

## Summary: Harnessing EdTech In Africa



A scoping study authored by Dr Ronda Železný-Green & Hannah Metcalfe on behalf of the Global Campaign for Education

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### 1 Introduction: Education in a pandemic – the context of this research

In March 2020, the World Health Organization (WHO) declared the outbreak of COVID-19 a global pandemic. The WHO advised urgent emergency action to be taken if it was to be contained. To slow the rate of virus transmission, schools the world over began to close or cease face to face education.

#### The problem

According to UNICEF, an estimated 1.6 billion learners in 190 countries were impacted by school closure; remaining at home without access to structured learning, social protection, or other benefits that school attendance offers (UNICEF, 2020).

Governments around the world made a commitment two decades ago to remove barriers to education for their children. Access to education is not the same for all and in different societies, there are disparities among people of different social status, through the digital divide, social class, and racial discrimination, gender and economic disparities. Coupled with these disparities, some argue that the focus of investment in Africa has

#### Overview

This study asked how, if at all, EdTech was being harnessed in seven countries of focus:

- Burundi
- the DRC
- Madagascar
- Malawi
- Namibia
- Rwanda and
- Zambia

The countries were chosen by GIZ the German agency for international cooperation for sustainable development and international education work and Enabel, the Belgian development agency.

This research aimed to:

Explore how access to education was, if at all, being maintained during the pandemic.

Provide key policy recommendations related to education technology for the countries researched.

Provide general observations on EdTech in the sub-Saharan Africa region.

To better inform advocacy work that protects the right to education in each of the eight African countries and works towards closing the digital divide.

To highlight how best national education coalitions can protect the right to education and to explore whether leveraging technology helps or could help them further this goal.

### **Global Digital Divide**

The pandemic's forced transition to alternative means of education delivery meant that there were large groups of children who were excluded from digital learning delivery. Barriers to their participation included

- Internet access was either unavailable
- Families did not have the digital devices needed to make use of the internet
- The internet was not affordable

This global digital divide was more often than not worse for children who are Black, Brown, indigenous, and/or female.

We will be especially conscious of the gender component of the digital divide, as men are much more likely to access the internet than women, leading to a global digital gender gap in access. This ultimately means that any policy or project to get more people online will fail unless interventions address this gap and offer mechanisms that enable equitable access.

### **EdTech**

The term technology refers to radio, internet, paper, cellphone, television, etc. Education technology (EdTech) refers then to the technology used in service of/for the purposes of education. EdTech is the combined use of computer hardware, software, and educational theory and practice to facilitate learning. In-classroom tablets, interactive projection screens and whiteboards, online content delivery are all examples of Edtech.

### **Big Tech**

Refers to the major technology companies such as Apple, Google, Amazon, Facebook, and Microsoft, which have a disproportionate amount of power and influence on the global technology industry.

continued to focus too much on introducing new waves of technologies in environments that are often resource-poor and not enough focus on pedagogy. Some argue that for the African education system to move forward the focus needs to be on ICT training for teachers and building overall ICT capacity.

The lack of focus on pedagogy and ICT training for teachers is the very argument that we wanted to explore further in this study. Especially, to what extent our respondents feel big tech or the introduction of foreign technology companies in our research countries could hinder the basic right to education for children, especially those who are already at risk of being left behind or are being excluded from the opportunities that EdTech may offer.

There are multiple scenarios where EdTech could help facilitate educational inclusion during the pandemic, but it has also been recognised that there are instances where the use of EdTech during the pandemic can contribute to exclusion, particularly since the data already suggests the pandemic has widened the digital divide. It will be important for any programme of work in EdTech in Botswana, Burundi, DRC, Madagascar, Malawi, Namibia, Rwanda and Zambia, to be careful not to exacerbate existing inequalities by (further) excluding people who might still benefit from intervention if appropriate adjustments are made to ensure equity among the participants insofar as possible.

## 2. Methodology

This study sought out to understand how, if at all, EdTech was being harnessed in the eight countries of focus. A combination of Key Informant Interviews (KIIs) and an online survey formed the foundation of the evidence base, which itself was shaped by intersectional feminist and decolonial perspectives of how EdTech was leveraged during the COVID-19 pandemic. (see full report for explanations of these approaches)

To achieve our research goals, we developed an evidence base on EdTech in Africa during the pandemic, spotlighting trends from a macro-level review of literature across the African continent before narrowing the scope of the study to the context, trends, strengths, weaknesses, opportunities, and threats at a country level review.

### Research ethics

The ethical principle of Human Subjects Protection is described by Resnik as “When conducting research on human subjects, minimise harms and risks and maximise benefits; respect human dignity, privacy, and autonomy; take special precautions with vulnerable populations; and strive to distribute the benefits and burdens of research fairly”.

This was key to the research study and so practices included anonymous data collection, informed consent and ensuring that women and marginalised groups are given the opportunity to share their opinions safely

### A comprehensive continental review

This term refers to the desk research conducted at the outset of the study to evaluate what has been written about school closures in Africa during the COVID-19 pandemic. This review covered the African continent and included material published in academic journals, research reports, and other authoritative non-academic/grey literature sources. The research focal areas were:

1. **The technological tools**
2. **Access to technology**
3. **Any evidence on what has and has not worked**

To understanding how EdTech had been harnessed the following key questions were asked:

1. What education technologies exist in the country?
2. How have these technologies enhanced or hindered access to education in the country?
3. What policy recommendations can be made? How can the country better harness education technology to improve the access to education moving forward?

### Key Informant Interviews (KIIs)

The research team conducted a total of 17 interviews. The interviewees included GCE members who represent national coalitions of organisations, regional or international organisations, or representative bodies operating in the eight research countries. A semi-structured interview was designed. The goal was to ensure that two people from each of the eight countries of focus were interviewed for the study. An online survey was also conducted using SurveyMonkey. There was also a meeting with GCE stakeholder which discussed the research.

### 3. Conceptually Framing Harnessing Education Technology in Response to COVID-19 in Africa

By adopting an intersectional feminist and decolonial perspectives as lenses through which all data is analysed, we were able to consider the data in a manner that not only centres the African children - and especially the Black and Brown girls - whose education has been most affected during the COVID-19 pandemic, but to also take a radical reinterpretation and reimagined understanding of the systems, tools, and stakeholders that have shaped education provision and continuity during this extended period of uncertainty.

Much Western and big tech conversations about tech assume that more tech, and particularly rapidly advancing tech, is always a good thing for a country in Africa. A decolonial analysis removes that presumption and instead asks, how does the collective society benefit? Our assumption instead is that tech that leaves a significant proportion of society behind, is not necessarily beneficial to society.

#### **4. Education Delivery in Africa during the COVID-19 Pandemic: a literature review**

The literature review looked across the whole of the African continent because the timeline was still mid-pandemic and research on the impact was limited. It looked at data between December 2019 and December 2021. It builds an understanding of what has been reported to have occurred during the pandemic by international researchers, international NGOs and large, multilateral organisations. Later in this report in the results, data analysis, and discussion sections, we will look at what occurred in the eight countries of focus from the perspectives of people within the GCE network who are living through the pandemic and saw first-hand how EdTech is being harnessed.

#### **Poverty**

Where the research by country refers to poverty, it does so in the understanding that such circumstances were fuelled in many cases by an extensive history of slavery and colonialism.

#### **EdTech across Africa**

Approximately 28% of people in Africa have access to and use the internet and digital technologies. In general, digital technologies have not been widely adopted on the continent due to various barriers related to cost, infrastructure (electricity, connectivity), access to devices, etc.

#### **Observations on the literature review**

Overall, the literature reviewed nearly 100 documents about how EdTech is being harnessed during the COVID-19 pandemic. Some themes include:

- All governments except Burundi had initiated some education continuance with at least one EdTech intervention. These were generally purported to reach tens or hundreds of thousands of learners.
- The approaches deployed that were identified through the literature review involved a combination of the use of education technologies including government online platforms, SMS/messaging services, mobile apps, radio, television, and even analogue with the distribution of paper-based materials. All seven countries leveraged at least two approaches as a mechanism for ensuring the reach of the interventions to as many learners as possible. Most approaches combined at least two modalities.
- Partnerships with TV and Radio stations were common and many utilised their own websites and YouTube Channels
- Some governments already had distance learning models and they used existing work as the schools closed.
- Some governments adapted to the lack of internet connectivity by also rolling out paper-based resources
- Much of the evaluation stated that lack of internet connectivity, or electricity and lack of or minimal access to devices acted as barriers to uptake of the education

Given this overview from the literature review, the major takeaways the research team had heading into the data collection was that EdTech interventions that have been purported to reach hundreds of thousands of learners are worth exploring further for their potential to be adapted and scaled further or elsewhere. Alongside this, it would be expected that, two years into the pandemic, there would be investigations carried out to demonstrate the impact of these scaled EdTech efforts, particularly where effectiveness is concerned.

## 5. Findings from Those Who Were There

Below are highlights of findings intentionally presented without analysis because this enables key informant interview and online survey participants to give voice to their lived experiences. Although several attempts were made to engage stakeholders across all eight countries, we were unable to make contact with any stakeholders from Botswana.

### Burundi

- Burundi did not introduce a COVID-19 lockdown.
- KII participants reported that even if EdTech resources had been available to teachers, they would not have known how to use them or how to provide continued learning over the internet.
- There was a feeling that EdTech should not become a vanity project and take priority over the other challenges that Burundi faces within the education system. For example, those we interviewed brought to our attention the issue of **overcrowding in classrooms** and they said that **while EdTech would be welcomed, Burundi must first address other challenges before they introduce “high-tech solutions”**.
- Those we interviewed made the point that there is a need to think proactively about how education can continue even if children cannot physically attend school. It was stated that **COVID-19 is not the only possibility for restricting school attendance** and other emergencies may prevent children from going to school. **These technologies could make a huge difference to improving educational continuity for those who might most need it.**

### The Democratic Republic of the Congo (DRC)

- The DRC implemented a lockdown in March 2020 including nationwide school closure.
- Those we spoke to said that civil society organisations reported that 14% of learners had admitted that since schools closed and lockdown was in place, they had not even opened their textbooks, or attempted any level of learning for seven months.
- All the DRC interviewees said that in general, initiatives from schools to use technology to support learning during school closure was very minimal, with interviewees estimating no more than 10 schools where EdTech was being used.
- Some schools, mostly primary, used WhatsApp to continue communicating with learners.
- Continued learning were mainly driven by government, telecom companies, and UNICEF. One approach was that learners could access lessons free of charge through mobile phones. Another initiative called [School Ap](#) was a weblink that offered school resources.

### The impact of COVID-19 on families in the eight countries:

Each country explored the barriers and impacts as they related to their own countries. However, it is important to note that the pandemic had an impact on students and their families beyond their day to day lessons, and the impact of EdTech should also be considered in this wider context.

For example, for some countries, there were not the adequate resources to manage the pandemic spread, and so such resources had to be found before education could be addressed. Many jobs stopped and the more vulnerable families quickly found themselves in severe economic crisis.

Violence against children in the home increased and many children and young people suffered from poor mental health. There was also a marked increase in teenage pregnancies and early marriages.

- Overall, the people interviewed in DRC said that most EdTech initiatives of any type had very little impact on learners. One participant recounted a survey conducted in one DRC province where 80% of the survey participants reported that they were unaware of the EdTech and paper-based initiatives that the Government had tried to roll out.

What emerged from interviews was that there were significant barriers to EdTech take up including:

- Radio broadcasts that offered no way for the learners to engage with the lesson
- A lack of electricity hampered access to educational TV lessons, especially in rural areas
- Civil society organisations (CSOs) were viewed by informants as very “timid” to suggest or pursue EdTech interventions for continuing education, since the CSOs themselves were not aware of what would be possible or effective when using technology
- Resource distribution and awareness was really lacking
- There are many areas in DRC where there is no telecom network coverage
- Access to smartphones continues to be a challenge
- The Congolese, like many other African populations, did not believe the pandemic was real and so resisted changes to learning. It was only with time that people started to realise the severity of the disease.

What did work:

- Where there was a lack of electricity there were programmes to distribute exercise books
- CSOs took on the role of advocacy and awareness, lobbying to help children to continue to learn
- Mobilisation of different partners to sensitise learners and their families to help them to continue learning was effective
- There were a few pilots, some that used social media platforms or WhatsApp groups to enable interactions between learners and teachers. Though small the interventions seemed to work for the people who had access to them

### Madagascar

The Ministry of National Education (MNE) tried to do some classes through radio and television broadcasts but that was not really easy because the technology was not really adapted for the children. Stakeholders shared their observations that, overall, learners remained largely unsupervised when the pandemic forced schools to close. They reported that learners had homework to do and they had to retrieve materials for homework [from their schools]. This was a problem since schools were very far and there was no public transport so learners had to walk long distances to these schools to get homework packs. Because of this, both interviewees from Madagascar stated that few children ever went to school to retrieve the paper-based packs and parents were not encouraging learners to walk to school and get those packs. Moreover, the interviewees stated that teachers were not able to quickly put together a system to help children with distance learning and that impacted education in Madagascar, resulting in the interruption of several school-related programmes.

### Case Study: The involvement of 'Big Tech' in Madagascar

One stakeholder reflected on the role of “big tech” in Madagascar during the pandemic:

“Before the pandemic, there was a training by Orange Madagascar...it was not more than 100 teachers that had the opportunity to use their telephone. The support was not adapted to the situation because the learners did not have phones, the parents did not have phones, so it would not have really served...

During the pandemic, Orange Madagascar distributed tablets to learners but it was not really much because if you give 200 tablets for the entirety of Madagascar, that is not even enough for one school...It was just a sales policy to position themselves as better than other carriers in Madagascar. We [the educationalists] don't know what content was on the tablets or if the content actually helped the learners, nor whether the learners knew how to read or how to use the tablets...”

Stakeholders also remarked that even though Orange and Telma are widely present throughout the country, **what matters is whether there is electricity**. If there is not, it is unlikely that anyone benefited from the private sector interventions.

For any EdTech related initiatives, the interviewees suggested that very few people had access to them because of the lack of electricity among the population. The only EdTech that was used was the national television, for a few classes for primary school and people who were about to sit for their exams. TV broadcasts were the initiative of the MNE. One interviewee noted that “we did not sensitise the parents to the intervention...to prepare learners for the class they were about to start. The curriculum had no proper assessment. We don't know if the course by TV was understood”.

In the big urban cities, the learners were able to watch educational TV programming but outside of those urban areas there is no national TV. TVs reach was limited by the number of places that have electricity. There was nothing done to measure the impact of the few sporadic EdTech initiatives that were implemented. Paper books were also given out but similar to the tablets from the private sector, not much impact monitoring was done.

Overall, the key informants from Madagascar formed the opinion that EdTech was not effective because the Malagasy population is not and has not really been sensitised to using it. They also noted the gaps in infrastructure: *“we don't have...the means...the tools are not available, not to the schools, not to the teachers, not to the parents, not to the learners. We need the infrastructure to put together digital solutions and this needs to include training for teachers to use digital tools and for parents to understand the necessity of EdTech.”*

### Malawi

#### Impacts of COVID-19 on the Education System

When we asked those we interviewed in Malawi about the implications of COVID-19 on the education system, they said that it had had an enormous impact. One of the first things noted was that in between the first wave in March 2020 and the second wave in October and November 2020, **there**

was a noticeable increase in teenage pregnancy. Those we spoke to said that there was a **feeling that Malawi had “lost control over the girl child”**<sup>1</sup>. See Section 6. for further discussion.

### **EdTech Solutions in Country**

The use of EdTech in Malawi was minimal during the COVID-19 lockdown and school closure period. Still, there were some examples of EdTech use: online learning was introduced on government websites and the government also introduced lessons over the radio on national broadcast stations. We were told that the government had also tried to distribute paper materials, mainly prioritised in rural schools, given that connectivity challenges in rural areas were worse than in urban areas.

### **Effectiveness of EdTech during COVID-19**

When asked about the effectiveness of EdTech during the pandemic, those we interviewed in Malawi were unable to cite any examples of where they thought EdTech had been effective.

#### **What didn't work:**

- Many Malawians opposed the decision to shut schools, which meant a reluctance to adopt continued learning solutions.
- Online learning was meant to be introduced to secondary schools and made available through government websites. However, access to the websites required data that had to be bought at a cost, as one interviewee said, the cost “simply isn't feasible”.
- Those we interviewed wanted us to note that 80% of the population in rural areas and 75% in urban areas continue to live on less than one dollar a day. **It was noted that until the poverty gap is overcome, EdTech will continue to be a challenge in Malawi.**
- Access to devices like mobile phones and computers was the number one barrier to accessing education. They are expensive and have high VAT and data costs.
- Education was still deemed for boys, and boys were still prioritised over girls.
- Interviewees said the online learning platforms had very little use. While the government reports that over 400,000 learners at the secondary level registered with the portal, those we spoke to said that no more than 35,000 learners had access to the content
- Many subjects were not included in the resource materials on the website
- Teachers lacked the capabilities across primary, secondary, and even university to implement continued learning over technology platforms.
- For radio broadcast, it was said that the content did not consider children with disabilities, for example, those who are deaf or blind. Those we spoke to highlighted several times that **there were five million-plus disabled children, roughly two to three per cent of primary school children, during the COVID-19 period who were utterly left behind.**
- Only 52% of people in Malawi had access to a radio. While radio had the furthest reach, a child still had to be given permission from their parents/caregivers to use it.
- The government only targeted the national Malawi Broadcasting Corporation (MBC) and television, but it was said many communities could not access MBC.
- While there was a timetable that the government created for when lessons would be broadcasted, the radio stations did not adhere to it.

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<sup>1</sup> These are the words and opinions of Key Informants. Please refer to the discussion and analysis section for an intersectional feminist perspective.

### **What worked:**

- Interviewees felt the distribution of printed materials in certain parts of the country was quite effective for continued learning.
- Those we spoke to said that the innovative approach of utilising teachers in rural areas to visit communities and support students who were struggling to read and write during the school closure was an effective solution to continued learning.
- Some communities identified school leavers who had qualifications and asked them to provide learning support to younger children.

## **Namibia**

### **Impacts of COVID-19 on the Education System**

One Namibian KII participant remarked that when the schools were closed due to the lockdown, there was no learning taking place in the public school system:

*“The teachers were caught off guard. For lower primary, the Ministry of Education organised regional workshops for teachers to develop uniform learning materials for their students. As for secondary schools, every teacher had to prepare their own materials for learners since different teachers were at different places in their syllabi. There was no formal schooling facilitation except at the international private school, which was prepared and ready for online learning. Private schools converted to Microsoft Teams, Google Classroom, and other Google-linked resources to maintain educational continuity...”*

Most schools in Namibia are not connected to the internet. It is mostly the very rural and remote schools that do not have the internet. Teachers were often charged with pushing the government to try and get EdTech interventions off the ground to support educational continuity during the pandemic. Interviewees from Namibia stated that in public schools, after developing the materials, teachers made paper-based copies of the learners’ work and distributed the work in designated spots where parents and learners could come retrieve copies on the specific days when this was permitted.

Radio lessons, which had the potential to reach 85% of the Namibian population, were one of the educational technologies mentioned by the interviewees. It was also highlighted that every time there was a lockdown in Namibia, educational content was made available through television broadcasts sponsored by the government.

### **Effectiveness of EdTech during COVID-19**

#### **What didn’t work**

- Interviewees reported that the Ministry of Education rationalised the curriculum and reduced the content expected to be taught to learners. They mentioned that, to a certain extent, when the content and expectations of learners reduced, there was a whole scale lowering of standards in public schools with many learners left behind.
- All Namibian interview participants shared that the Ministry of Education also issued a directive saying that no learner should be made to repeat a grade, which means that learners who may not have been qualified were being progressed upwards in school levels.
- The costs involved in EdTech participation were believed to be limiting factors from an uptake perspective. There are households that can’t afford smartphones, laptops, tablets etc.

- If you do have a device, lack of Wi-Fi connectivity can also be a problem.
- Computer literacy of parents and learners prevented wider adoption of EdTech.

### **What worked**

- The government allocated funds to upskill teachers so that they might be equipped to teach online during the pandemic.
- The Ministry of Education partnered with the Namibia College of Open Learning (NAMCOL) and invested \$15 million Namibian dollars to deal specifically with the issue of EdTech and online learning during the pandemic.
- There was some evidence from one KII participant of learners taking matters into their own hands and meeting with their peers to use digital devices to continue their learning, too. Another participant added that one example of this independently arranged tech usage involved WhatsApp to exchange knowledge.
- Some teachers created WhatsApp groups with learners and parents to share educational activities. Where learners did not have their own smartphones, parents were engaged to reach the learners.
- The harnessing of EdTech was viewed as a lifeline and a new frontier for Namibia to explore, but that all parties need to take a coordinated effort that is based in collaboration.
- In the interviewees' opinions, the best practices for EdTech usage during the pandemic come from an independent and a private school. The moment children register at the school, they receive a tablet, and they can access notes and schoolwork shared by their teachers on their tablet, laptops, and even other electronic devices with internet connectivity.

Since the pandemic has continued, the government has recognised the need to explore the potential of EdTech further. Interviewees noted that there are many schools without electricity, so it is necessary to ensure no one is left behind. But, at the same time, it should not prevent the exploration of EdTech with the schools that do currently have the infrastructure to support EdTech. One KII participant proposed that there could be negotiations with mobile carriers and other tech companies to provide gadgets with connectivity at reduced prices once people have upskilled.

## **Rwanda**

### **Impacts of COVID-19 on the Education System**

During school lockdowns, interview participants in Rwanda said that the government encouraged schools to begin online learning, TV, and radio lesson broadcasts. Parents were required to monitor children and ensure they were learning. Lessons that the government planned were distributed and other lessons were made available through TV and radio. Radio announcements were used to encourage parents to support children with learning. The Rwandan Education Board opened an online platform to allow for students to access learning materials.

Overall, from those we interviewed, it was stated that the government mainly drove continued learning efforts through institutions like the MoE and Rwanda Education Board. In addition, non-

governmental organisations who were part of the [child-friendly schools' infrastructure standards and guidelines practises](#) supported the continued learning efforts. The privately-funded schools also encouraged students to follow school curriculums distributed by the government.

### Effectiveness of EdTech during COVID-19

#### What didn't work

- It was estimated that less than 30% of the efforts to help continued learning were effective. Those we spoke to explained that existing challenges made EdTech very difficult, especially for schools in rural areas that did not have enough capacity to continue to support learners when school was shut.
- Despite some efforts by the government to support these schools and their teachers, the strictness of the lockdowns meant that teachers were not allowed to go to school to prepare lessons and did not have the resources at home to help learners.
- Our interviews in Rwanda also said that the teachers themselves did not have the skills to facilitate online learning, and their technology skills were limited. They stated that digital literacy and capacity building for teachers on technology devices must be prioritised.
- The online portal was only available for those who had access to the internet, that's only about 40% of the urban population, and it was significantly lower in rural areas.
- The Internet was not as good as it was supposed to be. Because of this poor quality, many struggled with connectivity. Radio and TV signals were also not very reliable.
- The abruptness of COVID-19 gave the government little to prepare EdTech efforts. If the government and other education players had been prepared for mass school closure, it would have been much better because Rwanda does have access to technology resources compared to other African countries.

#### What worked:

- Schools that were able to, although very few, created homework and assignments sent through WhatsApp and other social media platforms. Informally many WhatsApp groups were set up for both learners and teachers.

### Case Study: Contextual Factors in Rwanda

#### Online sexual harms

Online sexual harassment for girls was stated by interviewees as a huge area of concern. *"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"*. Secondly, they said that online child exploitation for girls and boys is another area to be aware of. They said it would most likely impact girls the most, but all children must be safeguarded.

#### Poverty

In Rwanda, those we spoke to said that 40% of the population is considered poor, and most are in rural areas. The affordability of the internet must be considered. Again they said, "how are the government in Rwanda working with internet companies and telecom providers like MTN and Airtel to help learners access education services?"

#### Teacher training

Interviewees said that "before Rwanda can empower and train learners on these platforms, they first need to train the teachers".

- We were told that where schools set up WhatsApp groups with parents, it helped stop children's morale from dropping.
- Social media, especially WhatsApp, proved to be incredibly effective at keeping in contact with learners, even if teaching or continued learning did not necessarily take place on these channels.
- For learners who had access to the internet and the e-learning platform, the lessons were all there, assignments were offered, and some follow-up from teachers. It helped that this portal followed the national syllabus.
- COVID-19 awareness messages, set up by the government to highlight the need for children to continue to learn, worked well.

### **The role of big tech in Rwanda**

Interviewees told us that companies, even those already operating in Rwanda, need to change their mind set to stop being so profit-orientated.

Products that suit rural communities need to be carefully thought out and tested, which often does not happen. Big tech players need to invest more in rural communities and prioritise access to such technologies. Lastly, they said that very **many children already access Facebook, Twitter and other social media platforms, and there is more that can be done to incorporate these platforms that children already know how to navigate**, that way, big tech players have the opportunity to reach more people.

## **Zambia**

### **Impacts of COVID-19 on the Education System**

During school closures it was estimated that Zambia lost 6 months of learning. COVID-19 came at a time when Zambia's learning quality was already very low and we were told that there was a huge impact from school closures. Even before the COVID-19 pandemic, Zambia recorded the least number of learning hours out of any country in Africa.

When the pandemic struck those we spoke to said that it increased inequalities even when measures were attempted to ensure continued learning. Those measures only worked for children who were coming from more affluent families. Poorer families did not have the same access to these measures. One of the most significant impacts for those we interviewed was the large number of learners who lost interest in continuing their education after being at home for such a long time and so when schools reopened, many did not return.

### **EdTech Solutions in Country**

When we asked those we interviewed in Zambia about the use of EdTech during the pandemic they said that as soon as schools were closed, the government quickly deployed television as the main channel to offer continued learning. Global Partnership for Education gave a grant of US\$10 million to build studios in the 10 provinces in Zambia to allow teachers to begin teaching immediately. It was felt that TV could deploy content to learners immediately.

Radio required new content to be developed, so it was slightly more challenging but once the content was developed, radio stations in Zambia broadcasted lessons to learners. Those we spoke to also

highlighted that online learning was piloted with telecom and internet providers. Partnerships were agreed with telecom and internet providers to start providing free online lessons or materials to allow people to learn online. Overall, it was stated that continued learning efforts were mainly driven by the government.

### Effectiveness of EdTech during COVID-19

#### What didn't work

- With radio there was no national channel and broadcasts took place only on the government channels that broadcast within the province that has the capital, Lusaka.
- In addition, the government had to pay other independent radio stations to broadcast in other provinces, and even then this did not work very well.
- Access to television is only a privilege for the rich in Zambia.
- TV educators were selected with little thought to skills for TV, so some TV was poor quality.
- TV lessons went out live with no previewing. In some cases this meant the quality of delivery and content was not good.
- For TV and radio, it was difficult to know at what time each grade would be aired, as well as what topics.
- Radio was not interactive and to have learners, especially younger grades, sit in front of a radio and listen without any interaction was not practical.
- Both TV and radio required a lot of awareness raising amongst learners and parents.
- The internet in rural areas is almost non-existence and low-income households did not have smartphones so there was no opportunity to scale the work or have it adopted by the masses.
- Another factor is that teachers must be technologically savvy to pass these skills to their learners. Currently Zambia has not invested in continued learning for teachers.

#### Case Study: Contextual Factors in Zambia

##### The rural vs. urban divide

Those we spoke to said that “when we talk about poverty, the poor cannot access the technology like the rich can because electricity provisions are very erratic in many areas of Zambia. In addition, access to the radio is still a huge problem in Zambia.”

##### Parents

We were told that when we consider using technology it must be ensured that the parents are not left behind, because “we need the parents to support children and learners to continue learning.”

Those we spoke to said that parents need to appreciate the value of these technology channels and allow children to spend time using them for their education. In households where children are needed to supplement family income, those we spoke to said this can be a huge issue.

##### Gender

Gender is a huge factor to consider: when girls are at home they play a big role in the family and there is a need to consider this when designing distance learning.

The pandemic gave rise to circumstances that, for some schoolgirls, caused an increase in pregnancies and early childhood marriages, because girls were now at home and not in school.

- The cost of data is a hindrance.

**What worked?**

- Radio was the most successful in terms of reach because it was more accessible than TV. We were told that in Zambia, those with even basic phones could access the radio.
- Private schools tried to use WhatsApp groups to continue to engage with learners, but parents would often only have one phone in the household and they might be at work.
- When assessing the effectiveness of online platforms those we spoke to said that higher grades in secondary schools managed to access online learning, but the numbers would have been very few.
- Zambia developed guidelines and researched extensively about how to ensure that children were learning in safe environments. A blended learning approach for the examination classes worked well. Through this research, it was clear that face to face learning accompanied with COVID-19 prevention measures was the best approach.

**Involvement of ‘Big Tech’**

Interviewees noted an issue around the commercialisation of EdTech solutions and that these solutions are too expensive, blocking access for poorer members of the population. “Too many people are living on a dollar a day so how do you discuss what is affordable if it is not free?” They felt that Zambia needed a longer-term approach to education. As those we spoke to said, “there is no one that does not benefit from having an educated population”.

**6. Discussion, reflection and recommendations**

**Our reflections**

Reflecting on this, it is interesting to note that across Africa there is a history of foreign technology being introduced to different countries across the continent and it not being effective.

While there are many reasons why technology was not effective in education during COVID-19, **the need to consult people on the ground and conducting effective Human Centred Design before any technology is introduced, especially when the technology has not been created in Africa is essential.**

**Participants’ Awareness of Pandemic Era EdTech Interventions**

Reviewing the data that we collected from the KIIs and the Online Survey in line with our first research question; ‘What education technologies exist in the country?’, one of the first observations is that **in all the interviews across the countries that implemented school closure, not one informant could list a large-scale, nationwide example of EdTech.** However, all countries we spoke to, apart from Burundi, referenced that efforts were made to offer learning continuity using TV, radio, online and mobile solutions, as well as distribution of paper materials. This finding from the KIIs and the Online Survey differs significantly from the conclusions presented in the continental review. However, this is not entirely unsurprising. **As the world, particularly the West, has continued to bolster the belief that technology will solve Africa’s problems and leapfrog the development phases that countries in the West have experienced. This belief is damaging and assumes that “foundational infrastructure” such as power, telecommunication and transport, can be overlooked.**

### **Private Sector EdTech Support was Minimal**

In all countries who attempted continued learning during the COVID-19 school closures, the government was mainly in charge and driving efforts for continued learning solutions. Some INGOS also supported with these efforts. However, the involvement and success of the private sector, including the telecom operators, was minimal. It is important to acknowledge that the virus affects public health, public and private sectors as well as the livelihoods of the whole population.

**It is evident that a coordinated efforts across stakeholders was key to the success of response efforts.**

### **Research Participants Lament Ineffectiveness of EdTech**

Reflecting on our second research question 'How have these technologies enhanced or hindered the right to education in the country?' all informants we spoke to explained that these EdTech solutions were either ineffective, and in some cases this ineffectiveness was due to the inability to access and use the EdTech solutions provided. While in theory, those we spoke to said that TV and radio could be somewhat effective, the coordination and planning for these channels was not well managed. Plus, it was highlighted to us that it was impractical to expect children to sit in front of a TV, but especially a radio, for hours at a time and listen and learn.

### **What's App worked**

Interestingly, one effective example of technology was the use of WhatsApp groups. Those we spoke to referenced WhatsApp groups as 'effective' because they were an easy and accessible (for those who already had smartphones and used WhatsApp) way to keep in contact with learners and parents. **While the use of WhatsApp was often on a local and small scale, and informally managed, it seemed that when used it helped to manage school closure for learners and parents.** WhatsApp was also used to contact learners to support them and boost morale during school closure. **It is encouraging that people, where possible, were finding ways to continue to communicate and support learners when they were out of school.**

### **Infrastructure Challenges Remain a Significant Barrier to EdTech Success**

When online learning efforts were attempted, they were in most cases not accessible. Those we spoke to said that affordability of devices, data bundles, and the internet were one of the main barriers to adoption of online continued learning. Connectivity and electricity challenges were referenced in all the countries we researched and while these challenges were mainly seen in the rural areas, there were also significant challenges in urban areas too. It was also apparent that in most cases the government and other education players were not sufficiently equipped to develop and upload online content resources. The costs associated with an EdTech initiative can often be overlooked and presumed to be just the initial purchase. In reality examples of costs include things like repairing or replacing broken hardware, connectivity, school building infrastructure to increase security and securely house expensive new equipment and support teams.

### **Low Digital Literacy among Teachers Unprepared for Distance Instruction**

Another theme that was threaded throughout all our interviews was the challenge of lack of digital literacy amongst teachers. **Informants repeatedly highlighted that upskilling of learners cannot happen unless teachers have been empowered and trained to use EdTech solutions.** As countries in

Africa recover from the COVID-19 pandemic, it will be important that governments and other education stakeholders spend time and resources creating awareness about digitalisation and the various ways to implement amongst parents and caregivers, learners and teachers. **Teacher training on digital tools in the classroom must be a priority** and this was mentioned in all interviews we conducted across the eight countries.

#### **The wrong models for development**

Juma Calestous (2017) highlights this point by saying **too much focus has been on creating the technology and not on training and maintaining its use**. He goes on to say that many African projects have *“increasingly been delinked from technological training and are underperforming as a result”*.

Furthermore, a recent report published by UNESCO looking at *The digital learning turn in Africa* has also advocated for more training and retraining of teachers in further professional development, including using modern digital tools.

#### **Parents faced economic crisis**

Parents were often struggling financially during the pandemic and required children to supplement family income more than usual. Additionally, there is still an attitude in many of these countries where parents do not see it as a good use of time for their children to be sat in front of devices when they could be supporting in the home.

#### **Parents Became Teachers During the Pandemic**

There were also comments that, although parents were meant to support children to continue learning when they were not in school, many parents were not able to support learning. There was a need for awareness raising for parents so that they can better understand the value of EdTech for their children. Given the heightened challenges faced by parents during the COVID-19

pandemic, it is understandable that they may be hesitant to invest in their children spending hours on devices. However, those we spoke to highlighted that **without the endorsement of parents, continued learning in the home through EdTech would never succeed**.

#### **Governments Lacked Educational Continuity Plans**

It was apparent that no country had a national plan for continued learning during a mass school closure. Despite governments acting relatively quickly to enforce lockdowns and shut schools, it took a while for governments and other education actors to mobilise and offer continued learning efforts. It was also apparent that **even when continued learning was offered, the awareness of these solutions was significantly lacking**.

#### **School Closure Negatively Impacted Already Vulnerable Learners in Particular**

Beyond the main research questions that drove this report, there were a number of other themes that appeared. The majority of these are centred around the devastating effect of school closures on learners in all countries we researched. It is apparent from our research that **school closures carry high social and economic costs for learners across communities. Their impact however is particularly severe for the most vulnerable and marginalised boys and girls and their families**. While this report aims to highlight the advantages of continued learning through the use of technology, **it is evident that even with access to online or remote tools, school closure has a devastating impact on learners**. UNICEF state that the most vulnerable children are most likely unable to access remote learning and

are at increased risk of never returning to the classroom, and even being forced into child marriage or child labour. Furthermore, the majority of schoolchildren worldwide rely on their schools as a place where they can interact with their peers, seek support, access health and immunisation services and a nutritious meal. The longer schools remain closed, the longer children are cut off from these critical elements of childhood.

### **Girl Learners Experienced Educational Continuity Challenges with Need for Safeguarding**

Looking at previous emergencies and crises, we can see how these outbreaks exacerbate existing vulnerabilities of girls and women, create new ones and increase gender and social inequalities.

**Women and girls continue to be the most marginalised and at-risk populations when pandemics and emergencies such as COVID-19 occur.** These secondary consequences to girls and women, if not urgently addressed, will reverse the advancements that have been made in the last decades to enhance women's and girls' agency.

**In all countries we researched it was clear that school closure disproportionately impacted the girl child. In the majority of interviews, it was reported that when schools reopened a large number of learners, mainly girls, did not come back to school.**

This was because of a number of factors including:

- Parents not being able to afford to send all their children back to school, and choosing to prioritise the boy children
- Girls often have less access to technology tools (like phones) and online learning than boys
- Girls could also be unable to participate in online learning due to taking on domestic chores, family care and income-generating activities to support the family
- In times of crisis, girls and women face are more frequently exposed to gender based violence and experience higher rates of early marriage, unwanted pregnancies and school dropout.
- Lastly, it is also important to note that even two years after the beginning of the COVID-19 pandemic, data on the unique reality of women and girls was inadequate.

#### **Case Study: The impact of COVID-19 on girls in Malawi**

In our KII Interviews, interviewees in Malawi said that there were 25,000 child marriages reported between the first and second wave of COVID-19 for example.

In 2020 in the eight months between the first and second wave of COVID-19, there were 45,000 teenage pregnancies reported, up from the usual number of 5000 per year.

### **Children with Disabilities were Largely Left Behind**

Another marginalised group was children with disabilities and the disproportionate impact that school closure has on them. Globally, children with disabilities are often marginalised, economically disempowered, experience poor social conditions, lack access to health care, education, and social services. In Sub-Saharan Africa, children with disabilities are already disproportionately disadvantaged as they are less likely to go to school than typically developing children and are unlikely to receive quality inclusive education. In particular, those children with difficulties related to hearing, seeing and cognitive functioning, face barriers when accessing remote continued learning resources. Studies conducted by Human Rights Watch highlighted that **all the factors affecting children's education during the COVID-19 pandemic become magnified for children with disabilities.**

EdTech still presents a huge opportunity for children with disabilities that cannot be overlooked. According to a report on Technology for Inclusion by UNESCO it is noted that technology has considerable, but largely unused potential to support inclusive education for learners with disabilities. It also has the potential to increase enjoyment and motivation.

### **The Need for Enhanced Safeguarding and Child Welfare Services Spiked during Pandemic**

The abruptness of school closure and the sudden reality of children and parents all living together 24/7 meaning that conflicts in the home were very apparent in a number of countries we researched. Studies of past epidemics and crises have documented devastating impacts on the reporting of violence against children and the delivery of related services. In our interviews, we were told that there has been an increase in violence within the homes in several countries.

### **Pandemic Job Losses Squeezed Finances, Parents Unable to Afford Schooling**

The chronic impact of COVID-19 on the employment and income of parents meant that many could not afford to pay for children to return to school once they reopened. It was clear that children were expected to help parents subsidise the lost income. The pandemic has exacerbated child labour across the continent, according to a new report by the International Labour Organization and UNICEF in sub-Saharan Africa, an additional 16.6 million children entered child labour over the past four years, with millions more at risk due to the impacts of COVID-19.

### **The Effects of School Closures on Children's Mental Health was Negative**

Those we interviewed highlighted that the school closure had severely impacted morale for learners, and heightened anxiety amongst many children. The mental health consequences of COVID-19 on children have been significant. Human Rights Watch (2020) reported that in Africa many students shared feelings of stress, anxiety, isolation, and depression, which they linked to the lack of contact with their school community

### **COVID-19 won't be a one-off: we need to be prepared**

One key thought that was a common refrain among the KII participants was the fact that it is not just the pandemic that requires the use of EdTech to support educational continuity for learners. Several participants noted that **war, climate change, distance, among other factors, are reasons that consistently interrupt schooling in sub-Saharan Africa. Such circumstances would benefit from having a "plan B" for continuing learning delivery and EdTech has the potential to help close this gap if, and only if, honest conversations are held about the implementation challenges involved.**

## Summary of Policy Recommendations from Those Who Were There

The research team asked the education sector experts about their policy recommendations related to the use of education technology during the COVID-19 pandemic.

### Burundi

- Burundi should move forward with technology, and “as technology continues to develop, Burundi should not be left behind.”
- If new technologies are introduced teachers will need training on how they could use these tools in the classroom. Teachers and parents would also need awareness campaigns.
- Before these EdTech solutions are scaled nationally, there is a need to sufficiently pilot these initiatives to assess their suitability for the context learners in Burundi face.
- Most importantly, participants believe that before these solutions can succeed, the government must prioritise installing internet connectivity in the unconnected areas.

### Democratic Republic of Congo

- There is a need to consider EdTech as a mechanism for learning support whether there is a pandemic or not.
- DRC needs policies to continue learning during emergencies since many natural disasters, as well as civil unrest occur in the DRC and block learners from school attendance.
- User-centred design must be prioritised when creating EdTech interventions and the Government should consult the beneficiaries before any solution is implemented.
- Establish a national education strategy during emergencies that takes into account the harnessing of EdTech as a potential contribution to the solutions matrix - but also to ensure that if EdTech is adopted, where possible it should not be electricity- or internet-dependent.

### Madagascar

“It’s not only the pandemic or COVID-19 that affects education; there are also cyclones and cholera and all of that makes it very difficult to introduce and promote EdTech...there is some shared responsibility for the teacher, for society, and for learners – all three have to work hand-in-hand for a good EdTech learning process.”

- Madagascar is not even 50% electrified, but they do have 12 months of sunlight. Interviewees suggested that solar energy could be used to help people leverage EdTech. However, they cautioned that their society needs to be mature enough so that if solar infrastructure for EdTech is put in place, it is not stolen. This means local chiefs, children, and teachers need to be properly trained for the maintenance and use of EdTech.
- It is imperative for Madagascar to start using EdTech so that the gap will not be too big between Malagasy children and children in other countries.
- If there is a rainy season or cyclone, schools will close again for weeks. There are several circumstances where face-to-face learning cannot happen. So, the government needs to create a national plan for digital learning in primary and secondary schools.

- Awareness campaigns, workshops, and information sessions are needed to help implement EdTech programs.
- Teachers and parents must be integrated sufficiently as well. If parents do not understand the necessity of this education, they will not allow their children to participate in such an intervention.
- A comprehensive assessment of different locales is needed to understand which parts of the country are already ready for EdTech interventions. It should look at connectivity and electricity access, for example, and the gaps in others areas, and what is needed for them to benefit from EdTech.
- This assessment should include a look at the current curriculum to see if it is aligned with the use of EdTech and if not, Madagascar should explore how EdTech and/or the curriculum be adapted.

### **Malawi**

The Malawian interviewees shared from their perspectives that if the education system is to thrive and continue to satisfy the needs of learners, then EdTech is essential.

- Taxes must be removed from devices like laptops, mobile phones etc. to make EdTech affordable.
- The government needs to mandate telecom providers in the country to provide free data bundles for learners to access learning content.
- Introduce ICT lessons to the curriculum to support distance learning.
- Cybersecurity for learners is a concern. Can big tech players sufficiently safeguard learners when they eventually come online to learn?
- Strong data privacy protections need to be put in place when deploying EdTech interventions.
- Small, local models on EdTech adoption should be supported to develop in communities.

### **Namibia**

The Ministry of Education has an ICT policy which makes several recommendations about how to make Namibian citizens computer literate. Interviewees noted that the Vision 2030 for Namibia also indicates similar goals, but they felt the government needed to move from paper to practice.

- There is a need for learning support materials for students.
- Government should seek to procure educational devices such as tablets on which all educational content and textbooks can be loaded.
- Though interviewees acknowledged that publishers do not want to move in this direction, if the arm of the government responsible for national textbooks mandates that in addition to paper-based versions of scholastic materials that textbooks be made available on educational devices, then this would help EdTech progress in Namibia.
- **Participants felt that if for any reason there is another pandemic or catastrophe that interrupts schooling, teachers and learners should be equipped to continue teaching and learning.**
- Learners need upskilling to be able to use EdTech
- Teachers should also undergo extensive information technology training so that they can be empowered to share their knowledge with learners.
- As civil society members, interviewees felt that perhaps they need to strengthen their own advocacy skills and engage and encourage the government to enter public-private partnerships that will unlock opportunities for successful EdTech implementations for children.

## Rwanda

- Any approach to EdTech needs to be inclusive and of high quality, this includes being child-friendly. The relationship between and partnership with Government and other players in the EdTech ecosystem, is key. There must be a collaborative approach.
- Rwanda's environment is forward thinking about EdTech, this should be leveraged.
- Offline channels that people can use to access EdTech resources, even when they do not have the internet, must be included.
- We should not overlook EdTech channels for learning that people already know how to use.

## Zambia

- The government must invest in digital technologies that help improve connectivity in rural areas and ensure the affordability of data for all learners. To realise this, participants suggested that the government should waive duties on digital technologies, especially if they are for educational uses.
- The government should continue to collect data to assess the reach of EdTech solutions and ensure that it develops an understanding of the access gaps and reacts accordingly.
- Government needs to engage with these big tech players and manage how they are introduced into the education system of Zambia so that their presence is regulated and controlled (especially being mindful of commercialisation).
- Participants suggested that during school breaks, teachers should attend training programs to learn about digital tools and how they can be used in the classroom, with the ultimate aim of sharing this knowledge with their learners once school is back in session.
- A curriculum review must happen to ensure that it focuses on core competencies and that EdTech helps enhance these competencies.
- EdTech solutions must remain flexible and continue to be adapted to ensure they remain useful tools for educational continuity.

## Summary of Policy Recommendations from the Data Triangulated

- **Connectivity in all research countries needs to be addressed for both electricity and the internet. In all seven countries we interviewed this was mentioned as the primary barrier to EdTech success.** Non internet solutions should be explored. Even as technology advances we should not overlook these channels that people already know how to use.
- Access to EdTech continues to be too expensive for many learners. Those we spoke to highlighted that the government needs to do more to address this challenge.
- While the big tech players were welcomed in all countries we researched, it was highlighted that the focus could not be on the commercialisation of EdTech and be profit-driven.
- Governments must not see COVID-19 school closure as an anomaly. In many of the countries there are other potential threats that could lead to mass school closure. Planning for continued learning, especially with the use of EdTech, should be incorporated into the strategies for education continuity.
- There are many areas of the education system in the countries we interviewed that need to be addressed before we prioritise EdTech.

## 7. Conclusion

COVID-19 will not be the only disruption to schools and learning in the future, education continuation plans are needed in all of the eight countries. Prior to 2020, it was evident that too many people in Africa could not access the technology they need for school, work, health, or financial services. The pandemic has underscored the vulnerability of the digitally excluded, who often have a more challenging time accessing vital information.

### **Too many Africans cannot access the technology they need for school, work, health, or financial services.**

The pandemic has underscored **the vulnerability of the digitally excluded** who have a more challenging time accessing vital information. In an article posted in *The Economist* titled 'Technology cannot solve all of Africa's problems, but it can help with many' Akinwumi Adesina, the president of the African Development Bank, is quoted as saying, "You cannot develop in the dark". Adesina goes on to argue that for technology to succeed in Africa, "It requires a major effort to fix structural problems as well as infrastructural problems in Africa, so we shouldn't kid ourselves that we can just bypass those".

Though these sentiments were shared five years before the pandemic, the results of not heeding these warnings were presented in stark contrast throughout this scoping study from the perspectives of people who witnessed EdTech attempts first hand in the eight countries of focus.

Overall, this study helped to show that technology's impact on schools, teaching, and learning has been incredibly limited. During the pandemic, governments struggled to pivot rapidly and planning must be initiated now to ensure future school interruptions, whether pandemic-related or not, have as few negative repercussions as possible on learners.

While this study focussed on the educational opportunity of technology and continued learning, we were reminded that we cannot overlook the socio-emotional and safety needs of children - particularly girls, children with disabilities, and children living in rural and remote areas - especially in these trying times. Teachers and parents also need to be supported; important outcomes of this study are that training, professional development, and guidance on how to support learners during periods of school interruptions are crucial if teachers and parents are to assume responsibility for effective distance learning facilitation.

To conclude, this study urges an immediate and drastic reimagining of education if no child is to be left behind in the future when regular school attendance is rendered impossible. EdTech must be a part of an ecosystem, of reimagined educational continuity approaches but EdTech must be leveraged in a manner that is hyper focused on equity, inclusivity, feminist ideals, and free from neo-colonial pressures and influences that would harm locally relevant progress in the sector. Adopting any other approach will only mean that history repeats itself and this is simply too high of a price for any nation in Africa to pay for its youth.



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