning capacities. Quality education is essential for socio-economic development of any nation. Benefits of quality education include the following:

- Access to basic education is important in ensuring that every citizen and aspect of the society will be benefitted from both the micro and macro-economic development of a nation.
- Quality education encourages local and international employers to draw from the skilled labor available in a nation because of productive workforce through standard education system.
- Sound education has great impact on individual and national earnings. It gives access to lifesaving information
- Education leads to reduction in poverty. It is a tool that changes the status of individuals socially and economically.

Sustainable Development Goal 9: Infrastructure, Industrialisation and Innovation

The Sustainable Development Goal 9 focuses on building resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. One of the major setbacks in education in Nigeria is the lack of basic

infrastructure in all segments of the sector. This was exacerbated by COVID-19 pandemic when there was need to take learning out of the walls of the classrooms. In the UN Secretary-General's report towards the Sustainable Development Goals (ECOSOC 2016:75), SDG 9 was grouped into three major components, these are:

- “Infrastructure which provides the basic physical systems and structures essential to the operation of a society or enterprise.
- Industrialisation which drives economic growth, creates job opportunities, and thereby reduces income poverty.
- Innovation which advances the technological capabilities of industrial sectors and prompts the development of new skills”.

Infrastructure, industrialisation and innovation are building blocks behind socioeconomic development of any nation and are therefore necessary in the growth of education system (Commonwealth, 2017). There are bound to be limitations in the achievement within education sector without infrastructures and innovative strategies. Quality infrastructures which includes basic sanitation facilities, education facilities are essential for sustainable development. Advancement of adequate infrastructure promotes access to education and information and communication technology (ICT) infrastructure. However, there is presently a huge gap in the development of new infrastructure and maintenance of old ones in Nigerian education sector. Primary, secondary, and tertiary institutions lack basic infrastructure to deliver optimum services to learners and this is clearer in this period of pandemic when learning stopped absolutely in public institutions in Nigeria. According to Commonwealth (2017), large infrastructure deficit of about US\$48 billion exists in developing countries of Africa alone.

Innovative strategies of delivering learning content like digital learning, and blended learning are also found wanting in the Nigerian educational sector. There is digital gap with more than four billion people (about 57% of world's population) without access to internet facilities (International Telecommunication Union, 2015). Annexing this gap will lead to considerable progress in terms of educational provision and access to learning contents.

Coronavirus Disease

Coronavirus disease (COVID-19) is caused by an emerging strain of the Severe Acute Respiratory syndrome corona virus 2 (SARS-COV-2) that has not been found previously in humans (NCDC, 2020). It has been established that it is majorly transmitted through close contact with an infected person (with about 1.5 meters distance) through respiratory droplets from coughing, sneezing or putting an infected finger into the eyes, nose or mouth. Strategies required to prevent or limit the transmission of COVID-19 according to (NCDC, 2020)

include:

- Early identification and source control of COVID-19
- Application of standard precautions for all patients always
- Implementation of empiric additional preventive mechanisms
- Implementation of administrative controls
- The use of environmental and engineering controls including ventilation.

Nigerian Education System and Coronavirus Pandemic

Coronavirus crisis came as a reminder of the prevailing gap in Nigerian education sector between policy matters and the system. There is a clear demarcation in learning of individuals from underserved and vulnerable communities. The spread of the pandemic across the globe resulted into temporary closure of schools leaving more than 91% students out of schools and as the situation exacerbated almost 1.6 billion children and young adults were out of school (UN, 2020). COVID-19 might result into great impacts that might jeopardize numerous achievements made in global

education. The effects of COVID-19 on education can be grouped into three categories, which are; negative side (disruption in education), positive side (stimulation of innovation) and future of learning (quality education).

In the exact words of United Nations (Policy Brief, 2020:5):

COVID-19 pandemic has caused the largest disruption of education in history, having already had a near universal impact on learners and teachers around the world, from pre-primary to secondary schools, technical and vocational education and training (TVET) institutions, universities, adult learning, and skills development establishments. By mid-April 2020, 94 percent of learners worldwide were affected by the pandemic, representing 1.58 billion children and youth, from pre-primary to higher education, in 200 countries.

COVID-19 pandemic revealed the unreadiness of policy makers, education providers, infrastructures in education system, programs, and individuals. Digital learning which is supposed to be a lifesaver at the period of a pandemic is absent and has adversely affected many students especially those from rural and underserved areas (Sentinel, 2020)

Effects of COVID-19 on Education

COVID-19 pandemic has long term consequences of education system in Africa and Nigeria in particular. The United Nations (2020), pointed out some effects of COVID-19 pandemic on education sector, these are explained as follows:

Interruption in the System of Education: The abrupt interruption in early childhood education caused by COVID-19 leading to disruption in learning opportunities, missing of stimulating and enriching environment, and breaking of social interactions is likely to have a long-term unhealthy development on children especially those from disadvantaged families.

Increased risk of dropouts: Some children from vulnerable groups may face the danger of dropping out of school or not have access to school for some years to come due to the pandemic. This is because schools closure makes this category of students more exposed to the risk of early marriage, unwanted pregnancy, hard drugs intake, gender-based violence, banditry, among others.

The pandemic illuminates the lack of digitalization and structural weaknesses in the technical and vocational education, apprenticeship programmes and work-based training were difficult to implement during this period which resulted into loss of market-responsive training system.

Indefinite suspension of learning in Tertiary Institutions: Lack of communication and information technology infrastructure made it impossible for Nigerian tertiary institutions to continue teaching and learning processes. This will result into students from these institutions stand behind their counterparts in private and international institutions.

Other extended effects: Closure of schools will have more disastrous effects beyond education like food insecurity, violence against girls and women, economic instability, health, and psychological issues and absent of social protection services.

Methodology

A descriptive research design of the survey type was adopted for this study. Two hundred and eight (208) Nigerians who are 18 years and above were selected using convenience sampling technique and they served as respondents for the study. A set of questionnaire titled SDGs 4&9: remedies to educational systems in post COVID-19 pandemic in Nigeria were used as data gathering instrument. Data were collected through online survey platform, and analysed using descriptive statistics of simple percentages and frequency counts.

Ethical Considerations

The researchers sought ethical clearance from their affiliated institution which was granted. Afterwards, they equally sought the consent of the respondents and only those who were willing to be part of the study were contacted in the process of data gathering.

Results

Research Question 1: What are the reasons for total stoppage of academic activities during the COVID-19 Pandemic in Nigeria?

Table 1: Reasons for Total Stoppage of academic Activities during the COVID-19 pandemic in Nigeria

S/N	ITEM	Disagree	Neutral	Agree
1	Lack of facilities (technology and infrastructure) contributed to the discontinuation of academic activities during COVID-19 Pandemic in Nigerian schools	15%	3%	82%
2	Lack of well-trained teachers contributed to the discontinuation of academic activities in Nigeria during COVID-19 pandemic	49%	10.7%	40.3%
3	Lack of support for low-income families contributed to the discontinuation of academic activities in Nigeria during the COVID-19 pandemic	29.5%	7.2%	63.3%
4	Lack of quality and equitable education for all contributed to the discontinuation of academic activities in Nigeria during the COVID-19 pandemic	28%	6.8%	65.2%

The above table reveals reasons for the total stoppage of educational activities during the COVID-19 pandemic in Nigeria. It shows that top among these reasons is lack of facilities (technology and infrastructure) with 82% of the respondents agreeing so. This is followed by lack of quality and equitable education for all; and lack of support for low-income families, with 65.2% and 63.3% of the respondents agreeing to these, respectively. Most of the respondents (59.7%) disagreed that lack of well-trained teachers contributed to the discontinuation of academic activities in Nigeria during the COVID-19 pandemic. This implies that lack of well-trained teachers was not in any way one of the reasons for the total stoppage of academic activities during COVID-19 pandemic in Nigeria. The reasons for this include lack of facilities (technology and infrastructure); lack of quality and equitable education for all; and lack of support for low-income families.

Research Question 2: What instructional delivery methods can best create access to education for all?**Table 2: Instructional Delivery Methods that best Creates Access to Education for All**

S/N	ITEM	Disagree	Neutral	Agree
1	Face-to-face method of instructional delivery only can give adequate access to education for all	61.2%	9.2%	29.6%
2	Online or digital method of instructional delivery only can give adequate access to education for all	66%	11.2%	22.8%
3	Mixing online with face-to-face method of instructional delivery can give adequate access to education for all	9.7%	4.4%	85.9%

The table above shows the instructional delivery strategy that best creates access to education for all. It reveals that mixing online with face-to-face method of instructional delivery can give adequate access to education for all. Most of the respondents (85.9%) agreed so. Meanwhile, majority of the respondents (61.2% and 66% respectively) disagreed that either face-to-face method or online or digital method of instructional delivery, standing alone can give adequate access to education for all. This implies that only a mixture of face-to-face and online or digital methods of instructional delivery can best create access to education for all, and not either of these methods standing alone.

Research Question 3: What is the perceived possibility of SDGs 4 and 9 to help improve teaching and learning activities during and after COVID-19 and related diseases in Nigeria?**Table 3: Perceived Possibility of the Achievement of SDGs 4 and 9 to Help Improve teaching and learning activities during and after COVID-19 and Related Diseases in Nigeria**

S/N	ITEM	Disagree	Neutral	Agree
1	Achieving SDG 4 (Quality and equal education for all) can improve teaching and learning activities during and after COVID-19 and related diseases in Nigeria	9.7%	4.9%	85.4%
2	Achieving SDG 9 (building resilient infrastructure and fostering innovation) can improve the system of education during and after COVID-19 and related diseases in Nigeria	6.8%	4.9%	88.3%

The table above reveals the possibility of the achievement of SDGs 4 and 9 to help improve teaching and learning activities during and after the COVID-19 pandemic and related disease, as perceived by the respondents. It shows that 85.4% and 88.3% of the respondents respectively perceived that SDGs 4 (quality and equitable education) and 9 (building resilient infrastructure and fostering innovation) are capable of improving teaching and learning activities during and after COVID-19 and related diseases in Nigeria. This implies that SDGs 4 and 9 can indeed improve teaching and learning activities during and after COVID-19 and related diseases.

Research Question 4: How best can SDGs 4 and 9 be achieved in Nigeria?**Table 4: Best Way to Achieve SDGs 4 and 9 in Nigeria**

How best can SDGs 4 & 9 be achieved in Nigeria?	
Government Policies	8.9%
Individual Contribution	3.4%
Both	87.7%

The above table shows the best way to achieve SDGs 4 and 9 in Nigeria. It reveals that a combination of both government policies and individual contribution can achieve these goals. Most of the respondents (87.7%) agreed so. Meanwhile, only 8.9% and 3.4% of the respondents respectively agreed that government policies and individual contribution standing alone can achieve SDGs 4 and 9. This implies that SDGs 4 (quality and equitable education) and 9 (building resilient infrastructure and fostering innovation) can only be achieved by a combination of government policies and individual contribution, and not by either of these standing alone.

Discussion

This study investigated the possibility of implementing SDGs 4 and 9 as remedies to educational system in post COVID-19 pandemic in Nigeria. One of its major findings revealed that lack of well-trained teachers was not in any way a reason for the total stoppage of academic activities during COVID-19 pandemic in Nigeria. Reasons found to be responsible for this included lack of facilities (technology and infrastructure); lack of quality and equitable education for all; and lack of support for low-income families. This result is in line with the position of the United Nations (2020) that some universities suspended teaching and learning due to lack of information technology (IT) infrastructure for both students and teachers. Anifowoshe, Aborode, Ayodele, Iretiayo, and Ogunjemilua (2020) also opined that efforts by Nigerian schools to move teaching and learning to online platforms was faced with numerous challenges, both on the part of teachers and students. For instance, UNESCO (2020) reported that 89% of students in sub-Saharan Africa do not have access to personal computer, and 82% of them have no access to the internet. The implication of these figures is that most students in Africa find it difficult to partake in online learning activities. Similarly, UNESCO (2020) brought it to bare that lack of appropriate facilities both in terms of technology and infrastructure made African countries such as Nigeria the worst hit by the COVID-19 pandemic, especially as far as education is concerned. For this reason, all schools in Nigeria were totally locked down and their students mandatorily out of school for several months. This was a thing that never happened in most developed countries of the world. In the words of Ngogi (2020) a long period of learning was forever lost in many African countries for as long as the pandemic lasted. This is very detrimental to the very fragile educational system in Africa generally and Nigeria in particular. This interwoven with lack of quality and equitable education for all in a country like Nigeria made the situation even worse. For instance, another reason found for the total stoppage of academic activities in this study is lack of quality and equitable education for all. While many faced challenges related to lack of access to technology tools required for online learning, many others who had such access also faced challenges related to capacity to use those technology tools for learning. This implies that the non-literacy rate is still very high in Nigeria, and this fact together with losing a long period of learning because of the outbreak of a disease can only compound the situation (Kekić, and Miladinović, 2016). If nothing tangible is done to arrest this situation, towards rescuing the educational

system in Nigeria, what is seen as a temporal damage today could degenerate into something more devastating as far as our educational system is concerned. Further still, poverty is known to be closely related to illiteracy; little wonder results of this study also found that one of the reasons for the total stoppage of academic activities in Nigeria during the pandemic was lack of support for low-income families. This is in line with the Sustainable Development Goals Report (2019) which has it that 413 million people live in extreme poverty in sub-Saharan Africa. As a matter of fact, many families could not even afford what was needed to support their children through the demands of online learning. For instance, many families could not even afford to feed properly which was a reason why they looked towards the government for palliatives during the pandemic. To expect such facilities to provide what was needed for online learning activities such as technology devices like computers and mobile devices; and internet connectivity is practically an unrealistic one. Thus, this cycle of infrastructural deficit, inequality in educational provision and poverty must be broken, and this must be done as quickly as possible, to see the desired transformation in Nigerian educational provision and society.

Results of the study also revealed that only a mixture of face-to-face and online or digital methods of instructional delivery can best create access to education for all, and not either of these methods standing alone. This finding agrees with the position of Cleveland-Innes and Wilton (2018) that blended learning increases learners' creativity, independence, and self-direction. All of these are essential for educational provision for all. The State of Victoria Department of Education and Early Childhood Development (2012) argued that we indeed live in a connected world where access to online information and experiences are not equal. This further buttress the fact that as promising as its use for learning, using online or digital methods of instructional delivery alone cannot create the needed access to education for all. Similarly, as we now live in a world where children have access to a wide range of information and opportunities on the screens of computers and mobile devices, it will be fruitless to expect that face-to-face method of instructional delivery alone can create access to education for all. Thus, according to SVDEECD (2012), many educators see the blended learning approach as an innovative educational solution which combines the traditional classroom teaching with online and mobile learning activities. This is believed to be most appropriate and capable of providing the needed access to education for all. Educational experience can truly be enriched for students through blended learning methods of instructional delivery. For instance, through this method, online communities can be built for isolated students or adult learners in rural and remote areas, using the most basic technology devices, at the barest minimum cost possible. Meanwhile, this could be done in a way that still does not neglect the regular face-to-face class interaction for all or those learners who can afford to appear in class physically. Caner (2012) explained the strength of blended method of instructional delivery to be embedded in the fact that the method capitalises on the advantages of instructional delivery methods while maximising their disadvantages. This implies that through blended method of instructional delivery, the inherent weaknesses in face-to-face as well as online methods are minimised and their strengths maximised when these two methods are combined.

Furthermore, findings from this study showed that SDGs 4 (Quality and equal education for all) and 9 (building resilient infrastructure and fostering innovation) can indeed improve teaching and learning activities during and after a pandemic like COVID-19 and other related diseases. This result is supported by the position of the World Literacy Foundation (2020) that government can further alleviate the negative impacts of COVID-19 on education by providing educational devices and resources to students in disadvantaged groups to help bridge the gap towards the provision of quality education for all. The Sustainable Development Goals Report (2019) has it that 617 million children and adolescents worldwide, cannot read and write with more than half of the schools in sub-Saharan Africa lacking basic facilities including the internet and computers. Similarly, 750 million adults are still unable to read and write. This clearly reveals the state of education and its infrastructure in Africa; and in a way provides an explanation for the disruption in teaching and learning activities during the COVID-19 pandemic. For instance, there is a minimum level of literacy required to take advantage of learning with the aid of technology, which was most fitting for a time of global pandemic. However, with the high rate of non-literacy in Africa, particularly in Nigeria, it became extremely difficult to engage different categories of students in teaching and learning activities during the pandemic. Meanwhile, SDGR (2019) maintains that resilient infrastructure as well as innovation in education can transform teaching and learning naturally, more so, in the face of any pandemic or disease such as the COVID-19 and others. Indeed, Africa is currently plagued by deep physical infrastructural deficit, particularly in education. Many infrastructure systems in

Africa and particularly in Nigerian educational institutions are aged and due for replacement or refurbishing, which has serious implications for teaching and learning. Better access to learning materials and resources is created and teaching and learning improved with proper infrastructure in education. More so, innovation is seen as a major driver not only in business growth, but also in education and learning (Ferguson et al., 2019).

Results of the study equally revealed that SDGs 4 (quality and equitable education) and 9 (building resilient infrastructure and fostering innovation) can only be achieved by a combination of government policies and individual contribution, and not by either of these two standing alone. This agrees with the assertion of Ferguson et al. (2019) that the achievement of the SDGs by each country will not be an easy task given the complexities inherent in various countries and their people. Hence the need for the government and people in each country to work together towards the achievement of these goals. Similarly, Klapper, et al. (2016) stated that achieving SDG 4 transcends what the government alone can do; it depends on the ability of people to invest in learning opportunities. Klapper et al. (2016) also asserted that achieving SDG 9 requires the joint efforts of the government and her people. For instance, they stated that building resilient infrastructure and fostering innovation, which goal 9 is all about, requires easy access to credit as well as other financial services through which investments are facilitated. This implies that access to financial services such as loans can help school owners invest in infrastructure as they also have better opportunities to innovate. Again, creating access to such loans will have to be through the joint efforts of the government and private financial institutions.

Conclusion

This study investigated the possibility of implementing SDGs 4 and 9 as remedies to educational system in post COVID-19 pandemic in Nigeria. The study was able to establish that lack of well-trained teachers was not a reason for the total stoppage of academic activities during COVID-19 pandemic in Nigeria. Reasons for the stoppage of academic activities included lack of facilities (technology and infrastructure); lack of quality and equitable education for all; and lack of support for low-income families.

The study was also able to establish that only a mixture of face-to-face and online or digital methods of instructional delivery can best create access to education for all, and not either of these methods standing alone. Also, SDGs 4 and 9 were found to be capable of improving teaching and learning activities during and after COVID-19 and related diseases, as perceived by respondents in the study. Finally, SDGs 4 (quality and equitable education) and 9 (building resilient infrastructure and fostering innovation) were found to be achievable through a combination of government policies and individual contribution, and not by either of these standing alone.

Recommendations

The following recommendations are made based on the major findings of this study:

1. The government at all levels should see to the urgent provision or refurbishing of existing infrastructures in Nigerian schools (primary, secondary, and tertiary). Needed technology should also be provided to support online learning when the need arises. Thus, teachers should be trained to use such technology for the purpose of learning.
2. The government, as well as other responsible bodies should put in more directed efforts toward the achievement of education for all. More could be done in the area of making education and learning more accessible to low-income families.
3. Schools and institutions of learning at all levels should embrace the use of a combination of face-to-face and online or digital methods of instructional delivery. Especially since it has been found that a combination of these two can best create access to education for all, compared to using either of the methods alone.

4. Nigeria as a country should strive towards achieving the Sustainable Development Goals way before the set date of 2030, since these goals can improve teaching and learning activities even in the face of COVID-19 and other related diseases.

Policy Implication

Government policies as well as concerted individual efforts should continually be encouraged towards the achievement of the SDGs in general, and particularly goals 4 (quality and equitable education) and 9 (building resilient infrastructure and fostering innovation). Since a combination of these two were found to be critical to achieving these goals, rather than either of them standing alone. The government, however, ought to take the lead in this regard, by making policies in the area of quality and equitable education as well as in building resilient infrastructure.

References

- Anifowoshe, O., Aborode, A., Ayodele, T., Iretiayo, A. and Ogunjemilua D. (2020). *Impact of COVID-19 on education in sub-Saharan Africa*. Retrieved from <https://www.researchgate.net/publication/342713735>
- Caner, M. (2012). The definition of blended learning in higher education. *IGI Global*. DOI: 10.4018/978-1-4666-0939-6.ch002 Retrieved from <https://www.researchgate.net/publication/288443155>
- Commonwealth, (2017). Curriculum Framework for the Sustainable Development Goals. ECOSOC (United Nations Economic and Social Council, (2016). *Progress towards the Sustainable Development Goals: Report of the Secretary-General*, ECOSOC, New York, NY.
- Ferguson, T., Ilisko, D., Roofe, C. and Hill, S. (2019). *SDG4 – Quality education*. Emerald publishing, Howard House, Wagon Lane, Bingley, UK.
- International Telecommunication Union/UNESCO United Nations Educational, Scientific and Cultural Organization. (2015). *The State of Broadband 2015*. UNESCO, Geneva.
- Kekić, D., and Miladinović, S. (2016). *Functioning of educational system during an outbreak of acute infectious diseases*. Retrieved from: <https://www.researchgate.net/publication/309728224>.
- Klapper, L. El-Zoghbi, M., and Hess, J. (2016). *Achieving the sustainable development goals: The role of financial inclusion*. United Nations Secretary Generals Special Advocate for Inclusive Finance for Development. Washington, DC.
- NCDC, (2020). Infection Prevention and Control; Recommendations during Health Care Provision for Suspected and Confirmed Cases of COVID-19.
- NCDC, (2020). NCDC COVID-19 Case Update and Situation Report.
- Ngogi, E.M. (2020). *The Impact of Covid-19 Pandemic on Education: Navigating Forward the Pedagogy of Blended Learning*. University of Pretoria, South Africa, 5,4-9.
- Sarumi, A.A. (2001). *Contemporary Issues in Historical Foundations of Adult Education*. Ibadan University Press, Publishing House, University of Ibadan. ISBN: 978-978-8456-03-2
- The Sentinel Digital Desk (2020). Literacy Teaching, Learning in COVID-19 Crisis and Beyond.

The State of Victoria Department of Education and Early Childhood Development (2012). *Blended learning: A synthesis of research findings in Victorian education 2006-2011*. Ultranet and digital Learning Branch DEECD, Melbourne.

The Sustainable Development Report (2019). *United Nations*, New York

UN, (2015). Universal Declaration of Human Rights

UN, (2020). Sustainable Development Goals; Goal 4; Quality Education

UNDP, (2020). COVID-19 Pandemic: Humanity needs leadership and solidarity to defeat the coronavirus.

UNESCO. (2020). COVID-19: a global crisis for teaching and learning. Retrieved from <https://en.unesco.org/news/startling-digital-divides-distance-learning-emerge>

UNICEF, (2020). UNICEF Nigeria Newsletter on Education and COVID-19.

United Nations, (2020). Policy Brief: Education during COVID-19 and Beyond..

World Economic Forum, (2020). 'COVID-19 has Exposed the Education Divide in Nigeria. This is how we Can Close it'.

Profiles of the Authors

Rashid A. Aderinoye is a Professor of Adult and Open Distance Learning. He was at a time Focal Person on Preventive Education against HIV/AIDS at UNESCO Abuja Office. He was a Fellow of UNESCO to International Literacy Institute (ILI) UPEN, USA. A Fellow of British Council under the University of Ibadan and University of Nottingham, UK. His research areas include Adult Literacy, Open Distance Education, Community Development and Life Improvement Skills.

Rosheedat O. Adeniji is currently a Ph.D. student in the Department of Adult Education, University of Ibadan. Her area of interest is in adult literacy, training, and development. Her B.Ed. and M.Ed. degrees are in Adult Education and Adult Literacy, Training and Development, respectively. She has a certificate in Blended Learning Practice from the Commonwealth of Learning and Athabasca University, Canada.

Solomon O. Ojedeji is a doctoral student in the Department of Adult Education, University of Ibadan. His Ph.D. research is in literacy, training, and development with bias for manipulating mobile technology for facilitator professional development. He is an Expert in Blended Learning Practice, with certification jointly by the Commonwealth of Learning and Athabasca University, Canada.