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Impact of COVID-19 pandemic on Education in Nigeria: Implications for Policy and Practice of e-learning

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ABSTRACT

Education is among the sectors with devastating impact of COVID-19 pandemic. Before the pandemic, the Nigerian education system has adopted purely, face-to-face approached to teaching and learning in primary and secondary schools. Primary and secondary school learners were not allowed to own any digital gadget such as phone or computer, neither were they allowed to be seen with such in the schools. With the emergence of the lockdown condition and school closure, following the COVID-19 pandemic, both teachers and learners were helpless about how to continue learning in the face of the pandemic. This study investigated the challenges posed by, and the impacts of COVID-19 on Education in Nigeria. A sequential exploratory mixed method design was adopted for the study. Results showed that the challenges of education during the COVID-19 pandemic include school closure, poor learning, unequal access to education opportunities and poor skills. Further, the pandemic negatively impacts education, causing poor school enrollment, inequality in education, poor achievement, poor school health and challenges in school assessment and transition. It was concluded that COVID-19 has negatively affected education in Nigeria. Implications for practice policy and practice of electronic learning (e-learning) were discussed.

Keywords: COVID-19, Education, Education stakeholders, E-learning, Learners

INTRODUCTION

The importance of education to human development has been well documented, highlighting the catalytic roles of education in national and human capital developments (Fägerlind & Saha, 2016; Griffin, Care & McGaw, 2012). Education is a means of self-development through learning, knowledge, skills, and habits conveyed across generations. The importance of education for the economic, social and moral development of nations cannot be under-estimated. It is of significant concern that education at all levels has been threatened since the emergence of the novel coronavirus disease 2019 (COVID-19). The coronavirus disease is a highly infectious disease that has plagued the world population over the months from December 2019 till date. The disease spread through droplets (World Health Organization, 2020) and has affected more than 9.1 million persons, and resulted in about 473,000 deaths worldwide (Aljazeera News, 2020) as at the time of writing this paper. As a result, countries have relied on several containment measures, including a range of physical and social distancing measures to flatten the epidemiological curve and avert morbidity and mortality due to COVID-19 (Barasa et al., 2020; Viner et al., 2020).

Different countries have engaged in various measures to implement physical distancing, such as complete closure of the economy, including educational institutions (Nicola et al., 2020; UNESCO, 2020). The pandemic is affecting all levels of the education system, from pre-school to higher education, in a manner that is of irreparable educational and economic implications (Lindzon, 2020). For instance, a four-week school closure in New York City translated to an economic impact of about \$10.6 and \$47.1 billion (Lindzon, 2020). A 12-week nationwide school closure cost 1% of GDP (Araz et al., 2012), while protracted closures could cost 3% of UK GDP (Keogh-Brown et al., 2010).

Though school closure is intended to control the spread of the virus within schools, prevent carriage to other vulnerable individuals, and sustain public health, these closures have had widespread socioeconomic impacts (Lindzon, 2020; Wren-Lewis, 2020; Cauchemez et al., 2009). Furthermore, the far-reaching effects of social/physical distancing and the associated lockdown measures, as well as school closures, have thwarted the education sector and are expected to leave an indelible mark on the education system (Impey, 2020; Yinka & Adebayo, 2020; Nicola et al., 2020). Over 188 out of 195 countries have been implementing nationwide school closures and restricted education facilities (Nicola et al., 2020; UNESCO, 2020). It is estimated that more than 1,576, 021, 858, which constitute about 91.3% of all the learners across the globe, have been affected by the closure of educational institutions (Fong et al., 2020; Nicola et al., 2020; Sadique Adams & Edmunds, 2008; Brown et al., 2011; UNESCO, 2020). Apart from the impact on learners, school closures have high economic, health and social costs (Cauchemez et al., 2009; Brown et al., 2011; Wu et al., 2010).

Timely responses have been in place in most countries, such as Australia, Italy, Germany, Hong Kong, with regard to online learning before the pandemic (Crawford et al., 2020). Yet, researchers have shown that the pandemic has posed significant challenges to education in such countries (Crawford et al., 2020). Hence, it is expected that the pandemic would have a more adverse effect on schools that had no online learning platforms before the pandemic (Zhong, 2020; Kachra & Brown, 2019). Zar et al. (2020) pointed out that the indirect effects of the pandemic include disrupted schooling and lack of access to school, more especially in low and medium-income countries.

In low and medium-income countries, the impact of COVID-19 is particularly threatening to education given that education systems have been working on substandard

platforms (Dan-Nwafor et al., 2020; Yinka & Adebayo, 2020). It is also challenging in overcrowded resource constrained schools in these regions to provide a safe learning environment for students (Zar et al., 2020). The pandemic has a peculiar dissipating impact on education in Africa and other countries through decreased level of education, broadened existing divide in learning access and outcomes and increased school dropouts (Blundell et al., 2020; Dorn et al., 2020). In Nigeria, the threat posed to education is compounded due to peculiar vulnerabilities, including poor health systems, poverty and inequality, hunger, internally displaced populations, high population densities, urban-rural divide and out-of-school population (Obiako & Adeniran, 2020). Prior to COVID-19, Nigeria accounts for one in every five of the world's out-of-school children. About 10.5 million children aged 5-14 years in Nigeria were out of school, and only about 61 % of 6 to 11-year-old children receive primary school education on a regular basis (UNICEF Nigeria, n.d.). Hence, while Nigeria is battling with underlying educational challenges that have kept the country behind in getting young people ready for the dynamic workplace (Dan-Nwafor et al., 2020; Obiako & Adeniran, 2020; Yinka & Adebayo, 2020), COVID-19 impacts further exacerbate this problem.

Following the COVID-19 pandemic, all schools in Nigeria were closed from March 27, 2020, as one of the Federal Government measures to limit the spread of the disease. This translated to a contextualized state-wide school closure across the 36 states in the country. In response, different states' Ministries of Education have been releasing modalities for radio and TV schooling and internet-based learning for students in public primary and secondary schools. Though these efforts could be effective, with experience from developed countries, it can amount to a far-reaching negative impact on the education system in developing low-income countries like Nigeria (Obiako & Adeniran, 2020). For instance, as the COVID-19 pandemic is

revolutionizing digital and online education globally, primary and secondary school learners in rural and under-served communities remain behind due to lack of skills and resources to adapt or transition to the new learning avenues. In addition, university students who may have the skills to undertake internet-based learning face poor internet infrastructure and a lack of reliable electricity supplies (Crawford et al., 2020; Zhong, 2020). Thus, learning remotely (including radio, TV schooling, and online learning apps for primary and secondary learners, virtual libraries and online classes in the universities) is practically not feasible in most Nigerian communities. Poorly resourced institutions and socially disadvantaged learners where limited access to technology and the internet, as well as students' inability to engage in an online environment, undermine Government response (Zhong, 2020).

Obiako and Adeniran, 2020 (2020) found that the pandemic has impacted education in three major ways, including missed learning for the majority of the pre-pandemic students, loss of access to vital school-provided services and leaving more kids behind. Thus, these impacts are likely to widen the gaps in education quality and socioeconomic equality following the school closures in the country. This is because a lesser percentage of learners who are in the urban areas, who are likely to hail from higher-income families, stand more chance to access education during school closure through technology (Obiako & Adeniran, 2020), leaving behind the majority of learners from poor homes and underserved rural and suburban areas of the country (Zhong, 2020). Apart from this, learners in schools that lack the resources or capacity to transition to online delivery are currently missing learning (Leung & Sharma, 2020).

Learning within the homes could also be a challenge or present challenges for learning. Such depends on parents' educational attainment and other commitments, leaving a greater percentage of the learners' population behind. These problems constitute considerable concerns

from all stakeholders in education (Crawford et al., 2020). Hence, even though most states in the country are currently responding through radio and television, a good fraction of the learners are still experiencing some challenges in their education. Further, to the best of researchers' knowledge, no study has investigated the impact of COVID-19 on education with particular reference to primary and secondary schools based on perspectives of education stakeholders (educators, parents and learners) in Nigeria. Therefore, this study relied on stakeholders' views to deconstruct the educational challenges posed by COVID-19 and how those challenges have impacted education and learning in primary and secondary schools.

A study of this type is timely and valuable as schools are planning to reopen across the nation. It will call the attention of the government and the exam bodies, and all stakeholders to the harm already caused by the school closures. This may be useful for planning education post-pandemic period and inform policy and practice of education. It is expected that the outcomes of this study will guide teachers and schools as schools reopen.

1.1. Research Questions

1. What are the educational challenges posed by the COVID-19 pandemic in Nigeria?
2. How do these challenges impact the education of primary and secondary school learners?

METHOD

Ethical consideration

Ethical approval was obtained from the Faculty of Education Research Ethical Committee at the University of Nigeria, Nsukka. All participants in the study received SMS and WhatsApp messages explaining the research aims and what participation would involve. In addition, all participants signed a consent form before participating in the study.

Study design

The study adopted a mixed-method approach (Onwuegbuzie & Combs, 2010). Precisely, the study followed a sequential exploratory mixed-method research design (Berman, 2017). In this type of research design, both qualitative and quantitative strands of data are collected and analyzed separately and integrated sequentially to address the research question (Creswell & Plano Clark, 2011). Hence, this study was carried out in two phases; first, interview data were collected from Leaders in Education, including five policymakers in education and 13 school heads (7 principals and 6 primary school headteachers). Secondly, data from the interview were analyzed using the thematic analysis procedure and were used to inform the questionnaire development for quantitative data. Finally, design-level integration and interpretation-level integration were carried out using data from phase 1 to inform phase 2 data (sequential exploratory design) and merging results through the final interpretation (Fetters, Curry, & Creswell 2013; Creswell & Plano Clark 2011) (*see* Figure 1).

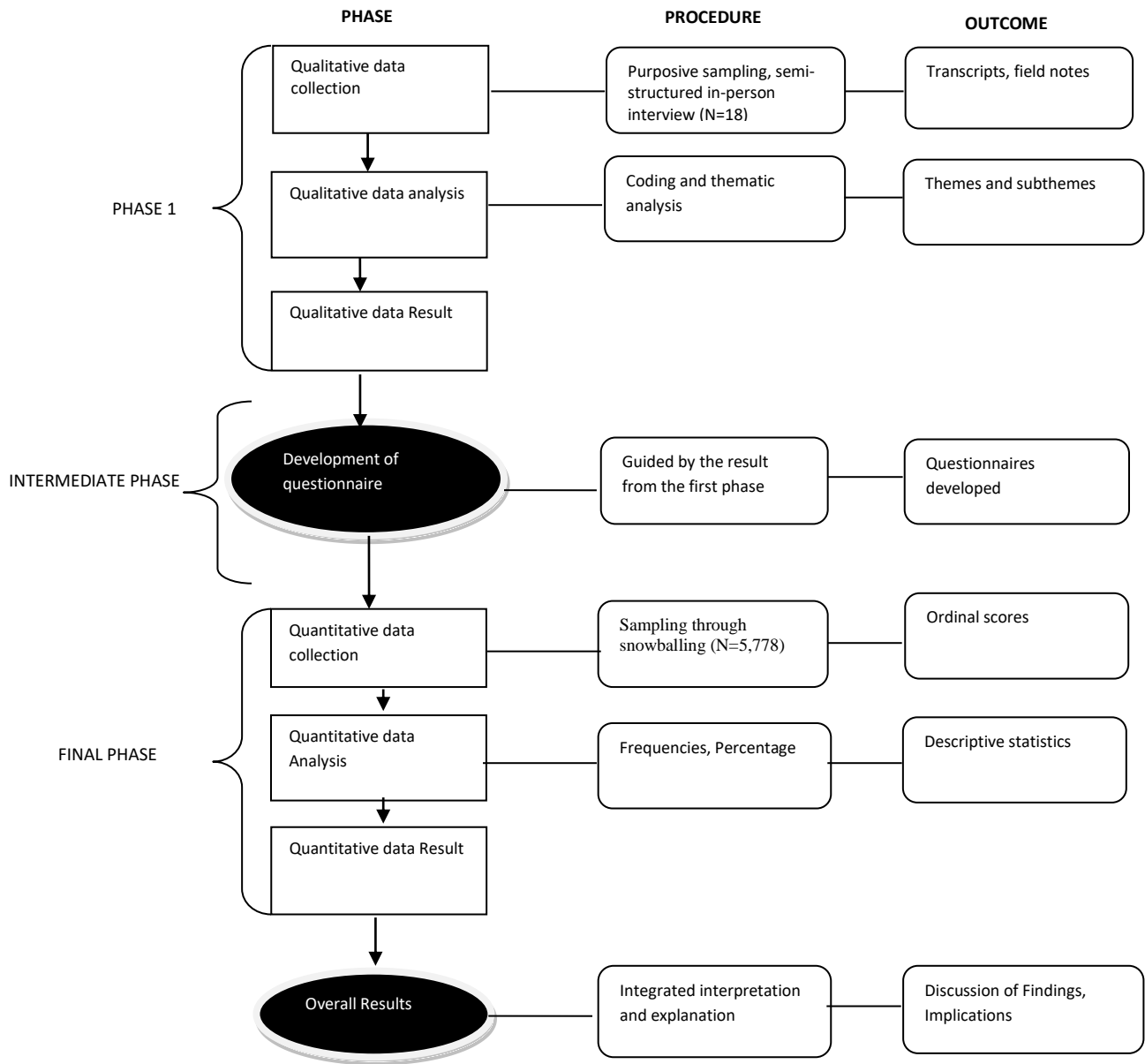


Figure 1: Mixed-method procedure for the study

Participants and Sampling

A total of 5,552 participants were drawn using multi-stage sampling techniques. First, 18 stakeholders in education (5 policymakers and 13 heads of schools) were purposively sampled to participate in the phone call interview (See Figure 3). Further, the snowball sampling technique was used to draw 5,538 prospective participants across 36 states of Nigeria to complete the online questionnaires.

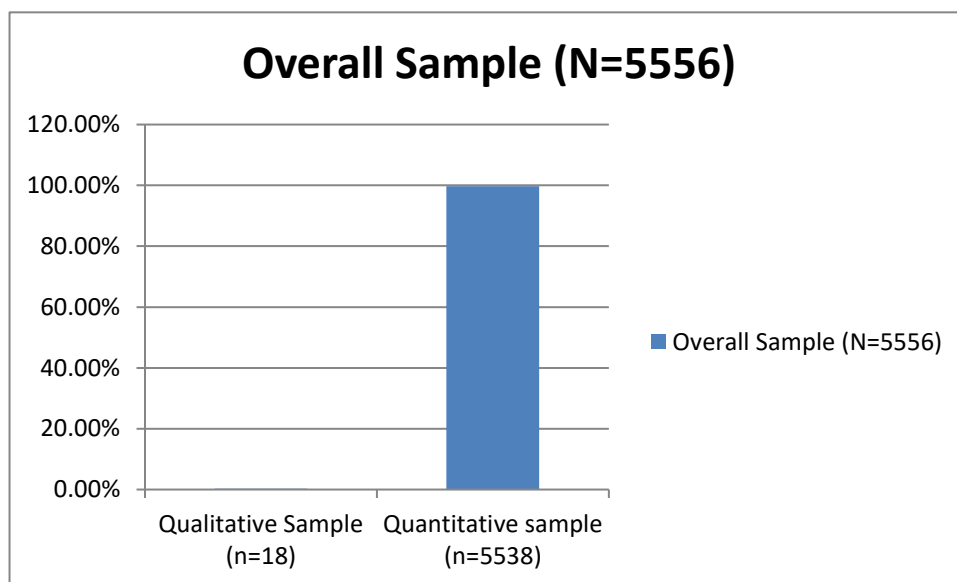


Figure 2: Sample Distribution. Out of the 5,556 participants, 18 were interviewed, while questionnaires were administered to 5,538 potential participants.

Snowballing is a method of sampling where one participant recommends others for participating in the study (Groenewald, 2004). Participants were recruited in the study following a set of inclusion criteria: 1) must be a parent, teacher or head of primary/secondary school or education policymaker; 3) perceived to be experienced, knowledgeable and informed about primary and secondary education 4) must be willing to participate and sign an informed consent. For information about the participants and distribution category, see Figure 2 and Figure 4.

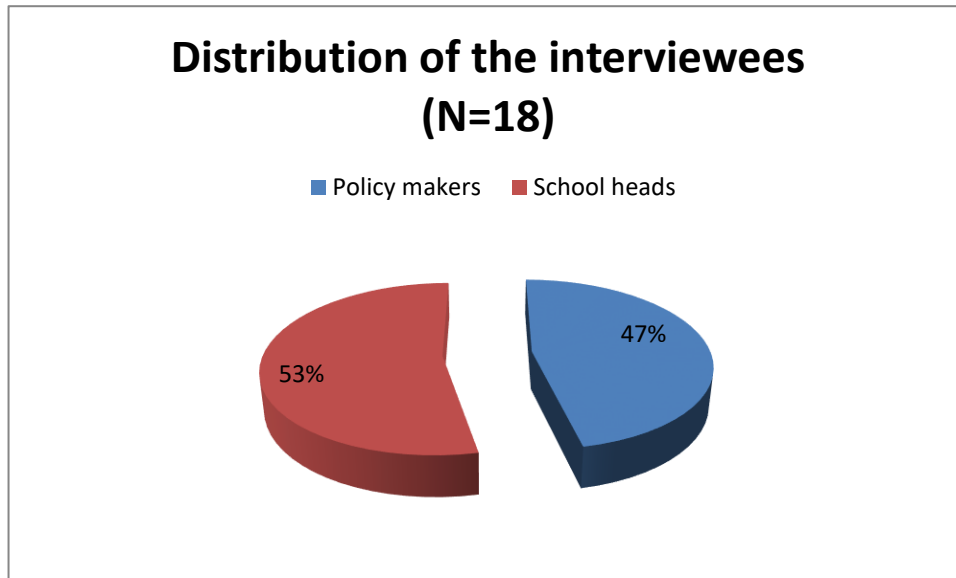


Figure 3: Distribution of Interviewees (53% were school head while 47%Policy makers).

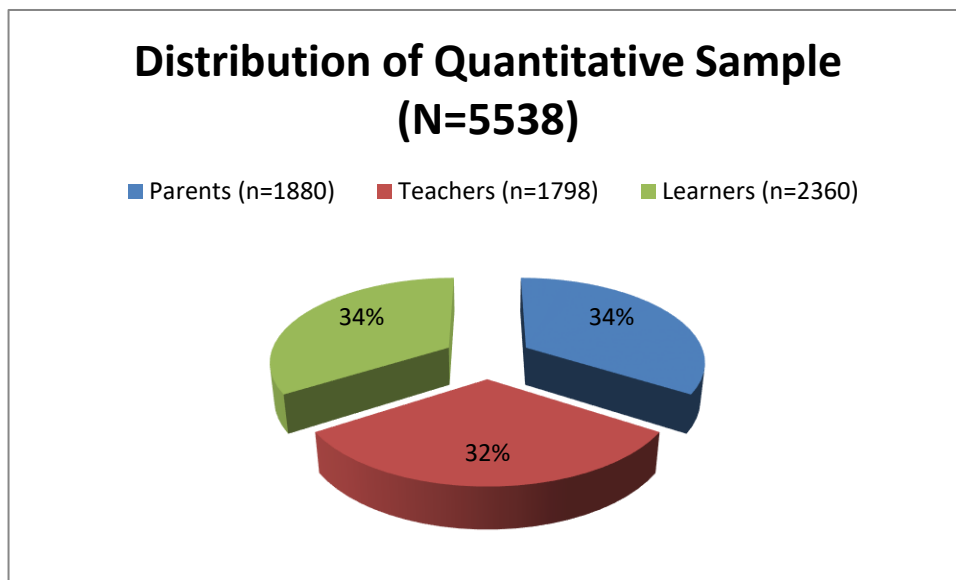


Figure 4: Distribution of Questionnaire sample (31% were parent; 30% teachers, and 39% learners).

Instruments for Data Collection

Two instruments were developed and used to collect data for the study: i) a semi-structured interview protocol; ii) COVID-19 Impact on Education Questionnaire (CIEQ).

The Semi-Structured Interview Schedule

This semi-structured interview schedule was meant to source information from administration education stakeholders, including education policymakers and primary and secondary school heads. This schedule is made up of 5 guiding open-ended questions, which enabled the researchers to probe into the participants' views, perceptions and ideas. The following are samples of the question: In your own opinion, kindly share some of the Education challenges posed by the COVID-19 pandemic in Nigerian communities; what interim action is your government taking to mitigate the impact of COVID-19 on education in your state of origin? Do you think these challenges can impact the education system?, If yes, how?; Are there educational prospects in the post-COVID-19 era in Nigeria?

COVID-19 Impact on Education Questionnaire (CIEQ)

This questionnaire developed from the basic themes of the interview was used to collect quantitative data from teachers and parents. The questionnaire is measures perceptions in two scales of "Yes" or "No" Participants were required to click on one option, as it may be appropriate in their opinion. CIEQ was prepared in three versions [parents' version (CIEQ-P), 13 items; teachers' version (CIEQ-T), 13 items; and students' version (CIEQ-S), 19 items] and were validated by 5 education experts. The three versions were trial tested in 34 parents, 37 teachers and 43 students respectively in Nigeria. It was further trial-tested for reliability across participants. It gave Cronbach Alpha values of 0.79, .83 and .77 respectively for parents' teachers' and students versions, showing that the questionnaires are reliable.

Methods of Data Collection

Qualitative data collection and analysis

In the first phase of this study, data was collected from education stakeholders, including policymakers and school heads through a phone interview. The primary qualitative data include transcripts from individual's interviews (N=18). An interview protocol was used to guide the semi-structured interviews. The qualitative data was then coded and organized into themes. This study followed the qualitative data collection and procedures described in an earlier study (Berman 2017a).

RESULTS

Quantitative data collection and analysis

Data from the qualitative phase were used to develop a survey questionnaire for the second quantitative phase of the study. The survey was deployed to participants online, through emails, and WhatsApp. There was a high response rate in the study. Out of the 5,538 questionnaires distributed, 4,933 (89%) were completed and returned, while 605 (11%) were not returned. Among the 4,933 who completed and returned their questionnaires, 1846 (98%) of the parents returned theirs, while 34 (2%) did not return theirs. In addition, 1775 (99%) of teachers responded, while only 1% was lost. Finally, students had the least response rate, with 1312 (71%) returning their questionnaires and 29% lost (See Table 1). Though there was still encouraging responses from the learners, we suspect that their relatively low response rate could be because most do not have personal computers or phones but were required to complete the questionnaires from their parents' phones or computers.

Table 1: Participants’ response rate

	Potential Participants	Responded	Did not respond	Response rate
Parents	1880	1846	34	98%
Teachers	1798	1775	23	99%
Learners	1860	1312	548	71%
Total Participants	5538	4933	605	89%

Mixed-methods data analysis and interpretation

We connected the qualitative data from phase 1 (Table 2) with the quantitative data from phase 2 (Table 3 and 4) using integrated interpretation. This strategy allowed us to link data from the 2 phases together in a bid to draw out novel impending information obtained from both quantitative and qualitative results (*see* Fetters, Curry & Creswell 2013). Sample quotes from the qualitative interviews were compared to statistical analyses results. Meeting points and disagreements between the qualitative and quantitative phases were scrutinized in the final analysis phase in order to form an overall interpretation (*see* Teddlie & Tashakkori, 2008) within the scope of the study.

Table 2: Content analysis of qualitative data

Research Question	In-person Interview Verbatim Quotes	Theme
What are the educational challenges posed by COVID-19?	I think the major issue is that no one is sure whether the children will not lose the whole of this session. My concern is that even if they learn at home, I wonder (about) the feasibility of them being evaluated for promotion.	School closure/Loss of academic session
	School closure is impacting the children’s learning; I don’t think the online efforts are working, except if it will do with time. You find out that some of them may be retrogressive. The children are denied social opportunities.	Poor learning
	Teachers and parents in Nigeria are rarely well prepared to handle online learning, thereby limiting access to education. ...yes, I am sure that learners in rural areas are less likely to access online facilities than those in the urban areas. “Online learning could segregate students based on socioeconomic factors and could pose problems in the long run”.	Poor /unequal access to educational opportunity.

	Home-schooling is not feasible in our context; the parents are under pressure of economic threat – how to meet up with daily up-keep of the family.....	Difficulties in homeschooling.
As we have embarked on our response plan in my state, the major constraint is that most teachers and parents complain of not accessing the internet and electricity. “Distance learning is almost impossible for secondary and primary school. Remember these ones before COVID-19 were not allowed to own phones and IT gadget.”	Poor/lack of technology for distance learning.
	I am certain that learners in the urban areas would be at (an) advantage. We are trying to organize radio and tele-learning in village squares for children in remote villages.	Urban-rural divides in resource distribution and access.
	The teachers are poorly equipped with the required infrastructures. Every teacher is supposed to own a laptop. I think that will go a long way.....	Poor infrastructure
	Could you believe that most teachers are novices in computer and android phones? How can such teachers engage in e-teaching?	Poor knowledge/skills on the part of the teachers and parents
	Poverty is a constraint to many families in participating in education during this lockdown.....Some cannot afford data, and others are struggling to feed their family.	Economic factors
	Negative attitude is a significant challenge to online learning. Many teachers, parents and students in Nigeria the adequacy and effectiveness of online learning and assessment. They may accept it as support but not to replace face-to-face teacher-student relationships. This poses a challenge in getting them to participate.	Poor attitude/Negative perception
What are the impacts of COVID-19 on education?	I think students in underserved areas are already beginning to go out for businesses. I am thinking of how these ones would transition to school at resumption.	Enrollment may reduce. Dropout rate may increase.
	This lockdown will actually pose a challenge in school enrolment. I know teenagers in secondary schools who are already going to urban areas for businesses. Who knows the possibility of them coming back to school?	
	Poor learning achievements are my primary concerns in the aftermath.....could widen achievement gaps between the advantaged and disadvantaged populations.	Widening achievement gaps
students will definitely not achieve as expected, and this is likely to affect external examination results....it is likely that the prolonged school closure would translate to poor achievement and mass failure in external examinations.	Poor academic achievement
	...The coping measures in the education system such as e-learning is likely to evolve into a standard approach that could increase the competitiveness of Nigerian education. I think we were too backward in technologically-based and blended learning approaches.	Transformation in the learning process.

	<p>I wonder how the children will be assessed eventually. Now, students in private schools are continuously being assessed online and those in the public schools do not observe any kind of guided or formal assessment online.</p> <p>School assessment will suffer. Together with the external examinations that are already postponed, it will be difficult to decide about promotion and students' placements eventually.</p>	<p>Assessment and Transition.</p>
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Table 3: Descriptive statistics showing parents and teachers' rating on the impact of COVID-19 on the education as measured by CIEQ-P and (CIEQ-T).

Items	Parents (n=1846)				Teachers (n=1,775)			
	Yes		No		Yes		No	
	F	%	F	%	F	%	F	%
As a parent or teacher, respond to the following statements related to how COVID-19 impact the education of learners under you.								
Challenges posed by COVID-19 pandemic to education								
Loss of academic session	1,387	75	459	25	1,209	68	566	32
Poor teaching and learning	1,846	100	0	0	1,736	98	39	2
Poor /unequal access to educational opportunity	1,703	92	143	8	1,727	97	48	3
Difficulties in home schooling	1,831	99	15	1	1,741	98	34	2
Poor internet network and electricity	1,352	73	494	27	1,673	94	102	6
Lack of technology for distance learning	1,001	74	845	26	1,429	81	346	19
Urban-rural divides in resource distribution and access.	987	53	859	47	1,716	97	59	3
Poor skills and competence for using technologies	1144	72	702	28	1,175	66	600	34
I do not believe online learning can be used for learners in primary and secondary schools	1840	99.6	6	4	1730	97	45	3
Impact of COVID-19 on Education								
Do you believe there will be increased dropout rate/ reduction in enrollment during the new academic session	1370	74	476	26	1578	89	197	11
Do you believe COVID-19 will lead to poor academic achievement /mass failure in external exams?	1513	82	333	18	1684	98	91	2
COVID-19 will impact on transition process / Promotion will be difficult due to lack of assessment	1290	70	556	30	1751	99	24	1
Do you think learners may lose what you have learnt before COVID-19?	1265	68	581	32	1001	56	774	44
COVID-19 will lead to a widening of inequality in Education	1828	99	18	1	1730	97	45	3

Table 4: Descriptive statistics showing the students' rating on the impact of COVID-19 on the education as measured by CIEQ-S.

Items	N	Yes		No	
		F	%	F	%
Challenges posed by COVID-19 pandemic to education					
My school is completely closed during this lockdown.	1312	1301	99.2	11	0.8
I am aware of or utilize a school/learning program online.	1312	798	61	514	39

I have access to educational opportunities/resources from your school during this school closure	1312	436	33	876	67
I experience difficulties schooling/learning from home	1312	1291	98	21	2
I engage in planned learning experiences at home during this COVID-19	1312	423	32	889	68
My teacher regularly communicates with me for information and support for learning at home.	1312	223	17	1089	83
Have you been assessed for promotion?	1312	10	1	13302	99
Lack of technology for distance learning.	1312	1015	77	297	23
School curriculum is accessible to me and other students for learning	1312	301	22.9	1011	77.1
I believe learning can progress successfully online	1312	119	9	1028	91
Poor internet network and electricity is a constraint to my academic activities	1312	1003	76	309	24
Does the lack of technology constrain you	1312	974	74	974	26
Poor skills and competence for using technologies	1312	437	67	875	33
Impact on Education					
There will be increased dropout rate/ reduction in enrollment during the new academic session	1312	1043	79.5	269	20.5
Covid-19 will permanently limit social ties between teachers, learners and peers (School contacts)	1312	129	9.8	1183	90.2
COVID-19 will lead to poor academic achievement /mass failure in external exams?	1312	1184	89	128	11
COVID-19 will impact transition process / promotion will be difficult	1312	1125	85.7	187	14.3
COVID-19 may impact the education of some learners more than others	1312	881	66	421	44
COVID-19 has affected assessments	1312	937	71	375	29
Do you think you are losing what you have learnt before COVID-19?	1317	1013	87	304	23

Educational challenges posed by COVID-19 pandemic

The interviewees pointed out the challenges and barriers to education imposed by COVID-19 to include school closure/loss of academic session, poor learning, and unequal access to education opportunities and difficulties associated with homeschooling, urban-rural divides in resource distribution and poor knowledge/skills on the part of the teachers and parents.

School closure/loss of academic session

Quantitative data shows that parents (75%) and teachers (68%) believe that the students are likely to lose a school session or be strongly challenged due to COVID-19 pandemic school closure. To support this, data from the student participants (Table 3) indicate that 99.2% of the students are staying at home for about two school Terms due to complete school closure. This could mean that students are not certain whether they will be promoted from their present grade.

An exemplary quote from the qualitative data also shows uncertainty in students being promoted to the next grade levels and the associated modalities such as assessment.

“I think the major issue is that no one is sure whether the children would not lose the whole of this session. My concern is that even if they learn at home, it may not be feasible for them to be uniformly evaluated for promotion”.

One of the participants interviewed discussed the negative implication of school closure on the students and the stakeholder. He stated that the school closure could lead to irreversible academic, economic and social challenges for the children, families and society.

“...this school closure is capable of causing decreased physical activities on the students, poor mental health, sedentary behaviour and tele-addiction, poor nutrition, and elevated risk of abuse and neglect” The school closure is of worst of all the challenges the pandemic has created to education and”

This is similar to the other studies that have outlined the negative impact of school closure (Chen, Huang, Chuang, Chiu & Kuo, 2011; Esposito, & Principi, 2020; Selbervik, 2020) and COVID-19 on the education system (Ogunode, 2020). Furthermore, Burzynska and Contreras (2020) pointed out that the school closure during the COVID-19 pandemic will widen the gender gap through girl-child abuse and neglect. In addition, Francis and Pegg (2020) alluded that school closures have halted school nutritional program in some localities in Nigeria. Van Lancker and Parolin (2020) observed that COVID-19 is a social crisis which has resulted in school closures, a situation that is impacting the education of approximately 80% of school-age children globally.

Poor learning

All the parents (100%) and a majority of the teachers (98%) are worried about poor learning among the students, and 98% of the students submitted that they experience challenges in learning from home. From the qualitative quote:

“school closure is impacting on the children’s learning and achievement; I don’t think the online efforts are working, except if it will do with time” “For now, getting involved in effective online teaching and learning is almost impossible for average Nigerian in primary or secondary schools, unless those in private schools”.

This implies that the stakeholders are of the opinion that online learning cannot completely stand in for the regular school contacts, especially for primary and secondary schools in Nigeria. This is similar to what Selbervik (2020) outlined as barriers related to school closure in developing countries. Oboh, Ighiwiyisi and Oboh (2020) found that students in secondary school poorly utilized available online teaching and learning process.

Poor/unequal access to education opportunities

Poor/unequal access to education opportunities was also identified and confirmed as a major challenge to education and learning during COVID-19. The qualitative data in Table 1 show that there is poor access due to poor infrastructures such as technological gadgets, electricity and network issues that are almost general issues in Nigeria.

“Teachers and parents in Nigeria are rarely well prepared to handle online learning thereby limiting access to education” “. ...yes, I am sure that learners in the rural areas are less likely to access online facilities than those in the urban”.

Supporting this claim, 92% of the parents and 97% of the teachers believed that poor/unequal access to educational material is a challenge to the educational progress during COVID-19. In the same vein, 67% of the students do not access educational materials from their school during the school closure, 98 experience difficulties schooling from home while 68% of the students who participated in the study do not engage in any planned learning experiences, and 83% have no communication with their teachers since the school closure. Further, 99% of the students have not received any assessment for their promotion.

These indicated that majority of the students are poorly connected or have poor access to learning opportunities during the pandemic. Poor access has also been stated in earlier studies

(Francis & Pegg, 2020; Obiakor & Adeniran, 2020). This could be that as learning became strictly online, poor funding and poor competence on the part of the students and the teachers, insufficient resources and access to educational materials might have limited the possibility of effective access to education (Habibu, Abdullah-Al-Mamun & Clement, 2012), especially in developing countries like Nigeria. Additionally, external variables, such as accessibility to the internet and constant power failure, inhibit e-learning assessment (Klenowski, 2011; Mafenya, 2016). This suggests that in Nigeria and other developing countries, where the internet and power supply are big huddles, e-learning during a pandemic may not be feasible or may be divided according to social class.

Difficulties in homeschooling

Difficulties in homeschooling the learners was identified in qualitative data and strengthened in quantitative data. Interview data showed that effective homeschooling is difficult for both the parents and the learners, and in isolation, does not support considerable academic growth.

Homeschooling is not feasible in our context, the parents are under pressure of economic threat – how to meet up with daily up-keep of the family..... “parents are meant to help follow-up what has already been done in the school, not to stand in as a teacher.”

Majority of the parents (99%) and teachers (98%) agreed that having to homeschool the children is difficult and constitute a considerable challenge. Almost all the students (98%) also submitted that they encounter difficulties learning from home, and only about 35% of the sample engaged in planned learning experience, with the majority others (65%) not into any serious learning experiences from home. The difficulty in homeschooling means that what is learnt individually from home cannot serve as the basis for making educational decisions in terms of promotion and placement (Kaden, 2020). Since homeschooling depends to a great extent on the parents' educational level, and other factors like socioeconomic factors, as well as attitude of those

involved, it will be difficult to ascertain the extent of achievement (Brom et al., 2020). There will also be an achievement divide in the direction of parental involvement. Brom et al. (2020), in a study of parents of children in Grades 1–9 in the Czech Republic, found that parents complained about lack of time, issues with technologies, and inadequate teaching skills and content knowledge as challenges they face in homeschooling the children.

Poor/lack of technology for distance learning

Though the use of technology such as phones, television, and radio for online learning is being acclaimed by the government who introduced diverse initiatives during the school closure period, the participants in this study underlined the lack of or unavailability of supporting technologies for learners in primary and secondary schools and their parents. Moreover, these technologies are unaffordable to a majority of families with school-age children.

...As we have embarked on our response plan in my state, the major constraint is that most teachers and parents complain of not accessing the internet and electricity. “Distance learning is almost impossible for secondary and primary school. Remember these ones before COVID-19 were not allowed to own phones and IT gadget” (Table 1)

“The teachers are poorly equipped with the required infrastructures. Every teacher is supposed to own a laptop. I think that will go a long way.....”

Furthermore, 74% of parents and 82% of teachers (Table 2) who participated in the study agreed that poor access to technology is a considerable constraint to education during the school closure period. 77% of the learners have lack of technology as a challenge. This indicates that only a small percentage (23%) of the students are were engaged in online learning during the period of school closure (see Table 3). This is not unexpected, given that the need for distance learning during schools closure could overwhelm existing technologies for remote education. Transitioning learning from classrooms to homes may need a period of preparation in making available the enabling technologies (UNESCO, 2020). When majority of the learners and teachers lack the tools for virtual learning, it is practically impossible to embark on distance

learning (Anene, Imam, & Odumuh, 2014; Iqbal, & Ahmad, 2010; Olutola, & Olatoye, 2015). The pandemic caught the education sector off guard, so there are no guidelines for planning and delivering online learning for primary and secondary schools (Phelps & Sperry, 2020). Therefore, this research outcome necessitates the provision of technological tools for learning in all primary and secondary schools. In a thematic analysis of teachers' perception of online learning during COVID-19 in Indonesia, Aliyyah et al. (2020) found four themes, including instructional strategies, challenges, support, and motivation of teachers.

Urban-rural divides in resource distribution and access.

Our study shows that the difference in educational resources between the urban and rural areas is a challenge to effective education during COVID-19 school closure. For example, 53% of the parents and 59% of the teachers indicated they are affected by the urban-rural disparity in access to educational resources. Further, the majority of the students also submitted that they experience problems associated with poor access, such as poor internet network and electricity (76%) and poor skills and competence for using technologies (67%). These tend to suggest poor access among the students, parents, and teachers residing in rural areas. Additionally, the qualitative has an exemplary quote:

“I am certain that learners in the urban areas would be at (an) advantage. We are trying to organize radio and tele-learning in village squares for children in remote villages. However, there are challenges associated, in that one wonders if social distancing can be strictly observed.”

In this respects, Studies have outlined the unequal effect of location on different dimensions of Education (Karlidag-Dennis, Hazenberg & Dinh, 2020). One of the major effects of COVID19 has been on exacerbating inequities in education. Much has been made of alternative forms of learning, such as online classrooms, web-based courses, and homeschooling, but these are

inaccessible to most children in rural areas and those from poor economic backgrounds (Akseer, Kandru, Keats, & Bhutta, 2020; Simba et al., 2020).

Poor knowledge/skills on the part of the teachers and parents

Poor knowledge was identified by 74% of the parents and 66% of the teachers as a significant challenge to learning in primary and secondary schools. Supporting this result, qualitative information shows that most teachers are not skilled in using e-learning facilities:

“Could you believe that most teachers are novices in computer and android phones? How can such teachers engage in e-teaching?”

This concurs with Eze, Chinedu-Eze and Bello (2018) who indicated that e-learning facilities are under-utilized in most public tertiary institutions in Nigeria due to challenges including lack of / inadequate training of users. Further, adopting e-learning during this COVID-19 pandemic demands up-skilling the users within a short time (Ali, 2020; Anu, 2020). This is because e-learning is complex (Vingsle, 2014), and developing and implementing online information to plan instruction is challenging (Andersson & Palm, 2018; Schneider & Meyer, 2012). Hence, given the unexpected nature of the COVID-19 outbreak, most teachers, parents and learners were not prepared for e-learning, especially in primary and secondary schools where it was rarely used before the pandemic.

Poor/Negative attitude

Negative attitude is a significant challenge to online learning. Many teachers, parents and students in Nigeria doubt the adequacy and effectiveness of online learning and assessment. They may accept it as support but not to replace face-to-face teacher-student relationships. This poses a challenge in getting them to participate.

Furthermore, parents (99.6%), teachers (97%), and the students (91%) disclosed that they do not believe that online learning may not be effective for learning in primary and secondary schools. This finding concurs with Aliyyah et al.’s (2020) finding that online learning for primary school

has limitations. Other results related to that of the present study suggest that teachers and learners' poor perception affects online learning success. Hence, online learning can only be effective when it is a collaborative effort of the teachers, parents, learners, the community and the Government (Aliyyah et al. 2020)

Impacts of the Pandemic

Enrollment may reduce, and the dropout rate may increase.

Interview data identified that the school closure would be of negative impact on students' enrollment. In addition, the participants noted that many students would be lost to teenage pregnancy, businesses and other distractions.

“I am certain, students in underserved areas are already beginning to go out for businesses; I am thinking of how these ones would transition to school at resumption.”

“This lockdown will actually pose a challenge in school enrolment. I know teenagers in secondary schools who are already going to urban areas for businesses. Who knows the possibility of them coming back to school?”

Furthermore, a good number of teachers (74%) and parents (89%) also supported that the school closure will result in high dropout and poor enrollment in secondary schools after the pandemic. In this respect, it is a challenge to guarantee students return and stay in school when schools reopen. This is particularly the case of protracted closures such as the present one, when the associated economic stress causes school children to work and generate income for their family upkeep (Oboh, Ighiwiysi & Oboh, 2020). Apart from this, students could lose interest in school with longer stay at home (Oboh, Ighiwiysi & Oboh, 2020; Scott, 2020; Soland, Kuhfeld, Tarasawa, Johnson, Ruzek & Liu, 2020; Williamson, Eynon & Potter, 2020).

Widening achievement gaps and inequality in education

Inequality in education has been found to get widened with the protracted school closure in Nigeria. Vulnerable populations such as those with learning disabilities, students from low

socioeconomic backgrounds, and those in rural areas are considered to be experiencing unequal challenges to their learning compared to their counterparts, without disabilities, from high socioeconomic backgrounds and urban areas.

“Yes, poor learning achievements are my primary concern in the aftermath.....but, the staying at home could widen achievement gaps between the advantaged and disadvantaged populations”.

This statement was supported by parents (99%), teachers (97%) and the students (66%) who agreed that school closure would have an unequal impact on learners. Before the COVID-19, inequality in education has been identified as a major challenge of education in Nigeria and other developing countries (Nwogu, 2015; Olibie, Eziuzo & Enueme, 2013; Onwuameze, 2013). One of the major effects of COVID19 has been on exacerbating these inequities in education. The alternative forms of learning, such as online classrooms, web-based courses, and homeschooling, are inaccessible to most children in disadvantaged groups. Women and girls who often experience the highest illiteracy rates and school dropouts are further incapacitated and underprivileged (Phelps & Sperry, 2020).

Additionally, students from poor backgrounds and those from rural areas are more vulnerable. In Nigeria, school opportunity is correlated to income level, and public schools differ from private schools in the populations they serve (Oboh, Ighiwiyisi & Oboh , 2020). Hence, until the schools are reopened, majority of students, especially those in public schools, will not be learning. Thus, this will have a longer-term impact of deepening educational inequality, such as inequality in access to educational resources during the school close. The inequity in access could add to the existing disparities in learning achievements along socioeconomic lines and the urban-rural divide. Moreover, for students with learning disabilities and those living in fragile and conflict-affected regions, the effect is more depressing. Given the technological scenery and the apparent

digital divide, distance learning opportunities are available but are underutilized by students in public schools (Oboh, Ighiwiyisi & Oboh, 2020).

Poor academic achievement

Our finding showed that the current school closure would result in poor academic achievement in primary and secondary school learners. Furthermore, according to data from the interview, the poor achievement of the students will affect their performances in both external and internal examinations.

....students will definitely not achieve as expected, and this is likely to affect internal and external examination results....it is likely that the prolonged school closure would translate to poor achievement and mass failure in external examinations.

Majority of the teachers (68%) and parents (56%) believed that the students are already losing what they have learnt before the school closure due to a long stay at home. Since e-learning for primary and secondary schools students in Nigeria has been rated as a very poor method of teaching (Ngwu, 2015; Onolemhenmhen, 2014; Tunmibi, Aregbesola, Adejobi & Ibrahim, 2015; Eguavoen, 2016; Ubulom, Kayii & Dambo, 2016; Oboh, Ighiwiyisi & Oboh, 2020; Wylie & Lyon, 2015), it is likely that most students may not make effective use of it. On the other hand, those who utilize online learning rarely agree that they have learned all they need to know because the ongoing assessment has not been effective (Oboh, Ighiwiyisi & Oboh, 2020). The results of this study is also consistent with rising pieces of research which found that e-learning results in poor students' achievement in primary and secondary schools in Nigeria (Onolemhenmhen, 2014; Tunmibi, Aregbesola, Adejobi & Ibrahim, 2015; Olson et al., 2011; Ngwu, 2015; Eguavoen, 2016; Ubulom, Kayii & Dambo, 2016).

Impact on school assessment and transition

The study results showed that the school closure has negatively affected school assessments and transition from one grade level to another. As one of the interviewees has it:

“I wonder how the children will be assessed eventually. Now, some private schools are continuously being assessed online and those in the public school do not observe any kind of guided or formal assessment online”.

“School assessment will suffer! Together with the external examinations which are already postponed, it will be difficult to make a decision about promotion and students’ placements eventually.”

About 70% of the parents, 90% of the teachers and 71% of the students believed that school closure negatively impacts assessment and promotion. Similarly, UNESCO (2020) recorded that 58 out of 84 countries postponed or rescheduled their exams, 23 introduced alternative methods such as online or home-based testing, 22 maintained exams, while in 11 countries, they were cancelled altogether. Unfortunately, this is not the case in Nigeria as it is impracticable for Nigerian secondary and primary schools to take an online examination, especially those in government-owned schools. This suggests that we need to assess learners’ progress to identify learning gaps and offer remedial and accelerated learning and assessment when schools reopen. For high-stake exams such as intermediate, school leaving and university entrance exams, the disruption has impacted timing and is expected to affect students’ performance in those examinations. Since students’ transition across educational levels is dependent on such examinations, skipping or postponing those exams will affect successful transition in schools. For instance, Carlsson et al. (2015) stated that spending different number of days to prepare for important exams affects performance. The authors found that just ten days difference in schooling can make a significant difference in test scores and use of knowledge. Difficulties associated with online assessment can also hinder the implementation of e-learning (Bennett, 2011), and without evaluation, education cannot be effective.

CONCLUSION

This study aimed to explore the impact of COVID-19 on primary and secondary education in Nigeria. We have done so through interviews and questionnaires, with particular attention to the challenges and difficulties and how it has impacted different dimensions of the school. We found that during COVID-19, education was faced with many challenges in Nigeria, such as school closure/loss of academic session, poor learning, poor/unequal access to education opportunities, difficulties associated with homeschooling, poor/lack of technology for distance learning, urban-rural divides in resource distribution and access, poor knowledge/skills on the part of the teachers and parents. In addition, we observed that COVID-19 negatively impacted school enrollment and created or widened achievement gaps and inequality in education, among others.

Implications of the Study for Policy and Practice of e-learning

The present study's findings have implications for education policy, practice, and development regarding pathways to the adoption of e-learning or digital learning. Firstly, as the schools are gradually reopening, there is the need to re-think education in the areas of what, where, how and when learners should learn. In addition, information and communication technology is gradually revolutionizing learning and teaching at all levels. Therefore, students in primary and secondary schools should be introduced to IT-enhanced learning approaches such as blended learning, computer-assisted learning, and technologies.

Hence, there is an increasing need to revalidate and adapt teaching and learning methods for all learners. This will help overcome access and poor learning during emergency situations in the future and ensure that distance barriers do not hinder education and academic sessions will not be threatened. As such, it is necessary that primary and secondary schools be provided with

online infrastructure, learning resources, learning tools. If the learners and the teachers are well skilled and equipped with ICT gadgets, learning can occur irrespective of time and distance. School funding is necessary and will be of utmost significance in respect of e-learning under emergency.

As schools reopen, efforts are needed to reduce the gaps between urban and rural schools in learning and the provision of e-learning resources for enhanced learning. This can be ensured by providing learning materials and resources online and providing internet facilities to rural areas for learners from low economic backgrounds. For instance, in China, Portugal, efforts are being made by the governments to give computers to students from low-income households and offered mobile data packages and telecommunication subsidies.

Mobile learning materials such as working sheets can be delivered through postal services to students who do not have access to the internet at homes. Though some states in Nigeria embarked on local media channels such as radio programs, this study suggests that the program was ineffective due to logistics and lack of access. Additionally, the government can provide supports such as solar-powered educational devices, pre-loaded with offline academic resources, to students in disadvantaged and vulnerable communities to alleviate the negative impact of the pandemic on education.

The skill challenges found in this study suggest there is a glaring need for training services for teachers and students and cooperation between government, enterprises, and schools. Teachers and learner need training on ICTs and e-learning facilities as to how they can be used to support learning. Both in-service teachers and the student teachers in educational institutions should be well trained in blended teaching and learning method.

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