A simplified report on

“Harnessing EdTech in Africa: Scoping Study

GLOBAL CAMPAIGN FOR EDUCATION
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BRAIN BUILDERS YOUTH DEVELOPMENT INITIATIVE

Table of Contents

Executive Summary

The research titled "Harnessing EdTech in Africa Scoping Study" was a publication of the Global Campaign for Education and was authored by Dr Ronda Železný-Green & Hannah Metcalfe on behalf of the GCE with the support from German Cooperation, European Union, Enabel and GIZ. The scooping study was conducted to understand how EdTech was harnessed in eight countries: Botswana, Burundi, the Democratic Republic of the Congo (DRC), Madagascar, Malawi, Namibia, Rwanda, and Zambia. It identified the effectiveness of the EdTech, Big Tech involvement, and challenges of EdTech during Covid19 pandemic. This simplified report also identified key findings from the 'Harnessing EdTech in Africa Scoping Study.' This is to ascertain what lessons can be learned as well as drawing from the Nigeria case study which was not part of the scooping for policy recommendations. The findings show that globally, school closures during the covid-19 pandemic compelled education systems to adopt several approaches such as radio, TV, and online tools for remote learning. These approaches vary according to countries and regions, especially in low-income and middle-income countries. While there was evidence of the involvement of Big Tech in the EdTech implementation across the countries, it was discovered that countries faced similar challenges when implementing EdTech. This includes poor preparedness, poor internet access, unstructured lesson for radio programmes, lack of electricity, lack of awareness of EdTech, non-inclusive learning content, teachers' poor capacity, lack of proper synergy between the public and private sectors EdTech and lack of a comprehensive EdTech policy. It was discovered that despite various EdTech efforts deployed during the covid-19 pandemic, the effectiveness of EdTech in the eight countries is low. It was demonstrated that infrastructural facilities, student and parent digital literacy, gender mainstreaming, insecurity, poverty, regional disparity, ad internet affordability are some of the factors that need to be considered when implementing EdTech.

Introduction

In today's world, education has moved beyond the four walls of the classroom, it has moved beyond the heavy desktop computers as well as the general usual paper-based learning to a more seamless approach that allows the learners received lessons at their convenience and location through technological tools such as radio, TV, online platforms (Apps, website, Zoom, Google Meet, fakebook, YouTube and Zoom etc). As technology continues to be infused in the global educational system, learning becomes so easier, and more accessible. Students learn at their own pace and in their style. EdTech tools make it easier for teachers to create individualized lesson plans and learning experiences that foster a sense of inclusivity and boost the learning capabilities of all students, no matter their age or learning abilities[1].

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The inevitability of education in time emergency, creates a further revolution and a new EdTech approach to continuous learning. It is forcing the current and prospective education institutions, policy markers, and education investors and managers across the level of education (primary secondary and tertiary) to think inward toward EdTech in the design and mismanagement of the education system.

Like any other part of the world, Edtech is creating an ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources to improve students' retention in sub-Saharan Africa. Through the virtual reality lesson, it is easier for the students to stay engaged through fun forms of learning. The influx of Edtech tools is increasingly and largely being deployed as a primary tool for distance learning well as educational emergency periods[2].

In essence, the changes in socioeconomic and political situations create opportunities for new ways of accessing lessons. For instance, Nigeria started Interactive Radio Instruction (IRI) in 1992 for the pastoral nomads to increase access to basic education[3]. Following the outbreak of the Ebola epidemic in 2014, several sub-Sahara Africa countries including the Democratic Republic of the Congo, Liberia, Sierra Leone etc. initiated educational radio programmes[4].

The Covid-19 pandemic emergency further intensifies these efforts across the region. The adaption to the new norm during the covid-19 pandemic is evidence of readiness and open-mindedness: the way we learn, how we interact with classmates and teachers, and our overall enthusiasm for the same subjects is not a one-size-fits-all situation. The overall mission is to achieve the Sustainable Development Goal (SDG) Goal 4 which is to ensure inclusive and equitable quality education and lifelong learning opportunities for all by 2030. Despite the significance of EdTech to achieve this goal, it is faced with fundamental challenges which if not identified and addressed through adequate investment and political will, could hinder the already progress being made. This is because the world is moving away from the old ways of learning. Therefore, this report is drawn from 'Harnessing EdTech in Africa Scoping Study' and others existing studies on EdTech on Key findings, lessons as well as the Nigeria case study which was not part of the scooping for policy recommendations.

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[1] Education Technology: What Is Edtech? A Guide. | Built In

[2] (Akash2021)

[3] UNESCO. (2016). Use of Radio in a Nomadic Education Programme, Nigeria, ttps://uil.unesco.org/case-study/effective-practices-database-litbase-0/use-radio-nomadic-education-programme-nigeria

[4] Lessons Learned about Remote Learning from Liberia's Ebola Crisis | EDC

Research Approach

The scoping study developed an evidence base on EdTech in Africa during the pandemic, pointed out continental and country-level situational analysis with a specific focus on context, trends, strengths, weaknesses, opportunities, and threats of EdTech in Botswana, Burundi, the DRC, Madagascar, Malawi, Namibia, Rwanda, and Zambia.

Research Questions the Scoping Study Seeks to Answer?

The study answered three basic research questions as stated below.

What education technologies exist in the country?

How have these technologies enhanced or hindered the right to education in the country?

What policy recommendations can be made? How can the country better harness EdTech to improve the right to education moving forward?

Focus of the Research

1 The technological tools (radio, internet, paper, cellphone, television, etc.), platforms, models, infrastructure, etc., used for education during the pandemic.

2 Access to technology, availability of technological infrastructure, socioeconomic status, data privacy, Big Tech (Global North, typically monopolistic and hegemonic companies such as Microsoft and Facebook), education privatisation, public-private partnerships, teaching and learning, teacher training, student experiences, parent involvement, home context, gender, geography was covered. It also showed some reflection on the differences between the countries of focus in this research.

3 Evidence on what has and has not worked.

Data Collection and Analysis

It is important to understand how the EdTech scoping study in African countries was conducted. The data was collected for two months with the two major sample and data collection techniques namely the Key Informant Interview (KII) - a qualitative data collection method) and the Survey - a quantitative data collection method. Fourteen (14) (female and male) were selected for the interview. The KIIs were approximately 40 minutes in length and the majority of these interviews took place over Zoom. WhatsApp was used where there was poor connectivity. Interviews with stakeholders from Burundi, the DRC and Madagascar were conducted in French and were implemented with the assistance of professional interpreters. Online Survey was also adopted to gather data from other key informants through SurveyMonkey. The survey consisted of 14 questions, 12 that were multiple-choice and two that were open-ended. the survey was implemented in both French and English. The Simple Random Sampling (SRS) method was shared with the respondents via GCE social media platforms, as well as email to specific people who were known to GCE or the research team. These people are considered experts in the field of education and work for civil society organisations that GCE works closely with. The data generated through KIIs were considered from both intersectional and decolonial perspectives.
Counter-storytelling was also used to present the findings from the data collection phase. The use of counter-storytelling was found significant when data from the KIIs and online survey were considered alongside the findings that emerged from the continental literature review. This is because of the disparity between what was written in the literature prior covid19 about how EdTech was harnessed during the COVID-19 pandemic and what was said by people who lived through the pandemic in the eight countries of focus.

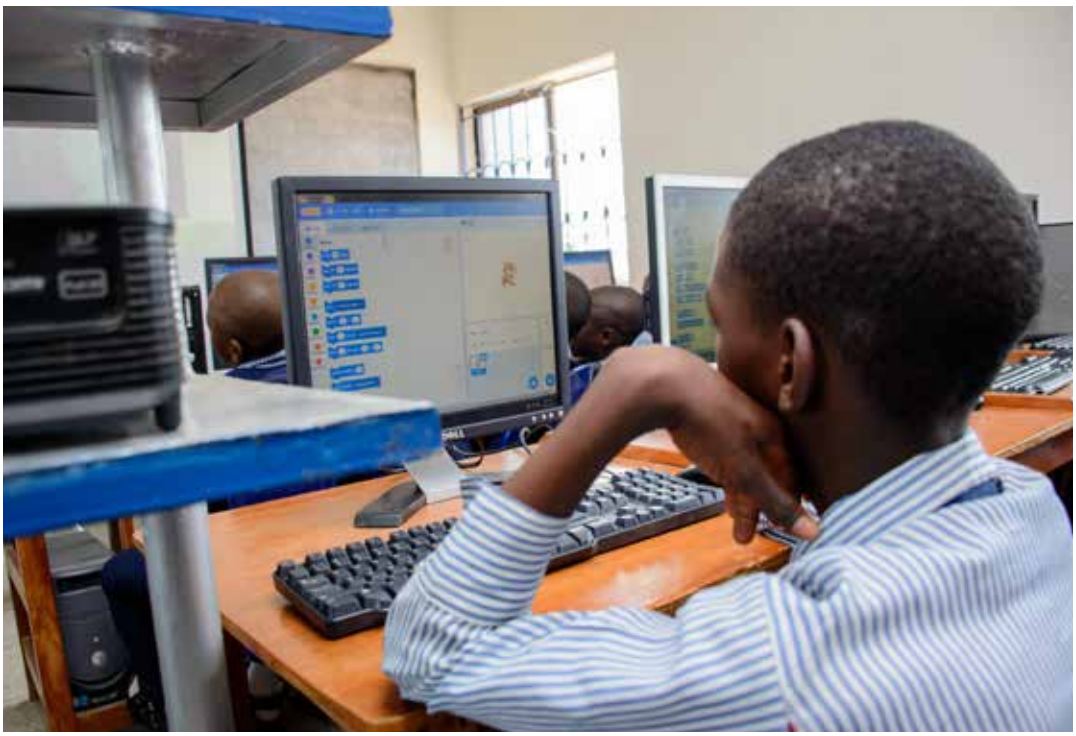
Edtech in Africa Scoping Study Research Limitation

1. Interviews were conducted in English and French, and not in the participants' mother tongue.
2. The research was conducted remotely using internet-based tools like Zoom and WhatsApp.
3. Interview participants were GCE stakeholders with an existing relationship.
4. Only one key informant was interviewed from Malawi and the DRC.
5. The two researchers selected for the work are feminists. Both are Western and have been influenced by Western thinking.
6. Interpreters were relied on to conduct the interviews with Francophone study participants. In essence. more may have been said than interpreted.

Understanding Edtech

Education Technology or EdTech is the combined use of computer hardware, software and educational theory and practice to facilitate learning.

Education Technology or EdTech is the combined use of computer hardware, software and educational theory and practice to facilitate learning. It creates, uses and manages technological processes and educational resources to help improve user academic performance. EdTech involve the intergradation of new technological tools for efficient and effective school management system and educational goals attainment[5]. Depending on what purpose it is intended to serve, Edtech takes different forms within or outside the classroom, including educational apps and games, podcasts, learning management systems (LMS), video conferencing software like Zoom, and online discussion forums, social media (Facebook), radio and TV programmes to name just a few[6].



[5] What Is Educational Technology In Education? | General Assembly
[6] What is EdTech (Education Technology)? | National University (nu.edu)

Situation Analysis

The findings from the online survey showed that there was a lockdown in DRC, Madagascar, Malawi, Namibia, and Rwanda. However, in Burundi and Zambia, this was not the case. While schools were closed in all these countries, the findings of the report showed that there was no school closure in Zambia. In Madagascar, children did not have the opportunity to continue their education while schools were closed but in other countries, the report showed that children had the opportunity to continue their education while schools were closed. In DRC, the interviewees said that they know that 90% of learners were completely cut off from teaching and learning, with only 10% able to continue distance learning.

One of the most significant impacts, according to interviewees, was the large number of learners who lost interest in continuing their education after being at home for such a long time, with many not returning after schools re-opened. The impact of school closure on girls' child education was also very alarming. It was evident that when schools re-opened, a large number of learners, mainly girls, did not come back to school. It was reported that there was an increase in early marriage, and a significant number of the girls who were married off became pregnant when they were away from school during the lockdown in DRC. In Malawi, the report revealed that prior to the pandemic, there were roughly 5000 teenage pregnancies in any given year. However, in the eight months between the first and second wave of COVID-19 in 2020. Also, 45,000 teenage pregnancies were reported. Interviewees said that there 25,000 child marriages were reported between the first and second wave of COVID-19 in 2020.

How Edtech was Harnessed During Covid19 Pandemic

The Edtech was harnessed by sub-Saharan African countries using different approaches as related to their specific country's readiness, available educational opportunities, and challenges.

Findings from the Continental-Wide Review

Multi-Modal Approach

Countries harnessed multiples of EdTech such as radio technology Television, Radio, Phone SMS, WhatsApp, Google Meet and Zoom, and Paper-Based take-home schooling packages to keep learning afloat and students engaged during the pandemic. Countries like Mozambique, Senegal, and Kenya used this approach where two or three combinations of efforts are used to get the students engaged educationally during the pandemic. Mozambique combines TV programming with sign language, and radio content in Portuguese and indigenous languages and also distributed paper-based materials for children to study on their own. Senegal Kenya government combined television, radio, and pre-recorded online lessons. Namibia's media mix for distance learning included radio, television, paper, SMS and social media, learning platforms provided by others, and platforms created by the government (Rodriguez, Cobo, Muñoz-Najar & Sánchez, 2020; Dreesen et al., 2020).

Public-private partnership

Although the private sector plays a key role during the lockdown, by complementing the government efforts through various initiatives and funding support, they do not take the lead in EdTech efforts. The effort to continue learning during the pandemic was largely driven by the government. The role of the private sector was usually limited in scope.

Paper-based learning approach

Despite the closure of the school, several countries adopted paper-based learning where educational materials were distributed to the learners. This approach was found useful in Botswana, Burundi, DRC, and Madagascar. Malawi, Namibia, and Zambia.

Key Findings from KIIs on EdTech Solution

Burundi

EdTech initiatives were planned in Burundi but not developed or rolled out yet as of the time the interview was conducted.

Democratic Republic of Congo

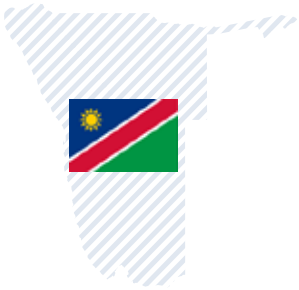
The initiative launched by schools in DRC to use technology to support learning during school closure was very low. The government put in place an online application that supported continued learning with support from UNICEF. With this support, educational lessons were offered on radio and television. There was also digital learning solution Vodaeduc and SchoolAp where learners accessed lessons free of charge using a mobile phone. The first initiative was set up by Vodacom DRC. It was intended for families who had children and allowed children to go online to see what lessons were available. The platform allowed families to connect to the Vodacom network and access educational content. The second was a weblink that provided school resources that could be used to keep children busy with exercises and materials. Even though initiatives were offered by private sector players, the government was in charge of implementation, because the initiatives were developed with the support of experts from the Ministry of Education.

Madagascar

National television was used for a few classes for primary school and people who were about to sit the Grade 7 exam. TV was the main learning platform for both direct classes and classes and re-broadcasted classes. According to the report, TV broadcasts were an initiative of a multinational enterprise (MNE).

Malawi

The use of EdTech in Malawi during the COVID-19 lockdown was low. The government introduced an online learning platform through the government website. This required data bundles for access and this was not free. Due to this, children from poor backgrounds could not access the learning channels. It must also be noted that lessons were delivered through national radio stations.



Namibia

The government made provision to upskill teachers for online teaching during the pandemic. There was an introduction of radio lessons and educational content through television broadcasts by the government. According to the report, the student also introduced independent peer learning mechanisms such as WhatsApp for knowledge exchange. Teachers created groups with learners and parents to share educational activities. In the absence of personal smartphones, parents' devise was used to reach the learners. It was stated harnessing EdTech in Namibia for learning was viewed as a lifeline and a new frontier for exploration.

Rwanda

Radio and TV were adopted to deliver core government-approved syllabus and lessons to the learners. The Rwandan Education Board launched an online platform to allow students to provide feedback and access learning materials. A few schools were able to create homework and assignments that were sent via WhatsApp and other social media platforms. Several WhatsApp groups were created informally for both learners and teachers. According to the report, Rwanda also partnered with telecom and internet providers for free online lessons for the learners. It was observed that continued learning efforts were mainly driven by the government. Private schools used WhatsApp as an alternative learning platform for their students.

Zambia

The government adopted radio and television as the main channel for offering continued learning. With support from the Global Partnership for Education, studios were built in the 10 provinces in Zambia. This allowed teachers to walk into the studios and begin teaching immediately. The lessons were broadcasted on National Broadcasting TV. The National Broadcasting Corporation provided a channel for teaching and lessons later became available on DSTV. Other private TV content providers were also used. The government also partnered with independent radio stations for broadcast in other provinces.

Effectiveness of the Edtech During Covid-19 Pandemic

80%

of the survey participants stated that they were unaware of the EdTech and paper-based initiatives that the government had tried to roll out.

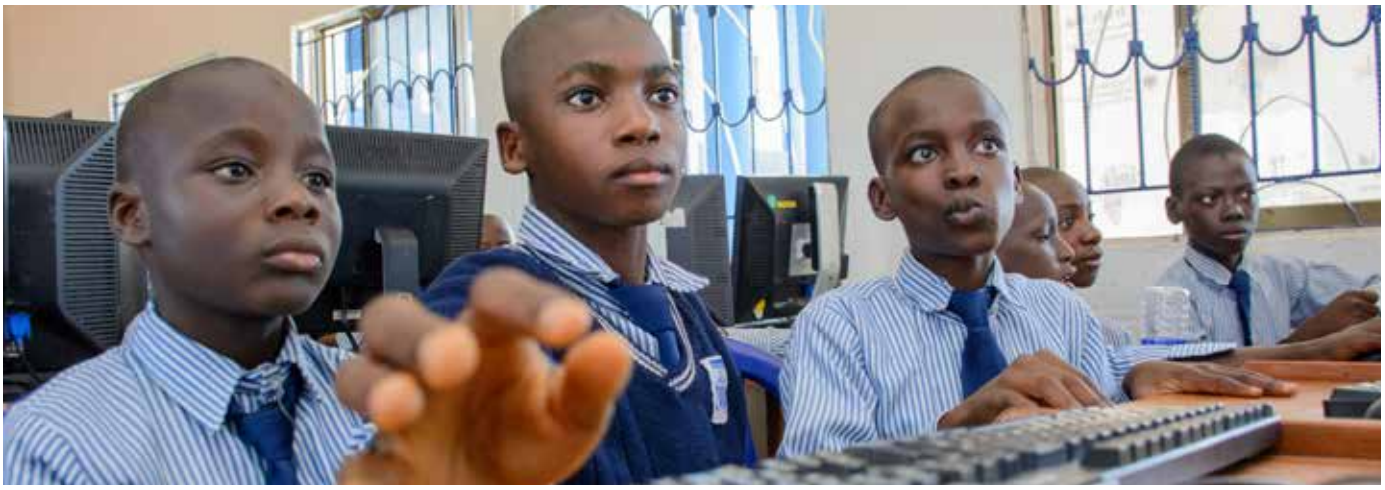
The report showed that EdTech initiatives of any type had very little impact on learners in DRC. In essence, 80% of the survey participants stated that they were unaware of the EdTech and paper-based initiatives that the government had tried to roll out. In Madagascar, the report revealed that EdTech was not effective. This was to a lack of sensitization on its use. It was also claimed that a significant number of the population does not have access to modern technologies such as access to TV, radio, laptops, computers, or mobile phones. Malawi recorded an effective distribution of printed materials in certain parts of the country for continued learning but other use of other EdTech faced serious challenges in terms of access. In Namibia, the report noted that most schools are not connected to the internet. It was revealed 60% of the schools have at least 20 computers. Schools in remote areas hardly have internet access. This makes EdTech unsuccessful in such an area. It was estimated that less than 30% of the efforts to help continued learning were effective. On other hand, the report identified radio as the most saucerful in terms of reach in Zambia. Overall, the effectiveness of EdTech in the eight countries was low.

Involvement of Big Tech

The report advocated for the introduction of EdTech offerings from Big Tech and foreign technology companies since they knew from experience that the use of social media platforms enabled educational continuity for some learners.

It could be observed from the report that big tech players could help to influence the policy-makers to work harder to harness all the technology tools. They could also support countries by providing digital school kits for learners. The report advocated for the introduction of EdTech offerings from Big Tech and foreign technology companies since they knew from experience that the use of social media platforms enabled educational continuity for some learners. Also, big tech needs to be encouraged to provide specific data services for educational purposes.

Identified Policy Issues



Harnessing EdTech in Africa:

...in DRC "90% of learners were completely cut off from teaching and learning, with only 10% able to continue distance learning".

Scoping Study report identified various reasons why many EdTech are not successful in sus-Saharan Africa during covid19 pandemic. One of these is poor preparedness. Despite the fact these countries have historical records of the use of EdTech in learning prior Covid19 pandemic, there was no readiness for its full incorporation into the educational curriculum, especially to support m to support distance learning. Moreso, there is a poor internet connection. Apart from Rwanda with the highest uptake of both internet and digital device (specifically mobile phones) access, at 90% and 75% of the total population respectively (Duarte & IMF, 2021), many of these countries have low internet coverage among the population. In most cases, the rural community is cut off from the internet due to access to mobile infrastructure that allows access to the internet. An interview participant in DRC was reported to have said that "90% of learners were completely cut off from teaching and learning, with only 10% (the majority in the private international education system) able to continue distance learning". There were high internet and connectivity issues by the learners. In Rwanda, the online portal was only available to those who had

According to the World Bank, the sub-Saharan Africa region has one of the lowest electricity access rates of 48.4% globally in 2020.

access to the internet. The participants estimated that only about 40% of the urban population had access, but it was significantly lower in rural areas than in urban areas. Internet was not always reliable; therefore, many struggled with connectivity. Radio and TV signals were also not very reliable. This situation was not different in Madagascar where only 19.4% of the population had internet access (5.45 million people) (Kemp, 2021).
There was a problem with unstructured lessons for radio programmes. In DRC, the majority of learners did not follow the radio lessons.

According to the report, they were not structured appropriately. Also, the use of radio and television for learning did not always accommodate feedback o the issues of lack of feedback. In most cases, where learners are connected to the radio, programme, they could only listen, they cannot reach out to the presenter for feedback. Indeed, it was a one-way learning experience for the learners. In the same vein, lack of access to learning channels was an issue in Malawi. Here, children from poor backgrounds could not access the learning channels due to expensive data bundles.

There was also the issue of lack of electricity, especially in rural areas. Electricity problems were identified as a key barrier to participation in the EdTech program in all eight countries researched, and while these were mainly seen in the rural areas, there were also significant challenges in urban areas. According to the World Bank, the sub-Saharan Africa region has one of the lowest electricity access rates of 48.4%[7] globally in 2020. Not only does a low energy access rate hinder sustainable development, but it also results in several socioeconomic problems[8].

Moreso, non-inclusive learning content was also evident: In Malawi, the report revealed that many subjects were not included in the resource materials on the website, according to the report. The content of the radio national radio station content did not consider children with a disability, for example, children who are deaf or blind. In Madagascar, the Ministry of National Education tried to do some classes via radio and television broadcasts; but it was not easy because the technology deployed was not adapted for the children. According to the report, they were using movie actors as learners in classrooms.

[7] Access to electricity (% of population) - Sub-Saharan Africa | Data (worldbank.org)
[8] Electricity access in sub-saharan Africa: World Bank report – Clean Energy 4 Africa
[9] Lessons from Botswana on Continuing Learner Engagement During Covid-19 — REACH at Harvard Graduate School of Education

The absence of a comprehensive EdTech policy was also a big fallout for most of the states

Teachers' capacity on EdTech. In addition, teachers at primary and secondary schools and even universities could not ensure continued learning using technology platforms. Apart from the teacher's lack of digital skills, the government and other education players were not sufficiently equipped to develop and upload online content resources. In Botswana, most teachers had no training or experience with remote teaching and learning[9].

Lack of proper synergy between the public and private sectors EdTech. Although there is evidence of a partnership between the government and the private sector, there were low coordinated efforts among various stakeholders to critically carry out a need assessment when covid-19 pandemic broke out to design a comprehensive means to deal with the need of the learners who unexpectedly found themselves at home. Thus, the tutors, learners, and some policy actors saw the pandemic as an opportunity not to do anything.

The absence of a comprehensive EdTech policy was also a big fallout for most of the states, especially for a period like this. For instance, the educational curriculum of all the subjects in primary, secondary, and in most cases tertiary education is not designed to be virtual. So, it was very difficult for children to learn virtually for the first time in their life and not to see their teachers physically or to go online to access materials instead of the usual classroom note writing approach. In Nigeria, and other sub-Saharan African countries, it was a difficult time for the children to adapt to the new norm. This was especially for the children who had never accessed EdTech.

Box 1: Factors to Consider When Implementing EdTECH

- Children Safety
- Internet affordability
- Poverty level
- Regional disparity
- Access to technology
- Teachers' digital literacy level: Teachers should be technologically skilled. They should also undergo extensive information technology training so that they can be empowered to share their knowledge with learners
- Availability of EdTech policy and implementation level
- Current public and private sector investment in EdTech and Availability of Resources
- Parents digital literacy
- Infrastructural facility.
- Cyber security of learners:
- Natural disasters, other infectious diseases, conflict, and extreme weather periods could lead to mass school closures
- Gender issue

Gender Mainstreaming in Edtech in Sub-saharan Africa

Women and girls continue to be most likely marginalised and at-risk populations during health emergencies such as COVID-19. Previous reports related to emergency crises indicated that outbreaks worsen the existing vulnerability of girls and women. It creates new ones and increases gender and social inequality (UNFPA, 2020; Krug & World Vision, 2020). It could be observed in all countries researched, that the school closure impacted the girl child. According to the report, there was a significant increase in child marriage and teenage pregnancy rates. Parents also refused to send their girls' child to school due to financial challenges. "If we are to prioritise online learning in the future, there must be sufficient training and awareness for girls on how to navigate this space and stay safe". In Zambia, Campaign for Female Education (CAMFED) made use of WhatsApp, Google Meet, and Zoom to perform well-being checks on the girls in their network and to facilitate learning delivery, where possible (FHI360, 2021).

Apart from the efforts of the CAMFED in Zambia, there is no identified EdTech programme specifically for girls and women in the scooping report. In essence, most of the EdTech is not gender sensitive. A gender-sensitive EdTech policy is key to ensuring girls' student retention and enrolment rates in school during health emergencies or other natural disasters that are capable of causing school closure.

The Nigeria Case Study

Although Nigeria was not a focus in the report, evidence shows that Nigeria through the Federal Ministry of Education and its agency, the Universal Basic Education Commission initiated a Coordinated Response Task Team for a Learn at Home Programme for its 40 million learners, 91% of whom are in primary and secondary schools and 10.5 million of the country's children aged 5–14 years (UNESCO, 2020) (FMoE, 2020). At the Federal level, Learn at Home Programme created two e-learning portals, schoolgate.ng and mobileclassroom.com.ng, which, in partnership with local mobile internet service providers, permits subscription-free access to primary and secondary school students. The government in partnership with UNESCO also created a platform called School Meet the Learner Approach freely available on many platforms, including radio, television and YouTube.

Box 2: Other Evidences EdTech Efforts

Npower Teach EdTech Initiative

The use of EdTech is not new in Nigeria's educational system. In 2017, the Federal government of Nigeria distributed thousands of Npower Teach tablets namely Afrione 2in1, Speed Window, Zinox Zpad, Tecno pad, Samsung Tab E, RLG, and Floss Signature Tablets with full packed teaching materials across subjects. This is more tutor centered, students and non-Npower teachers at the primary and secondary schools were not part of the beneficiaries[11].

Nomadic Interactive Radio Instruction (IRI)

Here, Radio listening groups was established and function in the same way as mobile learning circles. Started in 1992 to improve learners' enrolment and attendance, the aim is to increase student enrolment. 1996, the Federal Radio Corporation of Nigeria in Kaduna allocated a 30-minute slot of air time to the Commission, through which it transmits a magazine programme entitled "Don Makiyaya a Ruga" (For the Nomads in their Homestead)[12]. The radio programme is participatory. The listening groups listen to this programme and respond using a feedback mechanism set up to monitor the programme's effectiveness. Thereafter, a radio curriculum for the adult component of Interactive Radio Instruction (IRI) was developed in the year 2000, based on which 13 episodes of radio programmes were produced. All the episodes were broadcast to the radio listening groups, regarded as learning centres, in each of the 36 states of the Federation and the Federal Capital Territory (FCT). According to UNESCO (2016), the success of the adult component of the IRI programme led to the launch of a school-based programme, in South Africa through the Opening Learning Systems Education Trust (OLSET) model[13].

Edo-Best@Home

Edo Basic Education Sector Transformation (EdoBEST) program improve learning outcomes for over 250,000 children across over 800 public primary schools in Edo State in Nigeria before the covid-19 pandemic. During the pandemic, Edo state launched Edo-BEST@Home, a public-private partnership between Edo

[11] Npower is a World Bank supported Social Investment Porgrammes Launched in Nigeria in 2016.
[12] Use of Radio in a Nomadic Education Programme, Nigeria | UIL (unesco.org)
[13] Use of Radio in a Nomadic Education Programme, Nigeria | UIL (unesco.org)

state, the World Bank, and Bridge International Academies. The initiative provides a fully online remote learning program that can be accessed through a computer or mobile phone and includes interactive audio lessons, digital self-study activity packets, digital storybooks, mobile interactive quizzes, and virtual classrooms. Under the programme, an existing coaching program for teachers was strengthened and adapted for remote delivery. Coaches support teachers while they are using Edo-BEST@Home platform and the virtual classrooms. Teachers can answer students' questions through the virtual classrooms, grade students' homework and provide feedback, and communicate with both students and parents through phone calls, text messages, and WhatsApp[14]. (World Bank 2021)

AGILE Project

AGILE Stands for the Adolescent Girls Initiative for Learning and Empowerment Project. It is a World Bank $500 million assisted project aims at improving secondary education opportunities among girls in targeted areas in participating states (Katsina, Kano, Kebbi, Zamfara, Jigawa, Sokoto, and Borno states). It was approved in 2020 during covid19 with an implementation timeline of 5 years (2021-2025). The project has three components.

1. The first component, Creating Safe and Accessible Learning Spaces,
2. Fostering an enabling environment for girls
3. Project management and system strengthening (World Bank 2020)

Under the second component, it is expected that girls are empowered with critical life skills and knowledge for navigating adulthood and digital literacy skill. The activities include digital literacy training and a remote learning platform. Digital literacy training will equip students with digital literacy skills and knowledge that include:

a) using digital mobile devices;
b) searching, locating, assessing and critically evaluating information found on the web;
c) navigating successfully the non-linear medium of digital space;

[14] World Bank Document

d) learning, reading and deducing information from visuals and audio;
e) creating new learning outputs using digital technology;
f) accessing online content; and
g) networking and collaborating[15]. (World Bank 2020)

There will be provision of online safety to prevent adolescents from predatorial behavior and exploitation. It will be provided on electronic tablets with relevant applications and an internet connection. It is expected that students will receive at least two to three hours of basic digital literacy training per week. The project finances costs and equipment for the training, appropriate applications and internet connectivity. (World Bank 2020)
Today, the budgetary allocation for AGILE project has increased from N14bn in 2022 to N53bn in the Proposed 2023 budget estimates of the Federal government of Nigeria[16].

At the State level, there was scaled-up learning via local television and radio, based on the secondary curriculum, and encouraged input from non-governmental organizations and private sector. Some NGOs and the private sector actors such as ULesson and Teach for Nigeria turned up by providing capacity-building training for teachers and commenced a programme of infrastructure development to facilitate virtual learning, ULession in particular created a low-cost learning platform on handheld devices that focused on junior secondary science subjects.

[15] World Bank, (2020). Adolescent Girls Initiative for Learning and Empowerment Project, A Project Appraisal Document.
[16] FGN Approved 2022 and Proposed 2023 Budget Estimates, Budget Office of the Federation.

Policy Recommendations

01 Training of teachers on how they could use EdTech tools in classroom activities. This should be a continuous process and should be incorporated into the teaching professional training manure.

02 EdTech should be considered an effective mechanism for supporting learning, whether or not there is a pandemic. This will create a sense of familiarization for the government, teachers and pupils. Schools should from time-to-time deployed EdTech in the day-to-day class activities.

03 While the provision of electricity is very important, the government should encourage the use of solar energy in schools as an alternative power supply, especially in hard-to-reach rural communities where electricity is non-existence. This should be supported with the EdTech devices such as tablets. A one-pupil-one tablet is also possible and could go a long way to address EdTech gap in schools.

04 There should be awareness campaigns, workshops, and information sessions to help implement EdTech programmes.

05 A need assessment is very important to understand which part of the countries already have space in EdTech implementation and which is still struggling. This is necessary for a viable and beneficiary policy-specific intervention.

06 Removal of taxes from devices like laptops, desktop computers, and mobile phones for EdTech to succeed due to affordability considerations is recognized as a viable option for improving EdTech in sub-Saharan Africa.

07 The government should partner with telecom providers to provide free data bundles for learners to access learning content online.

07 Introduce ICT lessons to the curriculum to support distance learning.

08 Strengthening the efforts to reform policy and regulatory frameworks to make broadband access more affordable, accessible, and universal needs to be accompanied by skills development, to exploit technological advancements fully (Alper & Miktus, 2019).

Conclusion

This study helped to show that the impact of technology on schools, teaching and learning has been strictly limited in Botswana, Burundi, the DRC, Madagascar, Malawi, Namibia, Rwanda, and Zambia as well as the Nigeria case study. During the pandemic, the lack of syntropic distance learning and the absence of a universal opportunity to participate in learning activities facilitated by digital means, when and where needed, and irrespective of personal circumstances, became a global phenomenon. In turn, the circumstances served as an accelerant to compel governments, especially in Sub-Saharan African countries to urgently initiate EdTech so that students from pre-primary to tertiary can continue their studies. Despite efforts by these countries to provide quality education for their students through Multi-Modal Approach, Public-private partnership and Paper-based learning approach challenges still proved a stumbling block. Evidence from this study shows that for EdTech to work and be fully operational in these countries, there is a need for governments to partner with relevant stakeholders to bring EdTech to reality to actualize Sustainable Development Goal 4.

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