

Harnessing EdTech in Africa: Scoping Study



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List of Acronyms

BBC	British Broadcasting Corporation
CAMFED	Campaign for Female Education
CLADHO	Collectif des Ligues et Associations de Défense des Droits de l'Homme au Rwanda
CNBC	Consumer News and Business Channel
CSO	Civil Society Organisations
DRC	Democratic Republic of the Congo
ECD	Early Childhood Development
EDC	Education Development Center
FCDO	Foreign, Commonwealth & Development Office
GBV	Gender Based Violence
GCE	Global Campaign for Education
GPE	Global Partnership for Education
GSMA	Groupe Spéciale Mobile Association
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HCD	Human Centred Design
ICT	Information and Communications Technology
ICT4D	Information and Communications Technology for Development
ILO	International Labour Organization
IMF	International Monetary Fund
INGO	International Non-governmental Organisations
IP	Intellectual Property
IT	Information Technology
ITU	International Technological University
IVR	Interactive Voice Response
JICA	Japan International Cooperation Agency
KII	Key Informant Interviews
MBC	Malawi Broadcasting Corporation
MENETP	Ministry of National Education and Technical and Vocational Education
MIM	Mobile Instant Messaging

MINICT	Ministry of Information Technology and Communication and Innovation
MNE	Multinational Enterprise
MoE	Ministry of Education
MoEAC	Ministry of Education, Arts and Culture
MONUSCO	United Nations Organization Stabilization Mission in the DR Congo
MTN	Mobile Telecommunications Network
NAMCOL	Namibian College of Open Learning
NFER	National Foundation for Educational Research
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
PPE	Personal Protective Equipment
REFAC	Rwandan Education for all Coalition
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus
SDG	Sustainable Development Goals
SIMEN	National Education Information and Management System
SMS	Short Message Service
SRQ	Sub-Research Questions
SRS	Simple Random Sampling
TNM	Telekom Networks Malawi
UK	United Kingdom
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations International Children's Emergency Fund
US	United States
USAID	United States Agency for International Development
VAT	Value Added Tax
WEF	World Economic Forum
WHO	World Health Organisation
ZAMRA	Zambia Medicines Regulatory Authority

Glossary of Terms

Big Data - Big data refers to a combination of structured, semi-structured, and unstructured data collected by organisations from users of a particular technology or the broader community in any given country. This data can be used by organisations, governments or civil society, analysed for information and used in future machine learning projects, predictive modelling and other advanced analytics applications used for education purposes¹. Current use of the term big data tends to refer to predictive analytics, user behaviour analytics or other specific advanced data analytics methods that extract value from big data. It is seldom used in reference to the size of a particular data set. For this research, we looked at big data that specifically refers to education and EdTech.

Big Tech - Big tech refers to the world's major technology companies - such as Apple, Google, Amazon, Facebook and Microsoft - which have a disproportionate amount of power and influence on the global technology industry². Big tech players can be considered diversified conglomerates whose power (including economic and political power) is greater than their user numbers³.

Continental Review - This term refers to the scope of the desk research we conducted at the outset of the consulting project to evaluate what has been written about the school closures in Africa that occurred during the pandemic. This review takes place at the continental level from a geographic standpoint, and includes material published in academic journals, research reports, project documents and other credible non-academic/grey literature sources like newspaper articles, UN documents, NGO documents, etc.

Decolonial Perspective - The decolonial perspective is a school of thought that focuses on untangling the production of knowledge from what is considered a primarily Eurocentric episteme. It critiques the perceived universality of Western knowledge and the superiority of Western culture. The decolonial perspective sees this hegemony as the basis of Western imperialism⁴. When writing the report and conducting this research, we centred indigenous and non-Western traditions and

1What is Big Data and Why is it Important?

<https://searchdatamanagement.techtarget.com/definition/big-data>.

2How Big Tech got so big: Hundreds of acquisitions

<https://www.washingtonpost.com/technology/interactive/2021/amazon-apple-facebook-google-acquisitions/>

3"We're Stuck with the Tech Giants. But They're Stuck With Each Other". New York Times.

<https://www.nytimes.com/interactive/2019/11/13/magazine/internet-platform.html>

4Aníbal Quijano (2007) Coloniality and modernity/rationality, Cultural Studies, 21:2-3, 168-178, DOI: 10.1080/09502380601164353

epistemologies and decentred dominant practices and voices whenever possible and relevant.

Digital Colonialism - Digital colonialism refers to how technology ecosystems, including within the EdTech space, are heavily controlled and owned by foreign or Western technology companies. It also refers to how foreign or Western countries (usually Western) purposefully construct critical and extensive digital infrastructure in the Global South to extract data and gain a monopoly over its users and their data. This is done with the help of big corporations that design software, apps and other types of digital technology, in order to reinforce their hold on the data and secure their stake in the tech ecosystem. In this context, the resource extracted from the continent is the data itself⁵.

Extractive Capitalism - Extractive capitalism refers to the monetization of data or labour that is given to technology companies by people who use Big Tech platforms or products, often at low or no cost and often unwittingly (Corcoran et al., 2019; Grimshaw, 2018). Extractive capitalism also refers to the way in which technology players seek to maximise their profits, and generally do not re-invest sufficiently in the maintenance of their productive communities⁶. For the purposes of this report, this term is used to refer to any form of EdTech that is based on profit generation through the provision of technologies for the purpose, whether indirect or not, to extract data or other freely generated information from students, teachers and schools instead of providing free and open EdTech tools that are accessible to all.

Global Digital Divide - Internet access has the power to drive business development and economic growth, expand social opportunities, civic participation and activism, and promote music, and the arts. However, the benefits of access accrue primarily to half of the world online today, which means that access to technology can also reinforce inequalities in society and create a global digital divide. In this study, we were especially conscious of the gender component of the digital divide, as men are much more likely to access the internet than women, which leads to a global digital gender gap in terms of access. This ultimately means that any policy or project designed to get more people online will fail unless interventions address this gap and include mechanisms that enable equitable access⁷. This term

5Danielle Coleman, Digital Colonialism: The 21st Century Scramble for Africa through the Extraction and Control of User Data and the Limitations of Data Protection Laws, 24 Mich. J. Race & L. 417 (2019).

Available at: <https://repository.law.umich.edu/mjrl/vol24/iss2/6>

6Solving the Crisis of Extractive Capitalism <https://economics.com/post-capitalism-rewards-productive-michel-bauwens/>

7Measuring the digital divide: Why we should be using a women-centred analysis

<https://a4ai.org/measuring-the-digital-divide-why-we-should-be-using-a-women-centered-analysis/>

is referenced in the discussion on the level of EdTech access that students and schools seen in the eight countries considered in this study.

Global Majority – The people located in the Global South, in countries that are widely considered to be “developing” and non-Western.

Global Minority - People located in the Global North, in countries that are widely considered to be “developed” and Western.

Intersectional Feminism - Intersectional feminism is derived from the word intersectionality, a term created in the 90s by Black American feminist Kimberlé Crenshaw. Intersectionality acknowledges that people comprise a complex set of social, political and cultural identities that inevitably shape the interactions that individuals have with powerful structures and systems within the societies in which they live (Carastathis, 2014). Intersectionality was originally coined as a legal lens to understand the double discrimination being experienced by Black women in a workplace where Black men and white men and women enjoyed access to benefits that were denied to Black women on the basis of both their gender and race (Carastathis, 2014). Accordingly, the term intersectionality, when used in legal settings or otherwise, asks us to consider a person's entire identity, rather than considering the individual in a piecemeal fashion when trying to understand how the person experiences the world. Intersectional feminism enables us to view situations and challenges in a manner that considers circumstances holistically, while also compelling us to recognize that gender is not a mutually exclusive identity (Crenshaw, 1989) when considering other elements an individual may embody, such as ethnicity, tribal affiliation, geography, class, socioeconomic status and age.

Within the context of this report, adopting an intersectional feminist approach allowed us to center the voices of those experiencing overlapping, contemporary forms of discrimination or barriers to inclusion⁸ when seeking to access and exercise the right to education during the COVID-19 global pandemic, particularly when gender concerns were a factor in the circumstances observed. This framing enabled us to identify and unpick the factors that may have influenced the harnessing of EdTech during this extraordinary period and the relationships among these factors within the eight countries considered.

⁸Intersectional feminism: what it means and why it matters right now.

<https://www.unwomen.org/en/news/stories/2020/6/explainer-intersectional-feminism-what-it-means-and-why-it-matters>

Structural Inequality - Structural inequality refers to the inequalities that are systemically rooted in the normal operations of dominant social institutions⁹. These inequalities can be divided into social, political, economic and cultural categories like class, residential location, healthcare, education access, employment, race and nationality (Finn & Kobayashi, 2020).

⁹Structural inequalities: <https://archive.unescwa.org/structural-inequalities>



Cecil Dzwowa

1. Introduction

At the start of the COVID-19 pandemic, many governments around the world announced that all schools must close for a period of time in order to delay the spread of the virus. The pandemic disrupted access to education and learning across the globe: at the height of the pandemic, over 1.5 billion learners were affected by the global school closures and children were out of school and at risk of not learning, not passing exams and dropping out (Vegas et al., 2021). Experience from the West Africa Ebola crisis in 2013 and 2014 (Yasmin, 2016) tells us that when children are out of school during a crisis or emergency situation, there is an increased risk of violence at home and early pregnancy. This is especially true for those who do not have independent access to learning materials (i.e. do not own a computer connected to the internet, or a smartphone with sufficient data bundle top-ups) there is a risk related to equity and continuation of the digital divide that exists in many African countries. As an example of the urgent need to ensure educational continuity during a pandemic, the start of the pandemic meant that education was

interrupted for 17 million children in Kenya alone, which resulted in learning loss and negative impacts on mental health (Zaman, 2021).

Across the world, school closures have compelled education systems to quickly devise and apply various modalities for remote learning, such as radio, TV and various online tools. But access to these modalities differs across and within countries - with students in high-income countries and communities much more likely to have access to online, virtual schooling, than their peers in low-income and middle-income countries and communities (Ganimian et al., 2020). Thus, an important question is: To what extent will student learning and progression in school be affected by school closures, especially among children in low-income and middle-income settings?

Even before the onset of the pandemic, sub-Saharan Africa was grappling with attaining universal primary education (UNESCO, n.d.b): approximately three-quarters of girls in sub-Saharan Africa were out of school, along with two-thirds of boys (All in School, n.d.). There were numerous structural inequalities and other disparities that made it difficult for governments to achieve the goals set in terms of providing education for all. For example, issues such as child labour, war and conflict, poverty, disability, gender discrimination, natural disaster and religion continue are still challenges experienced with keeping children in school (UNESCO, n.d.). The pandemic has worsened these circumstances, and the need to identify effective and often innovative solutions will be key to ensuring that no child is left behind.

The emergence of COVID-19 has prompted reflection on what the effects of the novel coronavirus will mean for Goal 4 of the Sustainable Development Goals (SDGs), which aims to “ensure syntropic and quality education for all and promote lifelong learning” (United Nations, n.d.). This goal was initially spurred by a few factors, including the number of out-of-school children and adolescents, particularly in sub-Saharan Africa (UNESCO, n.d.).

Amid these circumstances, growth in the use of information and communication technologies (ICTs), particularly mobile use, increased exponentially in sub-Saharan Africa between 2010 and 2020. While ICT use has become increasingly pervasive, one area where the adoption and effective use of ICTs has had limited uptake is in education. Across the continent, governments have attempted to advance EdTech by promoting the integration of education technologies in national planning documents (such as Kenya’s Vision 2030 (2008) and by building up the requisite infrastructure. Governments, local organisations and international organisations have also tried to champion EdTech initiatives to improve educational outcomes for their

youngest citizens, such as: Rwanda's One Laptop Per Child programme (Tashobya & New Times, 2015); Senegal's planned Seeds for the Future programme (Huawei, 2016); the Quick Do Book Box digital library system available to schools and libraries in Cameroon, Congo, Gabon and Senegal (Quick Do, n.d.); and South Africa's ukuFUNda initiative (Spencer, n.d.). Having an ICT in education policy in place undoubtedly meant that some governments fared better than others when the pandemic began.

Nevertheless, implementation of educational technology (EdTech) programmes during the COVID-19 emergency were often constrained and even led to failure when evidence was lacking as to why and how digital technologies facilitate desirable learning outcomes. Programmes are similarly affected when government policies prevent the use of the full range of digital technologies available to their citizenry. An expert on ICT in education from the World Bank did an analysis of a variety of bans on mobile phones in schools around the world (Trucano, 2015b). This expert found that while there are legitimate reasons for bans, ultimately: "The best technology is often the one you already have, know how to (and do) use, and can afford. In many places around the world, this technology is the mobile phone." This advice was eventually heeded, as many countries in sub-Saharan Africa relied on the generosity of mobile network operators and other telecommunications providers to help ensure citizens and children enrolled in schools had access to zero-rated online educational materials and were allocated free data or free access through public Wi-Fi networks (World Bank Group, 2020).

While EdTech had a positive impact on learners and communities in sub-Saharan Africa before and during the pandemic, most of this impact has largely been determined based on anecdotal evidence (Trucano, 2015a; Muñoz-Naja et al., 2021). Whereas before it was difficult to ask governments and multilateral organisations to invest scarce resources in unproven EdTech solutions, now it is less difficult, but still not without risk, that poorly designed or hastily put together EdTech interventions will not enhance learning outcomes as the African continent adapts to the 'new normal'.

Therefore, it was important that Global Campaign for Education and its network of stakeholders know how digital learning can be leveraged to support the delivery of effective and relevant learning outcomes for people in sub-Saharan Africa during the COVID-19 pandemic. Concurrently, there was a need to understand the role of education technologies in hindering desired learning outcomes during a period when educational inclusion is needed most.

While there is more research being published about the impact of COVID-19 on education systems globally (references) and the need to ensure educational continuity, this scoping study was designed to present a people-centred perspective on the topic by grounding the analysis in intersectional feminism and decolonialist frames. This approach: enables data to be considered in a manner that not only centres the African child - and especially Black and Brown girls - whose education was most affected during the COVID-19 pandemic (GPE et al., 2020; Baker & Kariuki, 2020); lays the foundation for a radical reinterpretation and reimagined understanding of the systems, tools and stakeholders that have shaped the provision and continuity of education during the extended period of uncertainty.

This study sought to understand how, if at all, EdTech was being harnessed in the eight countries focussed on: Botswana, Burundi, the Democratic Republic of the Congo (DRC), Madagascar, Malawi, Namibia, Rwanda and Zambia. Several main and secondary research questions were explored through a combination of key informant interviews (KIIs) and an online survey. Despite what has been reported in academic and grey literature - which heralds examples of technology revolutionising the way learners continued to access education while out of school during the pandemic - the findings of the scoping study, which involved speaking to people who live and work in the eight countries of focus, were not as effusive about the impact of EdTech since 2020.

The study report begins by detailing the methodology that framed how the study was conducted by the research team. The conceptual framework that guided the research activities is then elaborated on, followed by the details of the literature review linked to the period of the pandemic, which this scoping study focussed on (December 2019 through December 2021). Subsequently, and as part of a decolonial analytical turn, the findings from the KIIs and online survey are shared in their unaltered form to enable the voices of people (who were based in the eight countries of study during the pandemic) to be brought the fore. This is followed by a discussion and in-depth analysis of the findings that emerged from the research activities, book-ended by several recommendations for consideration by governments when working to reimagine education in a manner that is more equitable, inclusive to all, feminist, and that breaks free from neo-colonial practices and framings that do not serve the best interests of learners on the continent.



Artur Szczybylo

2. Methodology

2.1 Chapter Overview

This chapter explains the methodological approach undertaken in the study. Before explaining how the study evolved during the research period in which it was implemented, the motivations behind carrying out the research are discussed.

Firstly, the research paradigm that shaped the methodology development is provided, followed by the research questions. The research methods chosen for data collection are then detailed. In the latter part of the chapter, considerations related to the research are explored, before the ethical framework created and adopted for this study is outlined. These discussions are concluded with the study limitations identified, given the methodological design adopted.

2.2 Grounding the Research Ontologically and Epistemologically

Before implementing the research, it was necessary to consider the paradigm within which it would be situated and to determine what ontology would be used. For this report, we have used Gruber's (1993) definition of ontology: "an explicit specification

of a conceptualization” (Gruber, 1993, 220). Essentially this means that an ontology is a description of the concepts and relationships that can exist for an agent or a community of agents and that any ontology used must be shared and must be consensual terminology used for information sharing and exchange (Koochang & Harman, 2007:53).

A subjective ontology was adopted because, in contrast with an objective ontology that “... assumes that reality exists independently of our comprehension of it” (O’Gorman & MacIntosh, 2015), a subjective ontology places people’s own views at the heart of how reality is understood. A subjective ontology also creates space to acknowledge that reality is both socially constructed and value-laden. This is especially important because there is a possibility that the realities of interview respondents and survey participants may differ from what is written and reported in the dominant literature, and if this is the case, it should be acknowledged.

It is important to note that western ways of knowing often dominate mainstream literature and are often very different from those in Africa (Ngara, 2007; Nkondo, 2012): Western knowledge elevates the individual, rationality and the white man being the centre of a human apart from and above nature, compared to African knowledge systems that elevate the collective, Ubuntu, relational knowledge of the human self in harmony with and part of nature (Mazzocchi, 2006). Important to this research is that Nkondo (2012) argues that while all knowledge is local in its context when looking at knowledge in Africa, knowledge becomes universal through processes of conquest and colonialism (Nkondo, 2012). With this in mind, it both intersectional feminist and decolonial perspectives were adopted as the two pillars through which all data generated was analysed. More explanations regarding these terms are provided in the next section, but some brief information is provided here. Intersectional feminism is derived from the concept of intersectionality, a term created by African American feminist and scholar, Kimberlé Crenshaw, in the 1990s. Intersectionality was originally created as a legal lens to understand the double discrimination being experienced by Black women in a workplace where Black men and black and white women enjoyed access to benefits that were denied to Black women on the basis of both their gender and race (Nkondo, 2012). Similarly, adopting a decolonial perspective speaks to decoloniality, which means that this research moves away from the categories of Eurocentric thought to engage with ideas that have been marginalised and discredited as ‘uncivilised’ or even ‘barbarian’ - something that Mignolo (2009) calls the “decolonial option”, which favours analysis, art forms and actions that practice *epistemic disobedience* (Zembylas, 2018; Mignolo, 2009).

The first step in any research process is to identify a challenge that the community may be facing and to work with them to help understand what they wish to change about their circumstances (Brydon-Miller et al., 2003). According to UNICEF, an estimated 1.6 billion learners in 190 countries were impacted by school closure, i.e. remaining at home without access to structured learning, social protection or other benefits that school attendance offers (UNICEF, 2020). For the purpose of this research, we wanted to understand in detail how, if at all, technology had supported learners in the eight identified African countries (Botswana, Burundi, the DRC, Madagascar, Malawi, Namibia, Rwanda, and Zambia) during the COVID-19 pandemic when countries were subjected to lockdowns and schools remained closed.

Furthermore, while researching the use of technology in education, the central ambition of this research was to explore how access to education was being maintained during the pandemic (if at all). Martínez (2016) says that governments around the world made a commitment two decades ago to remove barriers to education for their children. UNICEF suggests that school fees, security risks, violence, prevailing social norms and other factors keep children and adolescents out of school in many countries (UNICEF and African Union Commission, 2021). Ezumah (2020) clarifies that access to education is not the same for all and that, in different societies, there are clear signs of varied levels of disparities among people of “different social status, through the digital divide, social class, and racial discrimination, gender and economic disparities” (Ezumah, 2020:57). Coupled with these disparities, Issacs (2012) argues that the focus of investment in Africa has continued to focus too much on introducing new waves of technologies and how they might work in environments that are often resource-poor (Isaacs, 2012), and has not focused enough on sound pedagogy, ICT training for teachers on how to effectively use ICT to support instruction and building overall ICT-capable capacity, which is essential for the African education system to move forward (Barakabitze, 2019:9).

The lack of focus on pedagogy and ICT training for teachers argued by Isaacs (2012) and Barakabitze (2019) is the very argument that we wanted to explore further in this study, and especially to what extent the respondents feel Big Tech or the introduction of foreign technology companies in the countries included in the research could hinder the basic right to education for children, especially those who are already at risk of being left behind or who are being excluded from the opportunities that EdTech may offer.

The aim of this study was to provide key policy recommendations related to education technology for the countries researched, as well as more general observations on EdTech in the sub-Saharan Africa region. Specifically, the aim was

to better inform advocacy work that protects the right to education in each of the eight African countries referenced and work towards closing the digital divide. This research was intended to show: how national education coalitions in eight African countries can best protect the right to education; whether leveraging technology could help them achieve this goal.

2.3 Research Approach

To achieve our research goals and motivations, we developed an evidence base on EdTech in Africa during the pandemic, spotlighting trends from a macro-level (a continental review) before narrowing the scope of the study to the context, trends, strengths, weaknesses, opportunities, and threats at a meso-level (country level review) of EdTech in Botswana, Burundi, the DRC, Madagascar, Malawi, Namibia, Rwanda and Zambia.

As explained by Leavy (2007), there are many purposes for social research. Given how new and under-researched the effect of COVID-19 on education currently is, we chose to approach this study as exploratory research, as the goal was to use this research to help fill gaps in our knowledge and also prompt further investigation (Leavy, 2007:5).

Data collection was undertaken over a six week period and executed in two phases using mixed methods, including qualitative KIIs and quantitative online survey data collection methods.

Table 1: Research timeline and approach

Research Phase	Duration	Methods
Phase One Study Design and Research	11 October - 31 December (12 weeks)	Concept note Research questions identified Research methodology developed Continental review
Phase Two Collection of KIIs Online Survey	8 November - 17 December (6 weeks)	Mixed method approach: Qualitative: KIIs Quantitative: Online survey data collection

Phase One involved study design and research. Flick (2019) explains that research design provides the paper structure and logic that guides the process of developing new knowledge and offering conventions for reporting the key elements of the research (Flick, 2019:102). It was with this in mind that a concept note was developed to detail how the research would be carried out and what the scope of the study would entail (Flick, 2021; Flick, 2019; Ragin & Amoroso, 2011).

Phase One also included a comprehensive continental review. This refers to the scope of 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 took place at the continental level and included material published in academic journals, research reports, project documents and other authoritative non-academic/grey literature sources like newspaper articles, UN documents and INGO documents.

Lastly, phase One involved designing the KIIs.

Phase Two was a meeting with GCE stakeholders to discuss and elaborate on the research before initiating a collection of KIIs with GCE stakeholders and the implementation of an online survey to enable more respondents to participate in the study.

Continental Review

In the next section of this report, the findings of the continental review are outlined, following an examination of the literature in three areas with which this research is concerned:

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

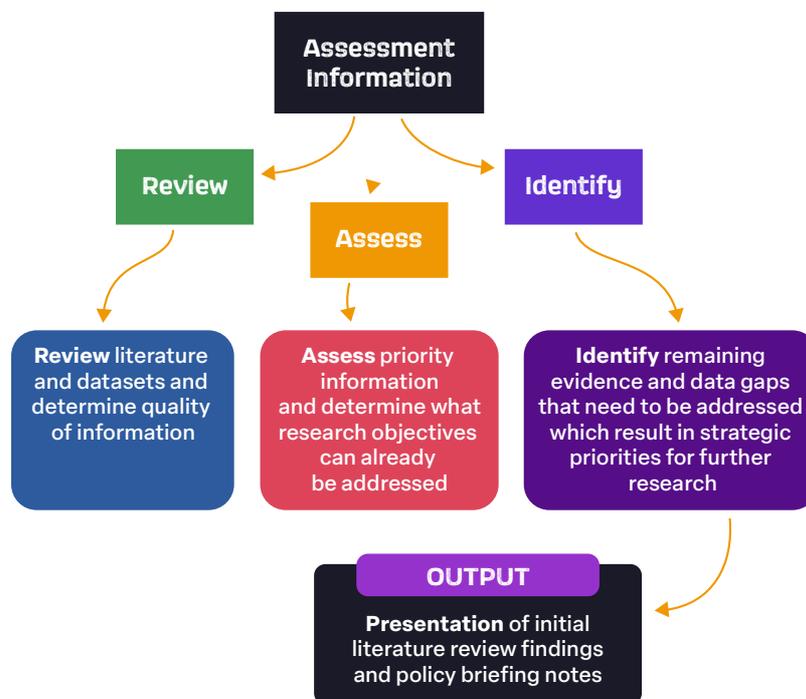
Area 2: Access to technology, availability of technological infrastructure, socio-economic status, data privacy, Big Tech (Global North, typically monopolistic and hegemonic companies such as Microsoft and Facebook), education privatisation, public-private partnerships, teaching and learning, teacher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

Area 3: Any evidence on what has and has not worked.

The exploration of the existing literature offers a brief review and analysis of EdTech interventions throughout Africa during the pandemic, including specific reports from the eight countries.

The continental review was conducted as a three-step information assessment, i.e.: a **review** of the existing literature and data; an **assessment** of its relevance to research objectives; an **identification** of the knowledge gaps where additional research was required to refine the focus for the final report and presentation that was to be drafted during Phase 2.

Figure 1: Continental review three-step information assessment and approach



Based on the analytical framework of '*review, assess, identify*', the three key questions and SRQs were systematically identified and progressively refined for the purposes of the continental review, to ensure that several data sources were investigated.

2.3.1 Research Questions

In understanding how EdTech had been harnessed in each of the African countries in response to COVID-19, based on the continental review, the following key questions were asked:

1. What education technologies exist in the country?

The goal of asking this research question was to provide a detailed analysis of the existing technological tools, platforms, models and infrastructure in the eight countries that this research focuses on. The term technology refers to radio, internet, paper, cellphone, television, etc. (Molenda & Januszewski, 2013:85; Mawere, 2014). EdTech refers to the technology used for the purpose of education.

Upon reflecting on the literature from the continental review and further discussions with GCE, it was agreed that the following sub-research questions (SRQs) would be added:

SRQ 1.1. What existing teaching and learning practices ensure effective and relevant learning outcomes?

SRQ 1.2. What examples, if any, are there of EdTech solutions that can complement these teaching and learning practices?

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

A detailed analysis of the impact of the use (or lack thereof) of EdTech is outlined here.

As noted by Schwab (2017) in his book, *The Fourth Industrial Revolution*, there is the potential to connect billions more people to digital networks, improve the efficiency of organisations and even manage assets in ways that can help regenerate the natural environment, which could potentially undo the damage done by previous industrial revolutions (Schwab, 2017). This is further argued in the context of education by Marra et al. (2018), who argue that education is enhanced

with the use of technology, as it has the potential to encourage accessibility, collaboration, communication, valuing diversity, active and social learning, self-direction, content engagement, project learning and global exposure (Marra et al., 2018; Fomunyam, 2019). With this in mind, key themes were dealt with by this research question, i.e. access to technology, availability of technological infrastructure, socio-economic status, data privacy, Big Tech, education privatisation, public-private partnerships, teaching and learning, teacher training, student experiences, parent involvement, home context, gender and geography.

Contextual factors for each country need to be taken into account as these differ from country to country. As Mooketsi & Chigona (2016) state, “The implementation context and the history of the implementers and other issues that are in no way related to the implementation process affect the implementation process and outcomes” (Mooketsi & Chigona, 2016:1).

There are multiple scenarios in which EdTech could help facilitate educational inclusion during the pandemic, but it has also been recognised that there are instances in which EdTech can contribute to exclusion during the pandemic (Unwin & Unwin, 2009), particularly since the data already suggests the pandemic has widened the digital divide (Chrol, 2021). It is important for any programme of work in EdTech in the eight identified countries to be careful not to exacerbate existing inequalities by (further) excluding people who might benefit from an intervention if appropriate adjustments are made to ensure equity among the participants insofar as possible.

Based on the continental review, areas of exclusion in education, including gender, geography and ability, were identified and the focus in these areas was to explore how EdTech might be leveraged to address the areas of exclusion. There was a need to explore how the use of EdTech could help end educational exclusion relating to gender discrimination, displaced populations, people based in rural areas, child-headed households, contexts that are experiencing ongoing conflict and people with a disability (Phasha et al., 2017).

Given the above, the following SRQs were formulated:

SRQ 2.1. What existing areas of educational exclusion are most urgent for GCE to address within the next five years?

SRQ 2.2. Which programmes or solutions, if any, effectively use EdTech to promote educational inclusion for vulnerable or otherwise marginalised populations in the eight countries of focus for this research?

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

Here, the recommendations made take into consideration the findings regarding Question 2 in each country, and make reference to successful EdTech examples from different countries, where applicable.

2.3.2 Implementing KIIs and Online Survey Tool

Once the continental review was concluded and a better understanding of the existing literature was obtained, KIIs were developed and the online survey tool was launched. It was anticipated that once the continental review had been conducted would there be more awareness of what potential gaps existed and how this research could assist in addressing them. Space was also allowed in Phase Two for further research questions that could appear as a result of the continental review. As Ridley (2012) explains, the goal here was to contextualise the bigger picture regarding school closure during the COVID-19 pandemic, provide the background and identify the gaps for this research (Ridley, 2012:6).

2.4 Sampling

2.4.1 Sampling KIIs

Based on the findings of the continental review and the additional SRQs that were identified, we then proceeded with the KIIs. While it was known that the continental review would be instrumental in establishing the direction of this research, it was believed that invaluable information could also be shared by key informants identified by GCE following a coalition meeting in October 2021.

It was important to find participants who were particularly knowledgeable about the impact of COVID-19 on the education system of their country and the distance learning solutions that were adopted during this period. As King & Horrocks (2010) indicate, advertising openly for participants can result in a sample that is highly self-selecting (King & Horrocks, 2010:35), and could “mean that you do not get the balance of participants that you would ideally have liked” (King & Horrocks, 2010:35). With this in mind, it was decided that the key informants should be drawn from the GCE coalition database and be composed of GCE members who represent national coalitions of organisations, regional or international network organisations, or international organisations and representative bodies operating in the eight countries researched. With the help of GCE, key informants were contacted by email and asked if they would be willing to participate in this research and agree to be part of the interview process.

A semi-structured interview guide was designed (see appendix A), consisting of 12 questions, to allow the interviewer to explore issues brought forward by the interviewee (Laksov et al., 2017). The goal was to ensure that two people from each of the eight countries of focus were interviewed for the study, to serving as triangulation sources or offer new perspectives in light of what was learnt in the literature review. The KIIs were approximately 40 minutes in length and the majority of these interviews took place over Zoom. (On occasions, when connectivity was a challenge, WhatsApp was used as the interview medium.) Interviews with stakeholders from Burundi, the DRC and Madagascar were conducted in French and were implemented with the assistance of professional interpreters.

The aim of these interviews was to delve further into stakeholders’ knowledge and perspectives of EdTech during the pandemic, in order to understand the contexts more deeply.

Table 2: Demographics of respondents by country

Country	Number of Respondents	Gender
Burundi	2	Male Male
DRC	1	Male
Madagascar	2	Female Female
Malawi	2	Female
Namibia	3	Female Male Male
Rwanda	2	Female Male
Zambia	2	Male Male

2.4.2 Sampling Online Survey Respondents

In addition to the KIIs, an online survey was done to gather data from other key informants using SurveyMonkey, an online data collection platform with mobile-based access functionality. This enabled surveying more respondents more quickly

and reaching people spread across a wider geographic area than just the eight countries included in the study. The online survey consisted of 14 questions, 12 that were multiple-choice and two that were open-ended. The survey was translated from English into French by the GCE communications team and the survey was implemented in both French and English. The Simple Random Sampling (SRS) (Fielding et al., 2017:165; Sue & Ritter, 2012:37) method was used by advertising the survey on LinkedIn and other GCE social media platforms, as well as forwarding it via 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. This approach was determined so as to give a wide range of GCE stakeholders the chance of being selected to share their views (Sue & Ritter, 2012:37).

Once the survey was finalised and uploaded to the survey tool, GCE sent it to an unknown number of stakeholders. Dr Ronda Železný-Green and Hannah Metcalfe also distributed the survey to their networks, comprising 35 people in total. All were located within Africa, some of which were within the countries of study.

2.5 Data Collection and Analysis: Intersectional and Decolonial Processing

It is important to discuss how the data was collected and analysed using the two conceptual framework pillars that are established later in this study.

As discussed above, a mixed methods approach was adopted to understand how, if at all, EdTech was being used in Africa during the COVID-19 pandemic. This approach involved using KIIs (a qualitative data collection method) and distributing a survey (a quantitative data collection method). The data was collected over a period of two months with the assistance of the Global Campaign for Education by identifying interviewees, arranging the KIIs (including interpretation where necessary) and access to and use of their upgraded SurveyMonkey account, which enabled a longer and more sophisticated survey instrument to be developed and used. The final date of data collection was 21 December 2021, when a final KII was conducted via Zoom.

Once all data was collected, it was necessary to process the data and subsequently analyse it. The data processing and analysis phase of the study involved a collaborative approach between the two researchers engaged in this study. After conducting each KII, the researchers compiled detailed notes on what was stated by the interviewees and generated a transcription of the interview for later use during the analysis process. Once each interview was transcribed, the researchers met via

Zoom or WhatsApp to recapitulate what was discussed during the KIIs and compare notes, particularly where interviews had been conducted with people from the same country by different members of the research team. During these discussions, the data generated was considered from both an intersectional and decolonial perspectives. This was done for the KIIs as follows. First some of the salient issues that arose from the interviewees were discussed, particularly where characteristics related to the learners' identities were invoked (e.g. gender, location, socioeconomic status, ability, school type - public or private - etc.). These issues were teased out further and an intersectional lens applied to consider how any of these factors or a combination of them potentially affected the circumstances described by the interviewees when discussing what happened after the COVID-19 pandemic was declared. For example, after adopting an intersectional lens, our thinking was adapted to consider power structures and acknowledge who was excluded and why, and who has access to resources and why (Morris & Bunjun, 2007; Okechukwu, 2019).

This intersectional thinking was then further filtered in a decolonial manner, with attention given to the people-centred impact of colonial structures that linger and affect the educational and technological (among other matters) in the ecosystems today in the eight countries identified. The best way to illustrate this approach is to draw on the metaphor of a tortoise coined by Keikelame (2018). Keikelame (2018) explains that the decolonising process should be paced slowly and should be characterised by commitment, courage and perseverance – like the commitment of the tortoise. She shares some important issues that other researchers can learn from when doing research among the marginalised population groups, i.e. issues related to: language; interpreters, translators and transcribers; ethics; religion and faith; reciprocity; unexpectedness; identity, age and gender (Keikelame, 2018; Swartz & Keikelame, 2019).

The colonial impact we identified was then critically questioned and juxtaposed with how locally situated approaches, resources and social action played roles in pushing back against the colonial influence to devise forms of educational inclusion and continuity that were meaningful to the people affected by the COVID-19 school closures.

With respect to the online survey that was used, the researchers took a similarly coordinated approach to data processing and analysis. After the surveys were developed and implemented in both English and French, the researchers undertook to monitor the responses received every other day. This enabled the team to send nudges to our networks and encourage the GCE to solicit participation from its network. Moreover, more frequent checks of the survey data collection tool enabled

the data received from survey participants originating from the eight countries included in the study to be triangulated, which enabled contemporaneous processing and analysis to occur alongside several of the KIIs.

Before using the survey data for analysis, the data was first cleaned to remove any responses that were incomplete, non-sensical, inconsistent, or otherwise questionable. The data was again distilled through intersectional and decolonial lenses, like what was done to the KII data in order to promote the emergence of insight that was distinctly situated in the country contexts in which the participants were based. A Western gaze was deprioritised insofar as possible, given the considerations of the individual and joint positionalities of the research team.

To aid the analytical consideration for both types of data separately, as well as in relation to each other, diagrams were created that mapped out the linkages between interviewees' and survey participants' commentary within countries and between the seven other countries on the continent that were part of this study. The researchers also denoted instances in which singular circumstances were conveyed and reflected on the significance of any data shared that could not be triangulated in the literature or subsequently through the surveys or KIIs (depending on what data type was being analysed at the time). Finally, key findings that emerged from this dialogue and iterative reflection were agreed upon and confirmed. A systematic approach was decided on to analyse human development phenomena because it can surface findings that were previously unanticipated yet highly influential in this context (Železný-Green, 2017). As Chu & Illya (2016) indicated, in order to prevent false-positive results, a systematic approach to initial data analysis and its reporting was needed (Chu & Illya, 2016). This allowed subtle connections and visualise qualitative findings to be uncovered in a rigorous fashion.

2.6 Validation Approach - Peer Review

Insofar as possible, we wanted an opportunity to validate the insights that emerged from the KII by triangulating the data. Triangulation has been described as “the process of corroborating evidence from different individuals, types of data, or methods of data collection” (Cresswell, 2002:676). Mabuza et al. (2014) explains that the effect of triangulation is to “render a more holistic picture of the phenomenon under study and to prevent undue reliance on a single data collection method or source” (Mabuza et al., 2014). This was important because by triangulating the data it also improves the dependability of the findings (Mabuza et al., 2014).

GCE asked the National Foundation for Educational Research (NFER) to conduct an external peer review as part of the report finalisation process. An internal peer review

was also conducted by two GCE employees who have a radical Black feminist education and international development policy expertise, respectively. NFER peer reviewed a second draft of the report findings and recommendations in February 2022 over a period of two weeks while the internal GCE review was conducted twice, once in February 2022 before the external peer review and again in April 2022 after NFER's external review was concluded. One potential limitation of this study that should be acknowledged is that there was no formal selection process undertaken to identify peer reviewers outside of the GCE network.

2.7 Ethics in Research with Key Informant Stakeholders

The ethical practices that were adopted during this research are now briefly examined.

The ethical principle of Human Subjects Protection is described by Resnik (2011:7) 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 ethical principle was key to the research study: at the beginning of each KII, participants were read a permission request. This introduction briefly outlined the research details and assured participants that their responses were voluntary and would be kept confidential. Participants were also assured that their real names would never be used anywhere, unless their express permission was granted.

For purposes of note taking and to validate data at later stages of the research we requested that the interviews be recorded, given that this is usually preferable in qualitative research (King & Horrocks, 2010:44). However, participants were given the option to not be recorded, if they preferred, with the researcher taking notes instead. When participants agreed to being recorded, we then pressed record on Zoom and request that the participant state: name, role, organisation, country, and confirmation of their participation in the interview and for it to be recorded. The benefit of using software like Zoom or Skype is that it allows for software to record the interview without the recording being too obvious or distracting (Flick, 2021:315; King & Horrocks, 2010:44). Furthermore, at the start of the interview, participants were advised that if, at any point in the interview, they no longer wished to participate, they had the right to end the interview at any time (Fielding et al., 2017:24). Allowing participants to change their mind on whether they wanted to participate was an important part of the process, as the researchers understand that consent is not a once-off event, but is ongoing (King & Horrocks, 2010:115).

Given that both an intersectional feminist and a decolonial perspective were adopted as lenses through which all the data generated was analysed, there was a need to ensure that the research included critical consciousness, which prompts research to find ways to consider critical questions and reflect about how and what is being done, what is happening, what is seen and heard, etc. (Aluwihare-Samaranayake, 2012:74).

As Aluwihare-Samaranayake (2012) argues when interpreting spheres of people's lives and community experiences: "It is crucial to adhere through dialogue and critical consciousness and through an inter-subjective lens to the principles of respect, beneficence, nonmaleficence and justice to ensure that the research is enabling for the participant and facilitates humane transformation to achieve empowerment" (Aluwihare-Samaranayake, 2012:76).

Lastly, ethical matters were considered when designing and implementing the online survey. Knussen & McFadyen (2010) believe that one of the key ethical advantages to using SurveyMonkey or a similar software tool is that, if intellectual property (IP) numbers are not collected, there is no way of tracing respondents, which ensures that the participants' responses remain anonymous. They state: "There is no need to use email addresses, and there is less likelihood of invading privacy ... Further, it is likely that respondents will understand the uses that will be made of the data (including publication and other forms of dissemination), which is central to informed consent" (Knussen & McFadyen, 2010:2). Furthermore, this online survey tool was used to expand the number of voices included in this research and to ensure that women and marginalised groups were given the opportunity to share their opinions safely. While the nature of the data being collected may not seem to be sensitive, it was important to honour the feminist perspective that advocates for alternative forms of data collection that are able to engage with stories of trauma and survival in ways that are not triggering, invasive or limited (Motsemme, 2004a; Motsemme, 2004b).

2.8 Research Limitations

Because care was taken to develop the study design in a manner that respects the research participants, certain study limitations arose in relation to the design developed.

These interviews were conducted in English and French, and not in the participants' mother tongue. This is an issue because while all the key informants were fluent in either English or French, there may have been experiences that would have been better shared in their native language. This must be acknowledged because it is possible that a portion of the information is missing or could have been better

articulated if interviews had been conducted in the informant's mother tongue. While the researchers are confident that we took time and patience to allow participants to share their thoughts thoroughly, there is still a possibility that even the actual depth and engagement of the statements made in the interview could be missing, even though the transcription is accurate.

The second limitation was conducting the research remotely using internet-based tools like Zoom and WhatsApp. Many of the key informants participated in the interviews using an unstable internet connection, which meant that some of the interviews were disjointed and hard to conduct. Ensuring flexibility in the interview guide and approach mitigated some of these challenges, as it allowed for switching communication platforms, and if connectivity was particularly bad, the interview could be shorted if necessary or the interview could be split in two. However, this did not resolve all the connectivity challenges that presented during the interviews. In some cases, additional key informants from the same country had to be identified and interviewed instead. This also had an impact on the engagement with stakeholders. The COVID-19 pandemic continues at the time of writing this report, and it was apparent that pandemic fatigue and zoom fatigue also made it difficult to implement the research, as there was not enough time to interview every potential key informant, therefore the sample size for the survey was small.

Due to the timelines and the virtual nature of the interviews, it was decided to interview participants who were GCE stakeholders with an existing relationship. This was motivated by convenience and to ensure that GCE members' voices were heard. This meant there were limitations to the research, as care must be taken when drawing causal conclusions based on the participants and their representativeness of the populations in the countries being researched.

The fourth challenge relates to triangulating the data by ensuring there were two informants from each of the eight countries included in the study. However, conflicting schedules and internet challenges meant this was not possible and only one key informant was interviewed from Malawi and the DRC. This is an issue, since the ideal was to triangulate perspectives shared during all the KIIs to understand if the phenomena being observed by people in-country were part of a wider pattern or more likely to be isolated events.

The fifth limitation is the positionality as researchers. While both the researchers are feminists and Dr Železný-Green is Black/minoritised, both are Western and have been influenced by Western thinking. This means that, in undertaking this research, both researchers have worked constantly to help ensure that a decolonial perspective was maintained, but were fully aware that an entirely decolonial

perspective was not necessarily completely achievable, given the researcher's identities. Nonetheless, in order to work towards maintaining this perspective, various approaches were adopted while implementing this study, including:

- Referencing literature from global majority authors primarily or alongside literature from global minority authors. The intention was to centre voices and perspectives from the region of focus for this study. This approach helped the researcher to embrace ways of knowing from fellow researchers that have been othered or otherwise deprioritised, often in favour of global minority voices.
- The researchers chose to open dialogue with and centre the voices of the KII and survey participants by sharing their responses verbatim, to give space to their perspectives without influence from people steeped in Western approaches. Although these perspectives were subsequently challenged in the data analysis, the challenges arose in response to statements shared (and not shared) by research participants, which were themselves likely influenced by colonialism (particularly in reference to gender and education issues).
- Maintaining ongoing critical reflexivity to challenge: research methods employed, and analysis of research findings developed, data reviewed in the literature and even data generated by research participants. The aim was to work in a transformative manner to question the existing paradigms in the education sector for the eight countries with which this study was concerned, in order to assess how, if at all, justice in access to education was being served by harnessing EdTech during the COVID-19 pandemic.

Interpreters were relied on to conduct the interviews with Francophone study participants. While the interpreters are professionals who are regularly engaged by GCE, there are always limitations to the flow of the discussion when interpreters are used for interviews. Aranguri, Davidson & Ramirez (2006) note that, in the interpretation context: more is being said than is getting translated; interpreters change meanings by omission, revision and reduction of content (Aranguri et al., 2006:). In addition, although all interpreters were from the African continent, it must be acknowledged that training of interpreters and studies on interpreting continue to be largely Eurocentric and dominated by Western institutions (Mpemba, 2018:131).

Furthermore, it is worth noting that although most of the data was triangulated, the findings cannot be extrapolated within the countries where the interviews and surveys were conducted, nor beyond their borders, due to the small size of the samples used with each research method.

2.9 Chapter Summary

The methodological design created for this research was detailed in this chapter. Throughout, the focus was intentionally kept on the goals that were set for the research study. The methodological approach undertaken was explained, along with the motivations behind carrying out the research.

The research methods chosen for data collection are also detailed. In the latter part of the chapter, the ethics-related research considerations relevant to this research study were explored. The chapter concludes with the study limitations associated with the methodological design.

The next chapter provides the conceptual framing for the research by conducting a continental review. The literature review discusses the thinking that informed this work from a conceptual standpoint. This chapter shows that this work was intentional in its ambition to adopt both an intersectional feminist and decolonial perspective as lenses through which all the data generated was analysed.



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

3.1 Chapter Summary

Before discussing how this scoping study was carried out and what findings were obtained, it is important to discuss the conceptual thinking that informed this work. This work was intentional in its ambition to adopt both an *intersectional feminist* and a *decolonial perspective* as lenses through which all the data generated was analysed. These positions enabled the data to be considered in a manner that centres African children - especially Black and Brown girls - whose education has been most affected during the COVID-19 pandemic (GPE et al., 2020; Baker & Kariuki, 2020), and lays the foundation for a radical reinterpretation and reimagined understanding of the systems, tools and stakeholders that have shaped education provision and continuity during the extended period of uncertainty.

A brief explanation is provided below of what intersectional feminism and the adoption of a decolonial perspective means within the context of this report.

3.2 Conceptual Lenses

3.2.1 Intersectional Feminism

Intersectional feminism is derived from the concept of intersectionality, a term created by African American feminist and scholar, Kimberlé Crenshaw, in the 1990s. Intersectionality was originally created as a legal lens to understand the double discrimination being experienced by Black women in a workplace in which Black men and white women enjoyed access to benefits that were denied to Black women on the basis of both their gender and race. Accordingly, intersectionality (in legal settings or otherwise) asks us to consider a person's entire identity rather than considering the individual in a piecemeal fashion when trying to understand how they experience the world. Intersectional feminism enables us to view situations and challenges in a manner that considers circumstances holistically, while also compelling us to recognize that gender is not a mutually exclusive identity (Crenshaw, 1989). Gender often interplays with race and the other elements that an individual may embody, such as ethnicity, tribal affiliation, geography, class, socioeconomic status and age.

Intersectionality actively acknowledges that people comprise a complex set of social, political, and cultural identities, and that these identities inevitably shape the interactions that individuals have with powerful structures and systems within the societies in which they live (Carastathis, 2014). Structural inequality refers specifically to the inequalities that are systemically rooted in the normal operations of dominant social institutions¹⁰. These inequalities can be divided into social, political, economic and cultural categories like class, residential location, healthcare and education access, employment, race and nationality (Finn & Kobayashi, 2020). Intersectional approaches are increasingly being adopted in the field of international education development, particularly to indicate where intersecting and overlapping forms of oppression (historical and contemporary) affect multiple countries struggling with education delivery, and to help us understand different and interconnected forms of inequality (Mawdsley et al., 2019).

Within the context of this report, an intersectional feminist approach allowed for centering the voices of those experiencing overlapping, contemporary forms of discrimination or barriers to inclusion¹¹ when seeking to access and exercise the right to education during the COVID-19 global pandemic, particularly where gender concerns are a factor in the circumstances observed. This framing enabled the identification and unpicking of the factors that may have influenced the harnessing of EdTech during this extraordinary period and the relationships among these factors within the eight country contexts.

¹⁰Structural inequalities: <https://archive.unescwa.org/structural-inequalities>.

¹¹Intersectional feminism: what it means and why it matters right now

<https://www.unwomen.org/en/news/stories/2020/6/explainer-intersectional-feminism-what-it-means-and-why-it-matters> (UN Women, 2020).

3.2.2 Decolonial Perspectives

The decolonial perspective is a school of thought that focuses on dismantling colonial knowledge production from what the global majority claims is a primarily Eurocentric episteme. It critiques the perceived universality of Western knowledge and the superiority of Western culture. Decolonial perspectives see this hegemony as the basis of Western imperialism¹². In international education development, decolonial perspectives actively work to undo the harm caused by teaching and learning practises covertly packaged as 'social', 'collective', or 'community-oriented' but that really cater to the individual (De Lissovoy, 2010).

One challenge to the aim to adopt and centre the decolonial perspective of the global majority¹³ in this work is that most academic and grey literature is authored and published in English. Frequently by authors are from the global minority or the global north, excluding works from academics and educational practitioners whose language of publication is not hegemonic nor privileged in nature, as with English. Also the English language contributors who are based where the global majority live and/or are unable to access high-ranking publications where their research might be indexed for digital search (Takayama et al., 2017). As the research team only has knowledge of the English, French¹⁴ and Spanish languages, this research limitation is acknowledged since it affects the literature that can effectively be considered.

Decolonised international education development also problematises thinking in solely binary terms (Menon et al., 2021), which pushes theorists and practitioners to examine issues in a pluralist manner that considers multiple factors, including the structure of the context in which education is enacted. Here is where the conceptual framework for this report finds a natural link between the intersectional feminism and decolonial perspectives, since both concepts help the researcher to intentionally widen the analytical approach and understanding of the phenomena under study during the investigation. In other words, the researchers cannot adopt intersectional feminism without being decolonial (and vice versa) as well, since intersectionality asks for consideration to be given to the thoughts, perspectives, positions and histories (among other components) of those people, whose stories are not

¹²Aníbal Quijano (2007) Coloniality and modernity/rationality, *Cultural Studies*, 21:2-3, 168-178, DOI: 10.1080/09502380601164353.

¹³Throughout this report, the term “global minority” is used to refer to non-Black, Brown and indigenous people located in North America, Europe and East Asia. The term “global majority” is used to refer to Black, Brown and indigenous people wherever they are found in the world, but particularly in Africa, South America, South and Southeast Asia, and the Pacific (Lim, 2020).

¹⁴The research team has a working knowledge of written French aided by the use of Google Translate and the Linguee app, which draws its translations from European Union documents. Their French language abilities do not extend to oral (either speaking or interpreting) French, which is why professional interpreters were used to conduct the French language interviews.

traditionally told nor their viewpoints represented. This manner of interpreting phenomena gives way to a decolonial turn that decentres majority white, Western, hegemonic perspectives that have come to dominate academia, often unquestioned. As a result, intersectional feminism and decolonial perspectives work in tandem to frame epistemologies that have not been permitted any space previously.



Cecil Dzwowa

4. Education Delivery in Africa during the COVID-19 Pandemic

4.1 Chapter Overview

In this chapter of the report, a brief examination will be undertaken of the literature on the use of education technologies in Africa since the COVID-19 pandemic began. Underpinned by the intersectional feminist and decolonial perspectives laid out in the previous conceptual framework, the aim of the literature review was to build the foundation on which to situate and interpret the data generated and analysed while conducting this scoping study.

4.2 Education and the COVID-19 Pandemic

4.2.1 Context

In January 2020, the world was just beginning to learn about the emergence of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) or COVID-19, in Wuhan, China, which was first noted at least a month prior. By March 2020, the World Health Organization (WHO) had declared the outbreak of COVID-19 a global pandemic (Cucinotta & Vanelli, 2020). The declaration noted that the virus was fast-spreading and airborne, and thus required urgent emergency action to be taken if it was to be contained. These circumstances ushered in rapid change almost overnight, which affected every aspect of life, from work to travel and, of course, education.

In order to contribute to a reduction in virus transmission, schools the world over began to close or alter their method of education delivery. The World Economic Forum (WEF) (2020) estimated that the pandemic meant that 1.2 billion children suddenly found themselves learning outside of their usual classroom environment. In many cases, the need to ‘reimagine’ education meant that learning moved online, with teachers and learners alike signing up en masse to educational platforms in an attempt to maintain educational continuity (WEF, 2020). However, even in so-called high-income countries like the United States (US) and the United Kingdom (UK), the pandemic-forced transition to alternative means of education delivery meant that there were large groups of children who were excluded from digital learning delivery participation, either because internet access where these children live was unavailable or unaffordable or because they did not have a digital device to make use of the internet, if it was available and affordable (Železný-Green, 2020). This global digital divide was more often than not worse for children who are Black, Brown, indigenous or female (Železný-Green, 2020). Because of this, alternative delivery modes, including radio and television, were often concurrently or exclusively leveraged where gaps were revealed (UNESCO, 2020a).

Although this literature review focuses primarily on documented experiences in Africa surfaced through a continental review¹⁵, at times it was necessary to consider sources that focused on countries beyond the eight countries of which this study was focused on when compiling this review, due to: the unprecedented nature of the

¹⁵This term refers to the scope of 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. The review took place at the continental level from a geographic standpoint and includes material published in academic journals, research reports, project documents and other credible non-academic/grey literature sources like newspaper articles, UN documents and INGO documents.

pandemic affecting all countries all at once; the scarcity of peer-reviewed literature available due to lengthy publication timelines; the aforementioned language-related limitations in terms of the literature that was possible to be reviewed; the ongoing nature of the pandemic itself (which means that new phenomena to be studied in the education sector arise on a regular basis). The literature review for this report was also limited to resources published between December 2019 and December 2021. Finally, although the intention when writing this report was to centre indigenous and non-western traditions and epistemologies and decentre dominant Eurocentric practises and voices whenever possible and relevant, the literature review had to rely on a mix of sources since the story about harnessing EdTech in Africa during the pandemic is still being written and a critical mass of global minority-authored publications has not yet been developed.

Given these circumstances, there is a need to understand - from a high-level perspective how if possible - how countries harnessed EdTech during the pandemic. This literature review considered some of the documented EdTech scenarios on the continent to build an understanding of what has been reported to have occurred during the pandemic by international researchers, international NGOs and large, multilateral organisations. The results, data analysis and discussion sections of this report explore what occurred in the eight countries of focus from the perspective of people (national practitioners, government officials, national NGO workers, etc.) within the GCE network who are living through the pandemic and have seen first-hand how EdTech is being harnessed during school closures or national lockdowns. A discussion is also provided of any purported impact compared to the international sources referenced in the literature review.

4.3 How EdTech Was Harnessed in Africa and the Eight Countries of Focus during the COVID-19 Pandemic

Approximately 28% of people in Africa have access to and use the internet and digital technologies (Duarte & IMF, 2021). 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. (Duarte & IMF, 2021). Of the eight countries with which this study is concerned, Rwanda has 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). With the lack of access to the internet and digital technologies among the population in Africa, by extension, this means that the vast majority of people on the continent do not have meaningful access to technologies such as a computer, mobile phone, radio and television. Given these circumstances, the onset of the COVID-19 pandemic was a

seismic event because of the eventual school closures and the need to find alternatives to in-person school attendance.



Richtphoto Smile

Every country on the continent experienced a school closure due to the national lockdowns, except for Burundi. A World Bank study done by Muñoz-Naja et al. (2021) found that, where the related infrastructure existed: at least nine countries in sub-Saharan Africa leveraged internet connectivity to deliver education during the pandemic; five countries used mobile phones; 11 countries used radio; ten countries used television; nine countries used paper-based materials that students took home to work on on their own; two countries relied on tutoring. Several countries employed a multi-modal approach, combining two or more education delivery methods, while others used a single technique to deliver learning during the pandemic (Muñoz-Naja et al., 2021). What follows is a brief overview of some of the EdTech interventions that occurred across the continent during the pandemic, before reporting on a deep dive into the EdTech approaches used in the eight countries of focus for this study.

4.3.1 Continent-wide

Based on its prior experience with remote learning delivery during the Ebola outbreak in 2015, Sierra Leone reactivated its radio learning programme to keep its

schoolchildren engaged (Rodriguez et al., 2020). Following the radio programme, school children could use mobile phones to follow up with teachers about what they had learned (Muñoz-Najar et al., 2021). Mozambique also used a multi-modal approach, combining TV programming with sign language, radio content in Portuguese and indigenous languages more commonly spoken in the country, as well as the distribution of paper-based materials that children could use to study on their own (Rodriguez et al., 2020). Kenya’s multi-modal education delivery approach during the pandemic comprised television, radio and pre-recorded online lessons facilitated by the government (Muñoz-Najar et al., 2021). In partnership with United States Agency for International Development (USAID), the Zambian government implemented interactive radio instruction for Grades 1 through 3 in half of the country’s provinces, as part of the Let’s Read programme (Mapoma & USAID, 2020). Solar radios were also distributed to help ensure potential access issues were addressed upfront (Global Partnership for Education, 2020).

Edo state in Nigeria has been referenced repeatedly since the pandemic began because of the work to adapt its EdoBest programme to EdoBest@Home (De Simone et al., 2020). The EdoBest programme was designed to use state-of-the-art teaching and learning approaches along with EdTech (namely an online platform, radio, and television) to help improve learning outcomes for a school system serving children with a high level of poverty and a low level of education. When schools closed due to the pandemic, it became necessary to tweak the programme by integrating digitised activity packages that learners could do on their own at home, and distributing these via online through media like WhatsApp. However, in recognising that not every learner has internet access, the government is working to deliver lessons via audio files or the mobile phones of parents, since household access to mobile phones is greater than access to either radio or television (De Simone et al., 2020).

Digital learning through a Microsoft-supported online platform was leveraged by teachers (82,000) and learners (500,000) alike in Senegal, with local Microsoft expert Animata Lo helping Senegal’s Ministry of Education (MOE) to make timely enhancements and restructure its National Education Information and Management System (SIMEN) (Microsoft, 2020). Although this particular intervention was buttressed by the private sector, like the other countries reviewed, Senegal took a multi-modal approach and also used its digital terrestrial television network to show educational content to learners during the pandemic as well as used the radio company of Senegal for the same purpose (GPE Secretariat, 2021). These initiatives were also noted by one of our global key informants who stressed the value of these EdTech solutions.

Before the start of the pandemic, EdTech Hub (2020) started compiling a database of 210 EdTech initiatives that have been used in low-income and middle-income countries, and this process continued during the pandemic. The vast majority of initiatives in Africa included in the database have been implemented in South Africa, Nigeria, Ghana, Rwanda, Tanzania, Kenya and Uganda, although a few were implemented in Angola, Zimbabwe, Sierra Leone, Namibia, Somalia, Mozambique, Mauritius, Cameroon, Lesotho and Zambia. Not every country on the continent has been able to use EdTech meaningfully, because of the challenges related to access, infrastructure, device affordability, etc., which have already been mentioned (Muñoz-Naja et al., 2021). This meant that if a country's population already had unequal access to digital technologies, the same digital divide would be replicated in national attempts to provide education technologies to all learners.

The discussion now turns to the eight countries with which this scoping study is concerned, starting with an examination of an intervention in Botswana.

4.3.2 Botswana

Like several countries, Botswana had to determine how it could help prevent learning loss, or a decrease in school-aged children's academic skills and knowledge that can occur during school breaks or interruptions, such as the school closures that many learners experienced during the COVID-19 pandemic (Ardington et al., 2021). Just before school closures were announced in Botswana on March 20, 2020, researchers from Oxford University and the NGO Young Love collected the phone numbers of over 7,500 primary school learners and their parents (Angrist et al., 2020). Parents were then offered the opportunity to have their child continue learning through remote provision via bulk short message service (SMS) text solely or texts with 15–20-minute phone calls (Angrist et al., 2020). Radio and television programming also featured in Botswana's attempt to mitigate the negative effects of school closures on its school population, with the national school curriculum and lessons being broadcast (Motshabi, 2020). Where EdTech was not viable, paper-based learning was used (Rodriguez, Cobo, Muñoz-Najar & Sánchez, 2020).

4.3.3 Burundi

Burundi represents one of the more unique cases in terms of how governments responded to the COVID-19 pandemic in the education sector: although 189 countries experienced school closures during the pandemic, Burundi was not one of them (World Bank, 2020). In fact, the only coronavirus-related school closure coincided with the planned school summer break, which some attribute to the pandemic scepticism of Burundi's former President, Pierre Nkurunziza (Africa News, 2021). Nevertheless, Burundi has adopted EdTech through its participation in the

Early Grade Reading Project, which is funded by the World Bank and implemented in partnership with Columbia University in the US. This project uses classroom and home-based radio instruction to help improve literacy outcomes, and is viewed as a potential jumping off point for Burundi to engage further with EdTech as the pandemic persists (Kabongo et al., 2021).

4.3.4 DRC

Despite producing much of the invaluable material needed for mobile phone and electric vehicle technologies (particularly for use by the global minority) (Tshiamala, 2021; Searcey et al., 2021), the DRC's own national infrastructure does not benefit greatly from these resources - an extensive history of slavery, colonialism and corruption saw the DRC unable to support an effective pivot to using of EdTech during the pandemic (BBC, 2013; (UNESCO & Global Education Coalition, 2021). However, an effort was made to help Congolese children continue learning during the pandemic-related school closures: United Nations Organization Stabilization Mission in the DRC (MONUSCO) (2020) offered a lifeline to the estimated 27 million children who were unable to attend school by distributing paper-based learning kits with homework booklets, and launching Okapi School, which is an educational programme on its radio station - the only radio station with nationwide coverage in the DRC. Television was also leveraged because Educ-TV, which was created in 2019 by the DRC MoE to deliver educational programming, picked up further use as the pandemic and school closures in the country continued (MONUSCO, 2020). The subjects covered by the broadcasts of the various didactic sequences for the primary level of schooling include maths, reading, writing, French and education related to health, hygiene and the environment, as well as maths, technology and life, earth and computer sciences at the secondary level (MONUSCO, 2020). Expanding on the EdTech offerings available, at the request of some of the eight million children who benefited from Okapi School, MONUSCO launched *Okapi Enfant* on World Children's Day (November 20, 2020) (Fundi, 2020). *Okapi Enfant* is a radio station that offers educational content for three hours in the mornings (from 8am to 11am), with an initial launch in Kinshasa before expansion to seven major cities, including Goma and Bukavu (Fundi, 2020).

4.3.5 Madagascar

Madagascar's population has been forced deeper into poverty due to political instability and the long-lasting effects of colonialism, slavery and corruption that, like the DRC, are related to its natural resources (Huff & Orenge, 2020). It also used a paper-based approach to complement digital outreach to children during school closures caused by the COVID-19 pandemic. A research brief produced by UNICEF's Office of Research, Innocenti, Education, reported on an examination of

education responses across 127 countries during the pandemic, including Madagascar (Dreesen et al., 2020). The findings show that in addition to paper-based take-home schooling packages, Madagascar was able to build on its past experience with radio-based instruction to launch further radio programming at the start of the pandemic (Dreesen et al., 2020). It also continues to receive further support from the Education Development Center (EDC) and UNESCO to continue enhancing its radio-based content (EDC, 2021; UNESCO, 2020b). In addition, the government has delivered maths education to primary school students via television and through video uploads to YouTube with support from Japan International Cooperation Agency (JICA) and Madagascar's own Ministry of National Education and Technical and Vocational Education (MENETP) (Kazel, 2020). Moreover, the edutainment programme spearheaded by MENETP (*Kilasy Pour Tous*) leveraged media outlets to ensure that educational content for school-aged children aired on TV and radio every morning (Kazel, 2020). These efforts via radio and television were purported to reach 600,000 children as at July 2020; additionally, 300,000 paper-based schooling packages were distributed by the same time (UNICEF Madagascar Country Office, 2020). UNICEF Madagascar reports that the pandemic affected the schooling of 7 million learners in the country, with approximately 13% of schoolchildren reached through radio, television and paper-based instructional materials. Orange Madagascar also zero-rated¹⁶ access to educational content, including Wikipedia and the Internet Archive, for its customers who purchased its Be Connect package through a programme titled “*Je peux m'instruire en restant chez moi*” (I can learn by staying at home) (Orange Madagascar, n.d.). However, this offering was unlikely to reach the majority of children in Madagascar, given that its population of 28.06 million in January 2021, but only 19.4% of the population had internet access (5.45 million people) (Kemp, 2021). In contrast, radio has an access percentage of about 40% of the population and for television it is approximately 25% (Internews, 2021).

4.3.6 Malawi

Much like the majority of other countries in Africa, Malawi reacted to the emergence of the pandemic by closing schools. The government took a two-pronged approach to support educational continuity: primary school learners received radio-based instruction through emergency programming that taught literacy in English and Chichewa, as well as maths and science which was meant to reach about six million learners (Saka, 2021). Students at the secondary school level were to be the beneficiaries of an online learning platform offering self-paced modules covering agriculture, Chichewa, biology, English and maths. This was made available at no

¹⁶Zero-rating is a practice within the mobile industry whereby content is made accessible free of charge via mobile data or calls to a mobile network operator (McSherry et al., 2016).

cost, due to an agreement between the Ministry of Education, Science and Technology and Telekom Networks Malawi (TNM) regarding zero-rate content for two months. Airtel Malawi offered a similar opportunity to learners by zero-rating access to the educational resources made available by the government. Both private sector stakeholders stepped up after limited initial success with online learning was due to mobile data costs that prevented learner uptake (Saka, 2021). For learners in rural areas of the country, this was not enough. Therefore, similar to other governments, Malawi used paper-based distance education methods, sending educational packets home to learners who lacked access to meaningful connectivity, and supplemented this with radio and television educational programmes (Thawani, 2020).

Another mechanism developed to promote education continuity was Inspire, an offline mobile app designed as part of the UNICEF Malawi COVID-19 Youth Challenge to help support remote learning where internet access was unavailable (Crompton et al., 2021). Despite this innovation, access gaps remained, since it was necessary to have a digital device to make use of the app - at minimum a feature phone (with mobile connectivity made possible through wireless application protocol) (Crompton et al., 2021). The cost of these devices is still out of reach of many Malawians: 70% of the population lives in extreme poverty due to a colonial legacy and its after-effects, and it has one of the lowest levels of mobile and internet connectivity in the world (Kainja, 2021).

4.3.7 Namibia

Alongside Nigeria, Namibia was one of a small handful of countries that used six or more delivery channels to mitigate the negative impact of school closures on its children, during the first wave of the pandemic (Rodriguez, Cobo, Muñoz-Najar & Sánchez, 2020). 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). UNICEF partnered with the country's Ministry of Education, Arts and Culture (MoEAC) to provide more than five million paper-based instructional materials to 600,000 students, i.e. all primary school learners and pre-primary learners (Mueenuddin, 2021). Approximately 6,700 learners with a visual disability were also given access to educational materials in Braille (Mueenuddin, 2021). Working with One Africa TV, in April 2020, the Namibian government launched a free series of educational content under the #LearnOnOne brand, which was made available through television and the #LearnOnOne YouTube channel (Bayer, 2020; LearnOnOne, 2020). This content taught biology, maths and physical science through recorded video lessons (LearnOnOne, 2020). Early on in the

pandemic, the MoEAC also promoted the Namibia Reads app, which is available on Android and iOS devices. The app was designed for children ages three to 12, and was designed to promote a culture of reading and learning in Namibia, and to facilitate access to content regarding wellbeing, health, astronomy, space and numeracy, complemented by games, videos, quizzes and animation to enhance understanding (China Global Television Network, 2020).

4.3.8 Rwanda

Perhaps due to its digital focus in the past decade (Rwanda MINICT, 2021), Rwanda was one of the countries in Africa that did not use paper-based materials in its response to school closures during the pandemic (Rodriguez, Cobo, Muñoz-Najar & Sánchez, 2020; Dreesen et al., 2020). Instead, their multi-modal approach to “keeping the doors open for learning” (Republic of Rwanda Ministry of Education, 2020) combined radio, television and online learning content to support learners during periods of school closures. Rwanda's system of remote learning, led by the Rwanda Education Board, enabled learners at the primary and secondary levels to participate in education using the devices they had easiest access to, so that learning during this period was more inclusive (Nkurunziza, 2020). This adaptation was due to pressure from activists who wanted to ensure no learner was left behind and particularly those learners who are more vulnerable due to being disabled, poor or otherwise marginalised (Nkurunziza, 2020). Since radio is the most ubiquitous technology used for education in the country (nearly 99% of Rwandans have access to the technology), in order to jumpstart its education continuity efforts, the Rwanda Education Board worked with UNICEF to obtain nearly 150 primary school-level radio scripts from other countries on literacy and numeracy (Houser, 2020). These scripts were subsequently localised for the context, which allowed time for original content to be developed and produced for learners. Lessons were broadcast on Radio Rwanda twice a day for 20 minutes; these promoted family-centred, interactive learning insofar as possible (Houser, 2020).

Although Rwanda enjoys a mobile penetration rate of about 71%, where online learning was concerned, learners still struggled with the cost of accessing education content made available by the Rwanda Education Board (including through a YouTube channel), University of Rwanda and Rwanda Polytechnic websites (Mugiraneza, 2021). To address these challenges, the government partnered with International Technological University (ITU) and UNICEF to distribute 250,000 computers to about 1,600 schools in June 2020 as part of the Giga Initiative (Ecofin Agency, 2020). Connect Rwanda was an initiative spearheaded by the Ministry of ICT in Rwanda to put smartphone ownership within reach of more citizens. The government also worked with Mobile Telecommunications Network (MTN) Rwanda

(Nzabonimpa, 2021) and Google (Byishimo, 2021) to distribute smartphones and ensure more affordable access to high-speed internet and digital skills development opportunities, respectively, to support digital learning. WhatsApp on mobile devices was another mechanism used to support learning during the pandemic in Rwanda. It was primarily used by teachers to stay in touch with parents and guardians and support their new roles as temporary teachers, provide guidance on how to access digital resources and receive calls from learners who needed support with their studies (Mugiraneza, 2021). Importantly, it was reported that it was mostly younger teachers who used WhatsApp in this manner (Mugiraneza, 2021).

4.3.9 Zambia

The Education Contingency Plan for Novel Coronavirus (COVID-19) marked the start of Zambia's foray to facilitate distance learning for its students in the face of nationwide school closures (Republic of Zambia Ministry of General Education, 2020). The multi-modal approach taken in this country included a variety of media, but did not rely on outside platforms or websites to bridge learning opportunities during school shutdowns (Dreesen et al., 2020) and did not use SMS or social media (Rodriguez, Cobo, Muñoz-Najar & Sánchez, 2020). Operating in three provinces - Mpika, Shiwangandu and Chinsali – CAMFED worked in partnership with the UK government-funded Girls' Education Challenge and focused its efforts on distributing paper-based study packs to nearly 5,000 girls (GEC, 2021). CAMFED also 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). The government also partnered with UNICEF to print paper-based materials for mass distribution and worked to produce its own radio content (Mukuka et al., 2021). The radio education intervention also involved private sector stakeholders, e.g. First Quantum Minerals. This mining firm developed a "radio schooling program" for primary school children located in Solwezi (Xinhuanet, 2020), which is in the North-Western Province, which is known for having valuable mineral resources (Kesselring, 2021).

The government's online learning portal (The Government of Zambia, 2020a) was developed with the Examinations Council of Zambia and launched by the state-owned telecommunications operator, Zambia Telecommunications Company; this was complemented by a revision website to help learners practise what they learned (The Government of Zambia, 2020b). Under the banner of the "Educating our Future" programme, which was established in the 1990s (Bush et al., 2021), the Zambian National Broadcasting Channel worked with the Ministry of General Education to provide television content that mirrored classroom lesson delivery (UNESCO, 2020d).

Overall, the literature review of nearly 100 documents revealed the following characteristics in the vast majority of materials written and published between December 2019 and December 2021 about how EdTech is being harnessed during the COVID-19 pandemic:

- They are authored primarily by people from the **global minority** (Western authors from the Global North).
- The literature is primarily **non-academic/grey literature sources** like newspaper articles, UN documents, INGO documents and documents published by multilateral organisations, and not peer-reviewed academic journal articles or university-backed research reports.
- They are primarily **descriptive** rather than analytical in nature.
- They reflected a mix of scalable, small-scale and pilot approaches to harnessing EdTech.
- **Public-private partnerships** feature in some of the countries. Where the private sector played a role, it was usually limited in scope (for timing and resources provided, especially).
- No real emphasis was placed on **teacher training**, in order for the educators to support the use of EdTech.
- The majority of the EdTech use was **multi-modal** and included various types of devices **and even paper**.

4.4 Chapter Summary

As can be seen from the literature reviewed in this chapter, the eight countries reviewed a variety of approaches in their attempts to keep schools operating during the pandemic when school closures were unavoidable. Some governments relied on a network of stakeholders to support their efforts in the education sector, whereas others did not rely much on the private sector. In all cases but that of Burundi, countries that closed their schools had to balance the needs of people in urban centres as well as learners who were least likely to have good access to the digital tools and connectivity needed for them to fully participate in the remote learning opportunities made available to them. Inclusivity was prioritised and the resulting multi-modal approaches were ambitious in their aim to reach as many children as possible. Although evidence of impact is still emerging, and in some cases yet to be documented, the aim of this chapter was to bring to the fore what was done to harness EdTech in Africa to build a contextual understanding for later discussion of the impact, if any, of the action taken to maintain educational continuity as coronavirus spread through the continent.

The next chapter provides the results from the data analysed through the two pillars of the conceptual framework. The objective was to set the scene for the discussion section, where the literature review is revisited to consider how the circumstances documented in the literature align with the reality on the ground as reported by people with first-hand knowledge of what has transpired since the pandemic began. Additionally, the impact of the various approaches taken by the eight governments are considered to understand what approaches, if any, to harnessing EdTech in Africa are suitable for scaling up as the pandemic continues.



Dark1elf

5. Findings from the KIIs and Online Survey

5.1 Chapter Overview

This section details the findings from the KIIs and the online survey. This is done by offering a breakdown of the findings from the responses of those who were there in the eight countries of focus during the COVID-19 pandemic. This will be done on a country-by-country basis, beginning with the data collected from the KIIs, followed by the data collected from the online survey. The chapter concludes with a brief summary of the findings identified and their potential implications.

5.2 Key Findings

As discussed in the Methodology section, a total of 17 KIIs were conducted across the eight countries of focus for this study. Although several attempts were made to engage stakeholders across all eight countries, due to a lack of availability particularly as the December holiday season approached, we were unable to make contact with any stakeholders from Botswana. Therefore, the KII data that is shared does not include an interview from Botswana but features Burundi, the DRC, Madagascar, Malawi, Namibia, Rwanda and Zambia.

5.2.1 Burundi

5.2.1.1 KIIs

COVID-19 Country context

As indicated in the continental review, Burundi was one of the few countries in the world that did not introduce a COVID-19 lockdown, or a coronavirus-related school closure. While COVID-19 was present in the country, learners were still expected to attend school. Efforts were made to reduce the spread of the disease by installing handwashing facilities, which were not necessarily there in certain schools before the pandemic. In certain cases, particularly amongst private schools, some learners were sent home if they showed signs of coronavirus infection and learners were encouraged to wear a mask. However, the interviewees reported that these provisions were not heavily enforced, as not all children or learners were willing to wear a mask.

The key informants acknowledged that preventative measures to reduce the spread of COVID-19 would have been more effective if the government had undertaken more awareness raising efforts amongst the populace. Nonetheless, by the time of the interviews, mask wearing in public places had become mandatory.

Impact of COVID-19 on the Education System

Interviewees reported that, in the mainstream education system, no tools for continued learning (whether digital or traditional) were provided in the few cases where learners were sent home due to COVID-19 illness. They also mentioned that even if EdTech resources had been available to teachers, they would not have known how to use them or how to ensure continued learning over the internet. These remarks on the state of support provided to learners ill with COVID-19 are unpacked further in the analysis section of this study.

EdTech Solutions in Country

KII participants stated that EdTech initiatives are planned in Burundi, but they have not been developed or rolled out yet. However, there was a feeling that EdTech should not become a vanity project and take priority over the other challenges that Burundi faces with the education system. For example, interviewees raised the issue of overcrowding in classrooms and said that while EdTech would be welcomed, Burundi must first address other challenges before they introduce “high-tech solutions”.

Involvement of Big Tech

On the involvement of Big Tech and how this may enhance or hinder the education system in Burundi, those we interviewed believe that the country would be open to foreign companies bringing more technology opportunities into the country. KII respondents even said that foreign players could help to influence the MoE in Burundi to work harder to harness all the technology tools. It was stated in the interviews that the introduction of foreign players should be a collaborative effort with the government, and that organisations like UNICEF should provide support.

Concluding Remarks

The interview data suggest that while schools did not shut during this pandemic, the interviewees made the point that there is a need to think proactively about how education can continue even if children cannot attend school in person. In the Burundi KIIs, it was stated that COVID-19 is not the only possible reason for restricting school attendance, as Burundi has other emergencies (such as annual natural disasters related to rain and flooding) - see UNICEF (2021c) for further details - that prevent children from going to school, and using technology could make a big difference in improving educational continuity for those who might need it most.

5.2.1.2 Online Survey

Two responses were received for the online survey. Both respondents confirmed that there was no lockdown in the country and that schools did not close. Therefore, the majority of the survey questions did not apply to these respondents. See ‘Result Tables from Scoping Study Countries’ in the section titled ‘Online Surveys’, for more detail on responses from Burundi.

5.2.2 DRC

5.2.2.1 KIIs

COVID-19 Country Context

The DRC implemented a lockdown after the first COVID-19 case was announced in March 2020, and this quickly led to a nationwide school closure. Like many other countries around the world, DRC introduced relatively strict measures in an attempt to curb the spread of the virus. For example, people were asked to work from home where possible, bars and clubs were closed, and there was a night-time curfew from 23:00 - 5:00. When the interviews were conducted for this study, the curfew was still in place. Furthermore, when the interviews were being conducted, there were reports of a fourth wave hitting African countries over the Christmas holiday. Key informants said that they believed that new measures would be introduced in the DRC.

The stakeholders said that schools were shut across the country on two occasions: first from March 2020 until October 2020; schools then re-opened for two months before shutting again in December for an additional two months during the second wave. The respondents said that even when schools re-opened, there were new measures that children and staff were expected to follow to prevent the virus from spreading: new handwashing facilities were introduced and a nationwide mandate made it compulsory to wear a mask at all times when learners and staff were in school. However, we were also told that schools did not always have the financial means to comply with these measures. In high schools, there was an expectation that the parents would pay for masks and handwashing facilities, but the interviewees said that it was difficult for parents to afford these new measures or to justify these costs, as many people did not really believe that a pandemic was occurring. These challenges were reportedly even more pronounced in rural areas, and this resulted in limited adherence to these measures in rural locales.

The interviewees also postulated that these economic challenges were not confined to schoolchildren and personnel. For example, they noted that, in some areas, female vendors who would normally sell snacks and drinks to the children were no longer allowed to go into the schools when they re-opened, and this had a big impact on the wider communities who lived near the schools.

Impact of COVID-19 on the Education System

Interviewees reported that the impact of the COVID-19 measures on the education system could be felt at different levels, i.e. learners, teachers, parents and the school as a whole. Those we spoke to said that according to independent studies

conducted by civil society organisations in the DRC, 14% of learners admitted that they had not opened their textbooks or attempted any learning for seven months, i.e. since the schools closed.

Another notable impact of COVID-19 is the anxiety of learners due to the school closures and lockdowns. Interviewees said that they know 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. Even after schools re-opened, interviewees stated that from their own studies and research show that 81% of teachers and school authorities have reported a significant decline in the academic level of learners since they returned to school after the lockdown.

The KIs made it apparent that many children and learners did not have their education needs taken care of properly when they were at home because parents did not have the means or the knowledge to help them continue learning. It was reported that, at the family level, DRC has seen an increase in violence in the home - especially in households where parents and caregivers had experienced job loss due to the COVID-19 lockdowns - because many parents were not used to having their children at home for the whole day.

Using the intersectional feminist lens, it was seen that the COVID-19 pandemic in the DRC impacted girl learners disproportionately. Interviewees reported that when schools re-opened, a large number of learners, mainly girls, did not come back to school. It was reported that there has been 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. Interviewees indicated that this particular consequence of the pandemic has emerged as a significant crisis over the last 18-24 months.

Interviewees reported that many parents saw their income decrease as a result of the COVID-19 pandemic, which meant that some learners had to find other means to feed themselves and had to begin working in order to assist with financial support of the family. Additionally, households who had children of school age struggled to find ways to keep the children entertained and stimulated. Interviewees recounted that there was a challenge with stimulating children and entertaining them in a healthy manner, and not all parents were able to do so. They also said that, in urban areas, some parents were able to find safe places where the children could still be cared for. For example, in some cases, family members taught the children, but this was the case with a small percentage of learners and children. The interviewees said that roughly 40% of learners were able to continue some form of learning without digital aids during the lockdown.

EdTech Solutions in Country

All the interviewees said that, in general, the initiative launched by schools to use technology to support learning during school closure was minimal. They reported in cases of EdTech being used, this was mainly done at private schools that offer international education curricula. In fact, to the interviewees estimated that there were no more than 10 schools in the whole country that were able to ensure effective distance learning for their learners. Of these 10 schools, some used WhatsApp to continue communicating with learners.

In most cases, interviewees reported that primary schools were the focus when distance learning was being explored. Key informants also stated that online applications to support continued learning were planned and put in place by the government. These efforts were supported by UNICEF. Moreover, telecom companies proposed several solutions to support educational continuity efforts. One approach was that learners could access lessons free of charge using a mobile phone. Two digital learning solutions were referenced during the interviews. The first was [Vodaeduc](#), an initiative set up by Vodacom DRC, that allowed families to connect to the Vodacom network and access educational content. This initiative was intended for families who had children and allowed children to go online to see what lessons were available. The second was an initiative called [School Ap. This](#) was a weblink that provided school resources that could be used to keep children busy with exercises and materials. They could also be printed to help children continue learning with supervision from a parent or caregiver. Interview participants shared that while these 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 MoE. However, we were also told that while the government took ownership of these initiatives, they were not really used by learners, even in urban areas. said the participants stated that a number of learners had internet and connectivity issues, and that there were very few learners who could access them.

The participants noted that educational lessons (supported by the UNICEF country office) were offered on radio and television. These lessons ran for two hours every day and were available on approximately five radio stations. However, an issue with radio broadcasts was reported, i.e. that there was no way for the learners to engage with the lesson or to reach out and receive feedback. The majority of learners did not really follow the radio lessons because, in the opinion of the interviewees, they were not structured appropriately. Nevertheless, interviewees recalled that some radio lessons provided additional online resources that could be accessed to supplement the learning provided by the broadcast.

The interviewees also disclosed that TV stations also aired some educational lessons and that, in rural areas, where the lack of electricity is a more prominent issue than in urban areas, there were programmes to distribute exercise books to learners.

Stakeholders and Continued Learning

The key informants indicated that efforts to ensure continued learning during the pandemic were mainly driven by government, telecom companies and UNICEF. Furthermore, civil society organisations (CSOs) took on the role of advocacy and awareness, and lobbied to help children to continue to learn. They also helped to raise more funds (for compliance with COVID-19 measures) and to gather other resources for learners. However, in terms of whether these organisations supported digital learning and EdTech for educational continuity, the CSOs were viewed by informants as being “timid” in suggesting or pursuing these interventions, since the CSOs themselves were not aware of what would be possible or effective when using technology.

Effectiveness of EdTech during COVID-19

When asked about the effectiveness of EdTech during the pandemic, the stakeholders indicated that mobilising different partners to sensitise learners and their families to help them to continue learning was effective, and EdTech was often included in these efforts, even if its implementation was patchy. A few pilot programmes were reported, some of which used social media platforms or WhatsApp groups to enable interaction between learners and teachers. Interviewees said that while a very small percentage of people used these EdTech approaches, they wanted to share this information since the interventions did seem to work for the people who were able to access to them.

Overall, the interviewees said that most EdTech initiatives of any type had very little impact on learners. One participant reported a survey conducted in one DRC province where 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.

When asked why they thought EdTech was not effectively harnessed during the pandemic, informants posited that there were multiple reasons. The main reason quoted was that resource distribution and awareness was lacking and that this was needed to effectively harness EdTech for the benefit of Congolese learners. When asked about digital solutions in greater detail, participants stated that there are many areas in DRC where there is no telecom network coverage. Additionally, access to

smartphones continues to pose a challenge, but these are often required to access EdTech initiatives.

It was stated that when discussing effectiveness for continued learning during the pandemic, it was inconsistent from one province to another. Participants reported that even before think about continued learning, it had to be noted that there was a huge issue with resources needed to tamp down the pandemic in some zones of the country. In terms of equal opportunity regarding EdTech during the pandemic, stakeholders replied that many initiatives were not implemented at a national level and that some areas were completely excluded and unable to benefit from the EdTech provided. It was pointed out that some partners were able to take action locally, but that given the size of the country and the scope of the need, the available resources were grossly insufficient to meet demand. Electricity was also identified as a key barrier to participation in the EdTech program: one participant reported that only 40% of the Congolese population have access to electricity and although it is unclear where this statistic comes from, this was recognised as an imperative sustainability component. Key informants believed that another reason why EdTech efforts failed was outright resistance to the idea that a pandemic was actually happening. The interviewees stated that, like many other African populations, the Congolese did not believe the pandemic was real. It was only with time that people started to realise the severity of the disease.

Involvement of Big Tech

The participants advocated for the introduction of EdTech offerings from Big Tech and foreign technology companies, since they knew from experience that the use of the social media platforms enabled educational continuity for some learners. Participants also suggested that foreign tech companies could support DRC by providing digital school kits for learners.

5.2.2.2 Online Survey

We received four responses in DRC. All respondents confirmed that lockdowns and school closures occurred during the COVID-19 pandemic. However, 50% reported that lockdowns lasted three to six months, while the remaining 50% reported that lockdowns lasted one to two months. Furthermore, 75% of those who responded said that children had the opportunity to continue their education while schools were closed, while 25% said that children did not have the opportunity to continue their education while schools were closed.

5.2.3 Madagascar

5.2.3.1 KIIs

COVID-19 Country Context

Madagascar first received information about COVID-19 in March 2020. The decision to put the country in partial lockdown happened on 20 March, initially for 15 days, but then this was continually extended. Things evolved and the lockdown lasted until June/July. From August, it was a total lockdown, but this was reduced slightly in November due to protests that saw a return to a partial lockdown. In May 2020, schools had to open for students to sit for exams. It was concerning to note that learners were left to their own devices, as there were no measures to support them or to have their parents support them at home. The Ministry of National Education tried to do some classes via radio and television broadcasts; but that was not easy because their technology was not adapted for the children, because they were using movie actors as learners in classrooms.

During the lockdown, some people were given permission to move to complete their duties; but this did not allow for respect of the protocols. A decision was taken to put all provincial regions into lock down and no one could go out or come in. Food parcels were distributed, but this was limited and caused some trouble, as hunger was rife and there were not enough food parcels for every family that needed them. There was no distribution of personal protective equipment (PPE) for the learners or for the teachers themselves. Restrictions were placed on the number of people that could gather together, and schools and universities were closed. Interviewees recalled that there were some COVID-19 screening centres, but they were not accessible to all, since information about these centres was not disseminated widely. UNICEF provided soap and hand sanitizer, along with an awareness campaign for handwashing. Another initiative by UNICEF was to publicise the protocols and restrictions due to COVID-19. WaterAid also ran campaigns for handwashing. Nonetheless, KII stakeholders reported that there were quite a few teachers who lost their lives as a result of the pandemic.

Impact of COVID-19 on the Education System

Elsewhere during the KIIs, the observation was made that, overall, learners remained largely unsupervised after the pandemic forced schools to close. KII participants 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 located a long way away and there was no public transport, so learners had to walk long distances to these schools to collect their homework packs. Therefore, both interviewees stated that few children ever went to school to retrieve the paper-based packs and parents did not even encourage the learners to walk to school to collect the packs. They also stated that teachers were not able to quickly put together a system to help children with distance learning and this impacted education in Madagascar, resulting in the interruption of several school-related programmes.

Involvement of Big Tech

The following is how one stakeholder reflected on the role of Big Tech in Madagascar during the pandemic:

“Before the pandemic, there was a training by Orange Madagascar. I think it was for a month or something; but 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. But mind you it was not during the pandemic, it was before. 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. The device giveaway was probably for them [Orange Madagascar] just a sales policy since there was no prior training for how they should use the tablets. It was not really something that had to do with a course or how to get to different online platforms. 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.”

Both interviewees remarked that if there is no teaching capacity building or methodology on distance learning, then most of these interventions are just about how to use a mobile handset or a telephone. For this reason, it was their opinion that these private sector interventions do not serve the needs of the teachers or the learners. They believed that it was just a means to approach the government so that when there are funds for digital learning, the companies can say, “We are here and we are able to support this initiative,” and then access the available government funding. Stakeholders also remarked that even though Orange and Telma are widely present throughout the country, there is still a question about whether there is electricity or not. If not, it is unlikely that anyone benefited from the private sector interventions if they had no electricity.

EdTech Solutions in Country

Regarding the 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 national television for a few classes for primary school and people who were about to sit the Grade 7 exam. The stakeholders indicated that TV was used for both direct classes and for classes that were re-broadcast. The TV broadcasts were an initiative of a multinational enterprise (MNE). They were run at a fixed time (10am) for 45 minutes maximum - but not every day. One key informant said: “In civil society, in my opinion, we made an observation related to that. That was the Government trying to say we were able to do something, we did something; now there’s no excuse - the learners have to sit for the

exams. The learners first needed to understand the methodology of distance learning and to have training for that to be a priority.”

One of the stakeholders who worked in civil society commented:

“We thought an hour before the broadcast, the learners could know they need to prepare themselves and get ready for when the broadcast happens, instead of just having the lesson directly with no preparation. None of this was done. We also did not sensitise the parents to the intervention, or whoever was there, 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 23 regions, the big urban cities, the learners were able to watch educational TV programming, but outside of those urban areas there is no national TV. But in places where there is electricity, national TV can reach almost anybody. The 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.”

Effectiveness of EdTech during COVID-19

Overall, the key informants were of the opinion that EdTech was not effective because the Malagasy population has not really been sensitised to using it. One participant reported that 80% of the population does not have access to modern technologies of any sort, so that is no access to TV, radio, laptops, computers, or mobile phones, although it is unclear where this statistic comes from:

“We don’t have the idea to think of using EdTech in a situation like this because the means are not there, 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.”

As the interview with the stakeholder drew to a close, it was stated that, during the pandemic, it was not just schools but also churches that were closed - everything was closed. Only those who had access to TV or radio could have done something to continue learning. When asked to elaborate on other COVID-19 educational activities that might be initiated after the pandemic began, one stakeholder replied that small sketches and dramas were also broadcast about various protocols related to the pandemic, such as handwashing and social distancing. The interviewee also noted that musicians and other celebrities came together to create a song about COVID-19 preventative measures; unfortunately, three of the people who were involved subsequently died of COVID-19.

Concluding Remarks

In their concluding remarks, the KII participants suggested that some schools had canteens, but because children could not go to school, they no longer had access to at least one meal per day. When schools re-opened after the lockdowns, many children did not go back to school because the fees were then unaffordable to parents due to pandemic-related income loss. The President of Madagascar then decided that no fees had to be paid and the children could return to school. The result was that so many children went to school that there were too many learners in a class. Even though school fees did not have to be paid, other resources (like uniforms, books, pencils and rulers) had to be purchased, but that was still too much for many parents to pay.

5.2.3.2 Online Survey Results

One response to the online survey was received. This respondent reported that: the lockdowns implemented lasted more than six months; children did not have the opportunity to continue their education while schools were closed.

5.2.4 Malawi

5.2.4.1 Kilis

COVID-19 Country Context

In Malawi, as many other countries in Africa, we were told that there were two waves of COVID-19 infection. In March 2020, during the first wave, schools closed for roughly six weeks, before re-opening. In October and November 2020, they shut again for two or three weeks. While there was not a full-scale lockdown like in other countries, there was a partial lockdown that targeted public spaces and limited the number of people who could attend weddings, parties and funerals. Even when schools opened, many split classes into smaller groups and introduced mask-wearing. In communal office spaces, shift work and staff rotation were implemented to avoid large numbers of staff being in the office simultaneously. Those we spoke to said this applied to government spaces, NGO offices and private sector companies.

We were told that mask-wearing had been encouraged after the pandemic began, and it was still recommended in Malawi. However, the interviewees said that enforcement had been a massive problem, perhaps because the government presented this safety precaution as a recommendation and not a mandatory requirement.

It was also reported that vaccine adoption had proved to be a challenge and that Malawi still has “meagre” vaccine rates. Interviewees estimated that less than a million people had been vaccinated in a population of 19 million.

Impact of COVID-19 on the Education System

Interviewees said that COVID-19 had had an enormous impact on the education system. One of the first things noted was that between the first wave (in March 2020) and the second wave (in October and November 2020), there was a noticeable increase in teenage pregnancy. This led to a growing a feeling in the country that Malawi had “lost control over the girl child”¹⁷. Participants noted that, before 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, 45,000 teenage pregnancies were reported¹⁸.

Interviewees said that there 25,000 child marriages were reported between the first and second wave of COVID-19. In Malawi, child marriage is defined as marriage by anyone under 18. While child marriage is prohibited in Malawi, the majority of marriages reported involved children between 14 and 18.

EdTech Solutions in Country

There was minimal use of EdTech in Malawi during the COVID-19 lockdown and school closure period. However, there are some examples, because Malawi had to learn to adapt to the new pandemic circumstances. It was noted was that many opposed the decision to shut schools, which meant there was reluctance to adopt continued learning solutions. We were told that the government decided to close the schools entirely, without providing sufficient alternative ways of learning. The interviewees said that online learning was supposed to be introduced to secondary schools and made available through government websites; however, access to the websites was not free because students needed a data bundle to access the website or portal. Therefore, children from poor backgrounds could not access the learning channels. Interviewees said that data bundles are very expensive in Malawi, and that in order for the students to have adequate access to the portal, average spend over two weeks would be roughly 18,000 kwacha, which is about \$21. According to the interviewees, in a country like Malawi, this “simply isn’t feasible”.

Coupled with this challenge, many subjects were not even included in the resource materials on the website, according to interviewees. Another challenge was that teachers at primary and secondary schools and even universities lacked the ability to

¹⁷Please refer to the discussion and analysis section for an intersectional feminist perspective of the statements made by the interviewees.

¹⁸These statistics were confirmed by a UNICEF report: Malawi COVID-19 Situation Report. <https://www.unicef.org/media/84831/file/Malawi-COVID-19-SitRep-21-October-2020.pdf>

ensure continued learning using technology platforms. They also explained that the government introduced lessons using national radio stations. However, the content did not consider children with a disability, for example, children who are deaf or blind. They also said that the government had tried to distribute paper materials, mainly in rural schools, given that connectivity challenges in rural areas is worse than in urban areas. They noted that there were five million-plus disabled children in the country - roughly 2% to 3% of primary school children, during the COVID-19 period – who were not catered to. Overall, those interviewed said that the government mainly drove continued learning efforts through the Ministry of Education. Civil society groups also provided advisory services and awareness-raising on the challenges facing the education system. Action Aid, Save the Children, UNICEF, USAID, GIZ and FCDO were cited as supporting the government during this period.

Effectiveness of EdTech during COVID-19

When asked about the effectiveness of EdTech during the pandemic, the interviewees were unable to cite any examples of EdTech being effective. However, they did say that, given the country context, the distribution of printed materials in certain parts of the country was effective for continued learning. It was also stressed that 80% of the population in rural areas and 75% in urban areas continue to live on less than one dollar a day; therefore, until the poverty gap is overcome, EdTech will continue to be a challenge in Malawi.

The interviewees 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. They also said that some communities identified school leavers, i.e. people with education certificate equivalent to an O level [[equivalent to Cambridge IGCSE and the UK GCSE](#)], and asked them to provide support to the children. They said that school leavers were partly selected because of the lack of quality and effectiveness among teachers in certain areas.

When asked why they felt EdTech was ineffective in Malawi, the key informants first noted that the online learning platforms saw very little use. While the government reported that over 400,000 learners at the secondary level registered on the portal, the research participants said that no more than 35,000 learners had access to the content on the portals. They also said that data bundle costs were “a complete barrier” and that there were connectivity challenges in certain parts of the country.

When commenting on the effectiveness of radio, the participants said that only 52% of people in Malawi had access to a radio, because even though radio had the

widest reach, a child still had to be given permission from their parents /caregivers to use it and then actually use it. They stated that the government only targeted the national Malawi Broadcasting Corporation (MBC) and television, but many communities could not access MBC. Radio programmes were mainly targeted at primary school learners. The government created a timetable for the broadcasting of lessons, but the radio stations did not adhere to it.

Contextual Factors to Consider when Implementing EdTech

When asked about the contextual factors in Malawi when discussing EdTech, the participants suggested that access to devices like mobile phones and computers was the number one issue. The participants stated that these devices are needed for EdTech, but are still very expensive in Malawi. They also said that value added tax (VAT) was very high in Malawi, and suggested that EdTech would not be an option for many learners in Malawi until the price of data bundles was reduced. Another issue reported is that education is still considered to be for boys and boys are still prioritised over girls. Lastly, there were a large number of children with a disability who were often overlooked.

5.2.4.2 Online Survey

Two responses were received for the online survey. Both stated that there were two COVID-19 lockdowns in the country, which they lasted between three and six months. Both reported that there were opportunities for children to continue learning during the lockdown period. Regarding the impact that EdTech has had on the right to education: one respondent reported that it had enhanced the right to education; the other said that it had compromised the right to education.

5.2.5 Namibia

5.2.5.1 Klls

COVID-19 Country Context

Namibia's first case of COVID-19 was reported on or about 20 March 2020. The President declared a state of emergency for the period 20 March to 15 August 2020, although the formal lockdown ended at the end of July 2020. During this period, the Government declared a lockdown in areas where COVID-19 cases were reported. The first case was reported in Windhoek, and no one was supposed to move in or out of the Central region afterwards. After this initial lockdown period, there were other, more sporadic lockdowns in September and October 2020, but they were of short duration. Lockdowns also varied from region to region, with some originating in the central part of the country where Windhoek is located and then others at the coast. The MoE concentrated on issues of sanitation and hygiene, and built extra

classrooms and toilets, purchased sanitizer and masks, and painted schools. Two of the three interviewees stated that there was no private sector involvement in education during the pandemic, although this would have been welcomed; one participant stated that some private sector firms provided sporadic support in providing food for Namibia's neediest families.

Impact of COVID-19 on the Education System

One participant remarked that when schools were closed due to the lockdown, no learning took 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, or EdTech. Private schools converted to Microsoft Teams, Google Classroom, and other Google-linked resources to maintain educational continuity. Private schools were very secretive in most instances about the status of the COVID infections in their schools, since learners needed to attend school for them to make an income.”

EdTech Solutions in Country

The interviewees stated that, at public schools, after developing the materials, teachers made paper-based copies of the learners' work and distributed the work via designated spots where parents and learners could collect the documents on specific days, when this was permitted. They said that there was no national coordination of efforts beyond the regional workshops organised to develop materials for the lower primary classes. They also reported that the MoE rationalised the curriculum and reduced the volume of content to be taught to learners. The government's reasoning was that since there was no face-to-face teaching, it would not be possible to cover all the planned content in the various syllabi. Instead, the syllabi were reduced to eight core themes that teachers were expected to cover in the paper-based materials distributed to learners. The expectation was that if any material was not covered during the first academic year of the pandemic, teachers would have to facilitate the material in the next academic year: but this did not happen. The participants mentioned that the syllabus was rationalised to a certain extent, as the content and the learner requirements were reduced. In fact, wholesale lowering of standards took place in public schools, with many learners left behind, especially in schools located in rural areas. All participants also noted that the MoE had also issued a directive saying that no learner should be made to repeat a grade, which means that learners who may not have qualified were progressed through the schooling levels.

In reflecting on the perspective of what the government did to harness EdTech during the pandemic, one interviewee stated that the government allocated funds to upskill teachers so that they might be equipped to teach online during the pandemic. The stakeholder also stated that the MoE had also partnered with NAMCOL (Namibian College of Open Learning), a non-governmental organisation (NGO) that was formed to deal with learners that dropped out of basic education, by creating opportunities for them to study and repeat grades, if necessary. The Government provided NAMCOL with \$15 million Namibian dollars (about \$966,500 US dollars) to deal specifically with the issue of EdTech and online learning during the pandemic. The organisation has a website, <https://notesmaster.com>, and relied on the skills of unemployed graduates to develop educational materials that learners could access during the pandemic.

Radio lessons that had the potential to reach 85% of the Namibian population was also mentioned by the three interviewees. One informant explained that these lessons were arranged by the government and attended by learners at the specific time of their airing. It was also noted that every time there was a lockdown, educational content was made available by means of television broadcasts sponsored by the government. One participant explained that learners took matters into their own hands and met with their peers to use digital devices so as to continue their learning. Another participant added that one example of this independently arranged tech use involved WhatsApp to exchange knowledge. Some teachers created groups with learners and parents to share educational activities. Where learners did not have their own smartphones, parents were engaged in order to reach the learners.

Harnessing EdTech was viewed as a lifeline and a new frontier for Namibia to explore, but all parties had to make a coordinated, collaborative effort.

Effectiveness of EdTech during COVID-19

According to the participants, most schools in Namibia are not connected to the internet - about 90%. Almost 60% of the schools also have at least 20 computers, located in a computer centre. It is mostly the very rural / remote schools that do not have access to the internet. Teachers were often charged with pushing the government to try to get EdTech interventions off the ground, in order to support educational continuity during the pandemic. The interviewee suggested that best practice in terms of EdTech use during the pandemic was seen at Windhoek Gymnasium High School and St George's Diocesan School - an independent and a private school, respectively, in Windhoek. The moment children register at the school, they receive a tablet and can then access notes and schoolwork shared by their teachers using the tablet or a laptop or other electronic devices that offers internet connectivity. It was suggested that the government should have bought tablets and that educational content should have been loaded onto the devices before distributing them to learners in public schools who could not participate in face-to-face learning during the pandemic. Interviewees believed that this approach

would have been cheaper in the long run, and that the tablets could have been kept at the schools and maintained for use when the lockdowns were in place:

“The costs involved in EdTech participation were believed to be limiting factors from an uptake perspective. There are households without smartphone, laptop, or tablet access since they are fairly expensive to own. If you do have a device, there is the problem of the lack of Wi-Fi connectivity in the household with which to contend. Additionally, computer literacy of parents and learners prevent wider adoption of EdTech. Once these matters are addressed through training and there are basic skills present among the population and in the households, there is opportunity for EdTech to have an impact.”

One participant suggested that negotiation should be entered into with tech companies to provide gadgets with connectivity at reduced prices once people have upskilled. Creating a link between the household and the school is important for EdTech sustainability, according to all the participants.

Concluding Remarks

As the pandemic continues to be felt, the government has recognised the need to explore the potential of EdTech further in the context of the Fourth Industrial Revolution. According to interviewees, the President spoke at a UNESCO event in Paris in November 2021 about the need to explore the use of the internet for education purposes. Nevertheless, they felt it was important to mention that there are many schools without electricity, and that it is necessary to ensure no one is left behind. However, this should not prevent exploring the use of EdTech with the schools that currently have the infrastructure to support EdTech.

5.2.5.2 Online Survey

Two responses were obtained for the online survey. Both respondents said that they experienced two lockdowns during the pandemic and that the average length of the lockdowns was three to six months. They also said that schools closed during this period, but that there were opportunities for children to continue learning during the lockdown period. When asked about the impact that EdTech has had on the right to education: one reported feeling neutral; the other said that it had strongly compromised the right to education.

5.2.6 Rwanda

5.2.6.1 KIIs

COVID-19 Country Context

The interviewees reported a total lockdown in Rwanda from March 2020 to July 2020, with all schools being required to close. From July 2020, the schools were partially opened. However, from March 2020 to the time of the interviews in Rwanda, the country had been in and out of several lockdowns. The three main lockdowns resulted in differing levels of school closure. The participants report that, during each of these periods, the government in Rwanda introduced special measures to support the population. Food assistance was offered to those who needed it, and online systems were created to allow people who needed to access essential services, such as shops, markets and medical services. People could request to leave the house in an emergency via these online portals. Furthermore, various markets created a mobile hotline service to allow people to request food to be delivered. Compulsory mask-wearing and social distancing were introduced, and handwashing facilities were set up in public places. It was also mandatory for citizens to travel with hand sanitiser.

Mobile sound systems mounted on cars and lorries were used in busy areas to tell people about COVID-19 and how they could reduce transmission of the disease. We were also told that education communication materials, such as banners and pamphlets, were printed and put up in streets in towns and villages. Nationwide radio, TV and mobile message campaigns were also broadcast.

The respondents also reported tight security in terms of going to a markets and tight control to ensure people adhered to the lockdown measures. The partial easing of restrictions allowed a limited number of service organisations to open and offer support to the communities. Furthermore, rural communities were impacted by limited access to online services, radio and TV. People did not work and their salaries were reduced. But even those working from home were impacted, and the productivity of people has reduced significantly.

Impacts of COVID-19 on the Education System

During this period: schools were encouraged to begin online learning, and introduce TV and radio lessons; other educational institutions were encouraged to develop courses and send them to learners who needed them. Interviewees said that, in terms of how the special measures impacted learners and the education system, the immediate closure of schools during the first lockdown affected people differently.

Learners of all ages were sent home, and parents were not equipped to live with their children all day and family conflict between increased. These immediate closures had a real impact on people, as they could not go to market and many did not have the necessary funds to buy in bulk. As a result, people's food access was severely impacted.

The participants said that the government encouraged schools to start using online learning, TV and radio broadcasts for lessons. Parents were required to monitor children and ensure that they were learning. They also reported that the indirect impact of COVID-19 was significant: schools were closed from March to September 2020, with some partially opening when cases were low and there were few children with COVID-19. However, when the cases increased when the schools re-opened, the schools were forced to shut again and the children were sent back home, in order to control COVID-19. Schools remained closed for nine months in total.

EdTech Solutions in Country

The interviewees were asked about the use of EdTech during the COVID-19 pandemic, and first mentioned that radio and TV were adopted. Lessons that the government planned were distributed and made available through TV and radio. Radio announcements were used to encourage parents to support children with their learning, and the existing syllabus was followed to the best of everyone's ability. It was also reported that the Rwandan Education Board launched an online platform to allow students to provide feedback and to access learning materials. The respondents explained that it looked like a portal, and that learners were given log in details that allowed them to access various classes and the core government syllabus. However, it was noted that the online portal was only available to those who had 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.

A few schools were able to create homework and assignments that were sent via WhatsApp and other social media platforms. Many WhatsApp groups were set up informally for both learners and teachers. However, there were many challenges with EdTech in Rwanda, as the Internet was not always reliable; therefore, many struggled with connectivity. Radio and TV signals were also not very reliable.

Stakeholders and Continued Learning

Overall, interviewed believed that the government mainly drove continued learning efforts through institutions like the MoE and Rwanda Education Board. In addition, NGOs that were part of the child-friendly schools' infrastructure standards and

guidelines practises - such as UNICEF, Rwandan Education for all Coalition (REFAC), Rwandan Civil Society and Collectif des Ligues et Associations de Défense des Droits de l'Homme au Rwanda (CLADHO) - supported continued learning efforts in the country. Privately-funded schools also encouraged students to follow the school curriculum distributed by the government.

Effectiveness of EdTech during COVID-19

When asked how effective the EdTech efforts were in Rwanda, participants indicated that where schools set up WhatsApp groups with parents, it helped to prevent morale dropping among the children. Social media, and especially WhatsApp, proved to be very effective for keeping in contact with learners, even if teaching or continued learning did not necessarily take place on these channels. Furthermore, learners who had access to the internet and the e-learning platform could obtain all the lessons and assignments offered, as well as some follow-up from teachers. It helped that this portal followed the national syllabus. The COVID-19 awareness messages that were produced by the government to promote the need for children to continue to learn with the support of other development actors also worked well.

The key informants were asked why they felt that EdTech was ineffective, and responded that the abrupt onset of COVID-19 and the little time that the government had to prepare its EdTech efforts during the first lockdown were not conducive. It would have been better if the government and other education players had been prepared for a possible mass school closure, because Rwanda does have as much access to technology resources as other African countries.

However, it was estimated that less than 30% of the efforts to help continued learning were effective. The participants explained that the existing challenges made EdTech use very difficult, especially for schools in rural areas that did not have enough capacity to support learners when schools were shut. Despite some efforts by the government to support these schools and their teachers, the strict nature of the lockdowns meant that teachers were not allowed to go to school to prepare lessons and they did not have the resources at home to help learners. Furthermore, the teachers themselves did not have the skills to facilitate online learning, and their technology skills were limited. This is an important area that Rwanda needs to focus on: digital literacy and capacity building for teachers in terms of technology devices must be prioritised, if Rwanda is to navigate future school closures effectively.

Contextual Factors to Consider when Implementing EdTech

Participants were also asked what contextual factors should be considered in terms of the enhancement or hindrance of EdTech in Rwanda. The first thing mentioned

was that online sexual harassment for girls is 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, online child exploitation is another area that girls and boys must be aware of. Participants felt that this would most likely impact girls more, but all children must be safeguarded. The third area of concern is age when designing online content and being aware of the appropriate and most effective channels to distribute learning content. For example, early childhood development (ECD) lessons offered via EdTech could be a challenge, and EdTech may not be appropriate for nursery schools. However, Rwanda should consider how age plays a role in offering learning content via technology devices for learners from the age of four or five all the way up to university age.

Another contextual factor mentioned is poverty. The participants said that 40% of the population is considered poor, and most reside in rural areas. They asked, “How will this be addressed when distributing education content to learners?”. So internet affordability must be considered. They also asked, “How is the government in Rwanda working with internet companies and telecom providers like MTN and Airtel to help learners access education services?” There is also a need to think about teachers who are required to access these services and their capabilities, as: “Before Rwanda can empower and train learners on these platforms, they first need to train the teachers”.

Concluding Remarks

The concluding remarks focused on the role of Big Tech in EdTech in Rwanda and what the key informants felt was worth noting. First, was that companies, including those already operating in Rwanda, needed to change their mindset and not be so profit-orientated. Products for rural communities need to be carefully thought through and tested, but this does not always happen. Big Tech players need to invest more in rural communities and prioritise access to technologies by these communities. Lastly, they said that many children already access Facebook, Twitter and other social media platforms, therefore more can be done to use these platforms that children already know how to navigate. Big Tech players would then be able to reach more people.

5.2.6.2 Online Survey

Three responses were received to the online survey. All three reported that there was a lockdown and that schools closed. Two of the respondents said that there was an opportunity for children to continue learning during the lockdown periods; however, one respondent reported that there was no opportunity for children to

continue learning during the lockdown period. Regarding the impact that EdTech has had on the right to education, the respondents reported that it had enhanced the right to education.

5.2.7 Zambia

5.2.7.1 Klls

COVID-19 Country Context

The interviewees reported that there were two waves of COVID-19 infection, with cases first being recorded in March 2020. A total lockdown was implemented at the end of March 2020, which included school closures. In June 2020, only examination year resumed, with the rest of the school years resuming in September 2020.

Between March 2020 and June 2020, the whole country was in total lockdown; from June 2020 to December 2020 a partial lockdown was in place. The government announced a total lockdown again for the period January 2021 to Feb 2021, and schools closed again. In February 2021, a partial lockdown was in place. This lasted to September 2021, but since then Zambia has fully re-opened, but it continues to live under a 'new normal' state.

Interviewees reported that Zambia is among the few countries in Southern Africa that have managed COVID-19 effectively. During the total lockdown, all companies had their workers at home, and most had to adopt virtual means of continuing business. Bars and restaurants were closed during the total lockdown and: "Everything came to a standstill".

During the partial lockdown, restaurants re-opened for take-aways, but bars remained closed. Schools that had been closed during the lockdown re-opened, but special measures were taken to mitigate against the spread of the virus. For example, learning hours were reduced and a lot of support was provided to ensure handwashing facilities were available, and sanitiser and masks were supplied. However, there was a push from many in the education system to re-open schools to allow learners to continue learning at school. In addition, ZAMRA supported the government, with help from UNICEF, and conducted two studies to assess the effectiveness of learning under the new COVID-19 prevention measures implemented at schools¹⁹.

¹⁹Statistics quoted from National Monitoring of Implementation of Ministry of General Education (MoGE) COVID-19 Guidelines in Schools Zambia National Education Coalition Main Report (ZANEX & UNICEF 2020).

Impact of COVID-19 on the Education System

Interviewees were asked how the special measures adopted during the COVID-19 period impacted the education system. They believed there was a huge impact, mostly because it increased learning poverty in Zambia. Before the pandemic, Zambia held the record for the least number of learning hours in Africa, with about 540 hours of learning in Zambia, although the government recommendation is 800 to 1000 hours of learning.

Participants reported that Zambia lost six months of learning during COVID-19, which occurred at a time when learning quality was already very low. According to UNICEF (2019), the country targets have not yet been achieved. For instance, the target of an average score of 40% in language and mathematics was not reached in either Grade 5 or Grade 9. Also, the number of children passing the Grade 9 and Grade 12 examinations continues to be low, at 55.3% and 64.8%, respectively (UNICEF, 2019). The participants said that when the pandemic struck, it increased inequality, even when measures were attempted to ensure continued learning. Continued learning measures only worked for children from more affluent families, while children from poorer families did not have the same access to these measures. Furthermore, the pandemic gave rise to circumstances that, caused an increase in schoolgirl pregnancy and early childhood marriage, because girls were at home instead of at school²⁰. 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.

Furthermore, 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 when they re-opened. Many parents in Zambia had no choice but to keep their children at home. The pandemic has eroded many of the achievements that were made in Zambia, especially with access to education at the ECD, primary and secondary levels.

EdTech Solutions in Country

Regarding the use of EdTech during the pandemic, interviewees said that as soon as schools were closed, the government quickly switched to television as the main channel for offering continued learning. Global Partnership for Education gave a grant of US\$10 million to build studios in the 10 provinces in Zambia, which allowed teachers to walk into the studios and begin teaching immediately. TV was seen as

²⁰These are the words and opinions of key informants. Please refer to the discussion and analysis section for an intersectional feminist perspective.

the 'low hanging fruit' because, unlike radio, TV did not need any content development or adaptation of existing materials, and it was believed that TV could deliver content to learners immediately. The plan was for teachers to be live on national TV and to start teaching various grades straight away. 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.

While TV was considered 'low hanging fruit' there were a number of challenges with TV learning, and the government reportedly later moved on to radio. However, radio was also challenging, especially because it required the development of content, and content was sometimes not available. Once the content was developed, the radio stations broadcast the lessons to the learners. The only downside with radio was that there was no national channel and broadcasting was only done on the government channels that broadcast in the province that houses the capital (Lusaka). So the government had to pay independent radio stations to broadcast in other provinces, but even then this did not work very well.

The respondents also noted 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 and, overall, continued learning efforts were mainly driven by the government. Civil society organisations focused on supporting the radio lesson broadcasts and radio was supported by World Vision and ChildFund.

Effectiveness of EdTech during COVID-19

On the issue of the effectiveness of EdTech, the participants first noted that radio was the most successful in terms of reach, because it was more accessible than TV. Even those with even basic phones could access the radio. Private schools tried to use WhatsApp to continue to engage with learners, but even in these cases, parents often only had one phone in the household and they might have been at work. When assessing the effectiveness of online platforms, the participants stated that higher grade learners in secondary schools managed to access online learning, but the numbers were low.

However, Zambia was listed as one of the countries in the world that mitigated the impact of COVID-19 on education very well. The respondents explained that this was because Zambia did a lot of learning and adapting during the time period. It became apparent that a lot of learners were not benefiting from distance learning, and research was done on what learners could achieve in the classroom vs alternative

modes of distance learning²¹. The participants said that these studies indicated a need to re-open schools and get children back into the classroom.

The participants explained that Zambia developed guidelines and researched extensively about how to ensure that children were learning in safe environments. Running a blended learning approach for the examination classes also worked well. The research made it clear that face-to-face learning accompanied by COVID-19 prevention measures was the best approach to use, and this is what eventually forced the government to re-open the schools to all learners. The interviewees also stated there were no COVID-19 outbreaks when using this blended approach after the schools re-opened partially, because schools were “very effective in adopting the best health COVID practises keeping children safe”.

However, the respondents reported that many areas of the EdTech efforts were ineffective. Firstly, access to television is only a privilege for the rich in Zambia. Secondly, the TV studios that were established for continued learning used teachers that were located close to the studio. This meant that selection was random, and based on how officials felt at the time. As a result, some of the information taught via the live TV broadcasts was wrong, but the live broadcasts could not be stopped in the middle of a lesson. The Permanent Secretary in Zambia was, “really disappointed with the quality of the teaching so he went live on TV and even ran a few lessons himself to demonstrate how to teach”. Furthermore, with TV, there was no opportunity to preview the content before the lessons were broadcast live. This exposed the low skill set and low digital literacy of some teachers. In some cases, the lessons were misleading, and the quality of delivery and content was not good.

The respondents said that the lessons that were broadcast were intended for grades 1 to 12, but it was very difficult to know at what time the different grade lessons would be aired and what the topic would be. The problem with radio was that it was not interactive and it was impractical to have learners - especially the younger grades - sit and listen to a radio without any interaction. Similar to TV, people did not know what lessons or grades were being broadcast when.

Both TV and radio use also required a lot of awareness-raising to be done amongst learners and parents. Furthermore, it was reported that the Internet in rural areas is almost non-existence and low-income households do not have smartphones, so there was not possible for online learning to be adopted by the masses.

²¹Statistics quoted from National Monitoring of Implementation of Ministry of General Education (MoGE) COVID-19 Guidelines in Schools Zambia National Education Coalition Main Report (ZANEX & UNICEF 2020).

Contextual Factors to Consider when Implementing EdTech

Participants explained the contextual factors that should be considered when discussing the enhancement or hindrance of EdTech. The first item mentioned was the matter of geography and the rural vs urban divide:

“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, even in urban areas, due to load-shedding and load-managing. In addition, access to the radio is still a huge problem in Zambia.”

Furthermore, illiteracy amongst parents is a contextual factor that must be considered. It was also stated that when considering using technology in continued learning, it must be ensured that the parents are not left behind, because “we need the parents to support children and learners to continue learning.”

The participants 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 need to work to supplement family income, this can be a big issue.

Interviewees also stated that gender is a major factor that must be considered: when girls are at home, they play a big role in the family and this must be considered when designing distance learning for girls. One interviewee said, “for example boys may be herding cattle and the girls could be ploughing in the field. If a household only has one phone, how do you ensure everyone has access?” Another factor reported is that teachers should be technologically skilled, in order to pass these skills on to the learners, but Zambia has not invested in continued learning for teachers.

Respondents stated that when considering online platforms, consideration should be given to the issue of data bundles, and staying connected via a smartphone. Access to the internet is still too expensive for a large portion of the population, and as much as people would like to use online platforms for continued learning, this is a hindrance.

Involvement of Big Tech

Concluding thoughts focused on the role of Big Tech and whether this is considered a hindrance or an enhancement. The first issue noted was the commercialisation of EdTech solutions, as these solutions are too expensive. As a result, access is denied to poorer members of the population. Participants said: “You cannot talk

about affordability. These solutions need a zero rate agreement. Too many people are living on a dollar a day, so how do you discuss what is affordable if it is not free?”

Secondly, education is key for any company or organisation, therefore the commercialisation of services that can increase access to education is “very unfortunate”. In Zambia, there is a need for a longer-term approach to education: those we spoke to said, “There is no one that does not benefit from having an educated population”.

Lastly, the government needs to engage with the Big Tech players and manage how they are introduced into the education system of Zambia, so that their presence is regulated and controlled.

5.2.7.2 Online Survey There was one response to the online survey. The respondent reported that there was no lockdown in Zambia, but schools did close. The respondent also said that there was an opportunity for children to continue learning during the school closure. On the question of what impact EdTech had on the right to education, the respondent said that it had compromised the right to education

5.3 Chapter Summary

In this chapter, we presented the findings that emerged from the KIIs and online surveys. It is important to note that the findings above are presented exactly how they were shared with us, without context or rewording, because the research team wanted to ensure that these findings were unadulterated by the thoughts and analysis of the researchers, part of our overall decolonial approach. In the next chapter, we provide a discussion and analysis of these findings.



Karel Noppe

6. Discussion: Counter-Storytelling to Success Narratives in International Education Development

6.1 Chapter Overview

This study sought to understand if and how EdTech is being harnessed in the eight countries of focus: Botswana, Burundi, the DRC, Madagascar, Malawi, Namibia, Rwanda and Zambia. Several main and secondary research questions were developed and a combination of KIs and an online survey used, with the latter being shaped by intersectional feminist and decolonial perspectives about how EdTech was leveraged during the COVID-19 pandemic. What follows in this chapter is a discussion of the findings and their implications.

The chapter begins by briefly recapitulating the research questions and the findings from the literature review, followed by an overview of the themes that emerged from the findings of the mixed methods approach that was adopted to respond to the research questions that guided this study. Then, the findings from the two sources will be considered alongside one another to reveal the dissonance between what has been written about harnessing EdTech in the eight countries of focus since the

COVID-19 pandemic began and what has been said about harnessing EdTech by people who live and work in these same contexts. The aim was to unpack the implications of the continued predominance of storytelling led by global minority voices about phenomena that impact global majority voices.

6.2 Brief Report Summary

6.2.1 Research Questions

At the beginning of this study, it was made clear that the focus of the investigation was on the following three main research questions:

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 access to education moving forward?

The main research questions first suggested by the Global Campaign for Education (GCE) were considered appropriate because they provided sufficient scope to develop localised and people-centred outputs that cut through the hype frequently associated with digital learning. It was believed that this would enable the research team to identify approaches and recommendations that would help provide a comprehensive understanding of: the current situation on how education technology has been harnessed in response to COVID-19 in the eight countries; the key players GCE may encounter as it develops its primary advocacy plan and a campaign approach in 2022 and beyond. However, the research team also identified knowledge gaps that could be delved into further and, as outlined in the Methodology section, expanded the main research questions by posing several SRQs, as indicated below:

1. What is the role of digital learning in ensuring effective and relevant learning outcomes during and after the COVID-19 pandemic?
 - a. SRQ 1.1. Which existing teaching and learning practices ensure effective and relevant learning outcomes?
 - b. SRQ 1.2. What examples, if any, are there of digital learning solutions that could complement these teaching and learning practices?

2. How can digital learning promote educational inclusion during and after the COVID-19 pandemic?
 - a. SRQ 2.1. What existing areas of exclusion should GCE address most urgently within the next five years?
 - b. SRQ 2.2. Which programmes or solutions, if any, effectively use digital technologies to promote educational inclusion for vulnerable or otherwise marginalised populations in the eight countries of focus?

The methodology was adjusted to accommodate both the main and secondary research questions and analyses performed to relate all research questions to one another from an intra-country and inter-country standpoint.

6.2.2 Literature Review

The literature review covered the state of EdTech since the pandemic began, initially beginning at the continental level, and then exploring the EdTech approaches used outside of the eight countries of focus, in order to establish a sense of the general approaches taken to realise educational continuity for the millions of school aged learners in Africa. The search focused on efforts in Botswana, Burundi, the DRC, Madagascar, Malawi, Namibia, Rwanda and Zambia, which are the eight countries with which this study is most concerned.

Burundi was the only country that did not institute a lockdown. The literature review also revealed that Botswana, DRC, Madagascar, Malawi, Namibia, Rwanda and Zambia all implemented at least one EdTech intervention at scale and with a purported reach to more than 100,000 school children. This is significant, since large numbers of children in each country were undoubtedly affected by the various lockdowns and school closures. The DRC had the largest school age population among the eight countries, numbering in the tens of millions (USAID, 2021). The multi-modal approaches identified through the literature review involved using a combination of education technologies, including government online platforms, SMS/messaging services, mobile apps, radio, television and even analogue media along with the distribution of paper-based materials. All seven countries leveraged at least two approaches to ensure the interventions reached as many learners as possible.

The major takeaways that the research team had heading into the data collection process was that EdTech interventions that have been purported to reach hundreds of thousands, and even millions, of learners are worth exploring further for their potential to be adapted and scaled further or elsewhere. Alongside this, it is

expected that, two years into the pandemic, investigations will be done to demonstrate the impact of these scaled EdTech efforts, particularly in terms of effectiveness is concerned, as a substantial amount of resources have been mobilised to operationalise the programmes. Such investigations would be critical for identifying the lessons learned that should be carried forward as the pandemic continues as “the new normal”.

6.2.3 Thematic Findings from Those Who Were There

The preceding chapter provided the findings from the people who work and live in the eight countries with which this study is concerned. The findings were intentionally presented without analysis because this gives voice to KII and online survey participants and their lived experiences, while decentering the influence and perceptions of the research team, so that the unadulterated viewpoints of people who have a tangible stake in the study outcomes are forefronted. Additionally, this approach is a form of counter-storytelling, which is a critical education research approach that is grounded in intersectional feminist and decolonial traditions (Mile, 2019) and advocates for stories to be told by people who are often silenced or otherwise excluded from retelling stories in which they have traditionally been “othered”. In this sense, the international education development paradigm is dominated by Western voices, often from countries that previously had colonial ties to the eight countries of focus, and national researchers and workers do not always feature in the storytelling (Brown, 2014). The more commonly referred narratives are the ones observed in the literature review. These stories are typically told by people from the global minority who are afforded the benefit of the doubt and can speak from a place of privilege without fear of reprisal (Solórzano & Yosso, 2022) despite (in the vast majority of cases) not having lived nor worked through the pandemic in the eight countries on which this study focussed.

With the greatest amount of respect and with care taken to ensure that an analysis is presented from an intersectional feminist and decolonial perspective, and built firmly on commentary shared in confidence by study participants, what follows is a summary of the key findings from the data collected by the research team via the KIIs and the online survey.

6.2.3.1 Participants’ Awareness of Pandemic-Era EdTech Interventions

The data collected was reviewed in line with the first research question: ‘What education technologies exist in the country?’ The first observation is that in all the interviews across the countries that implemented school closures, not one informant could list a large-scale, nationwide example of EdTech. However, respondents from seven of the eight countries (Burundi did not experience a lockdown or school

closure) reported that efforts were made to offer learning continuity using TV, radio, and online and mobile solutions, and by distributing paper materials. This finding differs significantly from the conclusions presented in the continental review but is not unsurprising. Since the first telecom connections in Africa and the proliferation of mobile services like M-Pesa (Juma, 2017), the world, and 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 (Juma, 2017). This belief is damaging and assumes that "foundational infrastructure" such as power, telecommunication and transport, can be overlooked,

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 find it more challenging to access vital information. In an article that appeared in *The Economist*, titled 'Technology cannot solve all of Africa's problems, but it can help with many', Akinwumi Adesina (President of the African Development Bank), is quoted as saying, "You cannot develop in the dark" (Economist, 2017). Adesina argues 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" (Economist, 2017).

6.2.3.2 Private Sector EdTech Support was Minimal

In all countries that attempted continued learning during the COVID-19 school closures, the government was mainly in charge and the driver of efforts for continued learning solutions. UNICEF and some other INGOS supported these efforts. However, there was minimal success in getting the private sector involved (including telecom operators) and efforts seemed to have been ineffective. DRC and Madagascar informants were able to cite some examples of small-scale efforts that were launched by telecom operators, but apart from these it was apparent the private sector failed to lead EdTech efforts during school closure. While it is easy to blame the private sector for not supporting government's effort, it is important to acknowledge that, in most of the countries researched, there did not appear to be a coordinated effort to manage the virus. Given that the virus affects public health, the public and private sectors, and the livelihood of the whole population, it is evident that a coordinated strategy should be adopted (Mamo, 2021). It is apparent, globally, that coordinating efforts across stakeholders was key to the success of some response efforts. According to a report published by the World Health Organisation (WHO), a key characteristic of successful specialised structures in countries' responses to COVID-19 was their multi-stakeholder nature that brought together actors from across and beyond government and from various sectors to combat the pandemic. The greater flexibility, inclusivity and reach that this approach offered in

comparison to using traditional structures were seen as the most important elements (WHO, 2021).

6.2.3.3 Research Participants Lament Ineffectiveness of EdTech Used, but WhatsApp Works

In terms of the second research question (How have these technologies enhanced or hindered the right to education in the country?), nearly all EdTech efforts in the countries we researched were largely ineffective. All informants explained that these EdTech solutions were ineffective, in some cases because of inability to access the EdTech solutions provided. According to participant, in theory, TV and radio was somewhat effective, but the coordination and planning was not managed properly. This was strongly reported in the interviews done in Madagascar, Malawi and Zambia. Lessons were not broadcast according to schedule, or there was no agreed schedule for radio and TV learning. Another issue with radio and TV was that mechanisms such as TV and radio hotlines had not been identified, which would have allowed learners to engage with the content they were viewing. In particular, in Malawi, it was noted that it was impractical to expect children to sit in front of a TV, and more so a radio, for hours at a time, and listen and learn. In reflecting on this, it was interesting to note that across Africa there is a history of foreign technology being introduced in various on the continent and it not being effective (Ezumah, 2020:50). While there are many reasons why technology was not effective in ensuring continued education during COVID-19, the need to consult people on the ground and to conduct effective human centred design (HCD) is essential before any technology is introduced (IDEO, 2011), especially if the technology has not been created in Africa (IDEO, 2011). In *Critical Perspectives of Educational Technology in Africa: Design, Implementation, and Evaluation*, Ezumah (2020) explains that developing nations have a habit of accepting solutions from western countries, believing they are adequate and effective. But while many are excited about the idea of western exports of information technology (IT), local experts continue to be sceptical of the IT products exported to Africa and they are often found to be ineffective and of poorer quality than IT solutions developed locally (Ezumah, 2020:50).

Interestingly, one effective example of technology was the use of WhatsApp groups. It was suggested that these were effective because they were an easy and accessible way (for learners who already had smartphones and used Whatsapp) to keep in contact with learners and parents. While WhatsApp was often used at the local and small scale, and managed informally, when it was used, it helped with managing school closures for learners and parents. Respondents from DRC, Namibia, Rwanda and Zambia all indicated that, when this was possible, it worked

quite well. WhatsApp was often used to share learning materials with learners, but more so to support children and learners and stop their morale from dropping during the school closure periods.

In recent years, with the introduction of social media and online communication channels like WhatsApp to Africa, it is becoming increasingly common to use these tools in an emergency (Roy et al., 2016). Moreno et al. (2017) suggest that mobile instant messaging (MIM) platforms like WhatsApp have expanded access to digital text, audio, picture and video messaging, so integrating them into existing crisis monitoring and response platforms and workflows could help to ensure that a wider population is reached (Moreno et al., 2017). However, the use is often informal and not well coordinated; so for many people who work in emergency response situations, WhatsApp may be many things, but it is not designed as an emergency communication system (Moreno et al., 2017). Despite this, and given that EdTech was not particularly effective in many cases, it is encouraging that people did find ways to continue to communicate and support learners when they were out of school.

6.2.3.4 Infrastructure Challenges Remain a Significant Barrier to EdTech Success

When online learning efforts were attempted in DRC, Madagascar, Malawi, Namibia, Rwanda and Zambia, they were not accessible in most cases. Affordability of devices and data bundles, and internet access were the main barriers to online continued learning being adopted. Connectivity and electricity challenges were mentioned in all eight countries researched, and while these were mainly seen in the rural areas, there were also significant challenges in urban areas. 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. As already indicated, even as technology solutions are advancing and becoming more available in Africa, connectivity and access to reliable electricity must still be addressed. In an IMF Working paper titled *Digital Connectivity in Sub-Saharan Africa*, it argues the same, saying that it is important to consider the quality of infrastructure and the cost to users (Alper & Miktus, 2019). Ongoing efforts to reform policy and regulatory frameworks to make broadband access more affordable, accessible and universal needs to be accompanied by skills development, in order to exploit technological advancements fully (Alper & Miktus, 2019). Alper & Miktus (2019) also explain that “the population’s capacity to access the Internet, including cultural acceptance, supporting policy, and availability of smartphones and computers at the household level are all necessary factors” to consider when implementing technology solutions.

Unsurprisingly, given the investment in technology and digital in Rwanda in the last decade, the respondents said that while fewer than hoped had access to the online solutions, the lessons were available, assignments were offered and some follow-up from teachers was provided for learners who had access to the internet and the e-learning platform. It helped that this portal followed the national syllabus. A common thread in the wider literature concerning internet use in Africa, as mentioned many times is that access is one of the main barriers to use.

Unlike all other countries, connectivity was not as challenging for learners and schools in Namibia; according to KII participants, most learners are connected to the internet. Almost 60% of schools also have at least 20 computers located in a computer centre. However, the cost of EdTech participation was considered a limiting factor from an uptake perspective. Many households are without smartphone, laptop or tablet access, since these devices are fairly expensive. It is important to note what these costs refer to, as the cost to purchase EdTech devices is not the only consideration. According to the Edtech Hub, the cost associated with an EdTech initiative can often be overlooked, especially costs that indirectly support the implementation and longevity of the technology (Chuang, 2021). In some cases, “these costs occur after the lifetime of an implemented project, due to hardware maintenance, tech support, etc. Examples include:

- “Cost of repairing or replacing broken hardware.
- Cost of piloting and testing software or other innovations using ‘test beds’.
- Connectivity cost.
- Required investment in school infrastructure to increase security and house expensive new equipment securely.
- Cost associated with support teams” (Chuang, 2021).

The findings in a recent UNESCO report align closely with the findings of this report. UNESCO states: “To face an unpredictable future, Africa needs, amongst others, to:

- Create policies to ensure connectivity, including internet access, in all schools.
- Invest in Wi-Fi-capable devices for student and teacher use, while preloading these devices with learning materials that cover the curriculum for an entire year in rural settings.
- Train and retrain teachers in further professional development, including using modern digital tools” (UNESCO, 2021b).

The challenge of affordability is associated with the belief that technology intended for education and continued learning should not be subject to tax or should at least

have some level of tax relief. The need for governments to offer tax breaks to EdTech companies and on digital devices intended for education was referenced in several countries. UNESCO and Global System for Mobile Association (GSMA) state that the lack of clarity in the tax and regulatory provisions regarding access to devices, coupled with the high cost of a licence and the high duty on imported mobile phones, deepens the digital divide for many sub-Saharan countries (UNESCO & GSMA, 2015).

6.2.3.5 Low Digital Literacy among Teachers Unprepared for Distance Instruction

Another theme throughout the interviews was the challenge of digital illiteracy amongst teachers, but more strongly in Madagascar, Malawi, Namibia, Zambia and Rwanda. Informants repeatedly stated that upskilling learners cannot happen, unless teachers have been empowered and trained to use EdTech solutions. It was apparent that only Namibia had made some headway in upskilling teachers, although this is considered essential. While ICT awareness is generally on the rise in Africa, the skills required to apply ICT to subject areas has not been fully developed in most African educational institutions (Andema, 2014). African educational institutions are still confronted with the challenge of turning ongoing ICT initiatives into opportunities for understanding what ICTs and digital literacy really mean to educational transformation in general, and to research, teaching, and learning specifically (Andema, 2014). A study conducted by Nuffic Kortenaerkade and the British Council, titled *Digitalisation of education in East Africa*, indicated that digital literacy for teachers is needed and is essential to engage more proactively with teachers when introducing digital tools, both inside and outside the classroom (Nuffic Kortenaerkade & British Council, 2021). Kommers et al. (2021) found that there is a real need to enhance teacher engagement, given that teachers are key figures in delivering digital education. Initiatives supporting digitalisation should build on existing local initiatives and teachers' experiences (Kommers et al., 2021).

It was also noted in Malawi that because many were opposed to schools being shut, there was reluctance to adopt continued learning resources, especially digital resources. Kommers et al. (2021) also reported that this was a theme in their recent research:

“Apart from the lack of digital skills, some people are hesitant to use digital technologies. There is some resistance to digitalisation among both teachers and students due to their perception that face-to-face teaching cannot be replaced by digital platforms. This is often strengthened by cultural aspects of communality that it is feared will be lost when providing digital education, and

unfamiliarity with the tools at hand, as often there is not yet a common digital culture” (Kommers et al., 2021).

With this in mind, coupled with what was said in the KIs, as countries in Africa recover from the COVID-19 pandemic, it is important that governments and other education stakeholder spend time and resources creating awareness amongst parents and caregivers, learners and teachers about digitalisation and the various ways to implement it.

Teacher training on digital tools in the classroom must be a priority, as mentioned in all the interviews conducted in the eight countries sampled. In Zambia, it was suggested that school breaks or holiday times should be used to offer teachers training programmes for digital tools and how they can be used in the classroom, in order for them to upskill their learners. Juma Calestous mentions this point in his journal article, *Leapfrogging Progress: The Misplaced Promise of Africa's Mobile Revolution*. He says that too much focus has been on creating the technology and not on training and maintaining its use (Juma, 2017). Furthermore, many African projects have “increasingly been delinked from technological training and are underperforming as a result” (Juma, 2017). A recent report published by UNESCO, titled, *The digital learning turn in Africa: The role of local ecosystems*, has also advocated more training and retraining of teachers as further professional development, including using modern digital tools (UNESCO, 2021b).

6.2.3.6 Parents Became Teachers During the Pandemic

Similar to the above was parents supporting children to continue learning when they were not in school. This seemed to be exceptionally prominent in DRC, Namibia, and Zambia. It was apparent that many parents were not only struggling because of the COVID-19 pandemic and required children to supplement family income more than usual but 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. It was also noted that in many cases, even households with access to a mobile phone usually only have one per household, which is a challenge if this phone is needed for continued learning. Reports from UNESCO also say this: “When schools close, parents are often asked to facilitate the learning of children at home and can struggle to perform this task. This is especially true for parents with limited education and resources” (UNESCO, 2021c).

Similar to upskilling teachers, was the reference to education and 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 believed that without the endorsement of parents, continued learning in the home through EdTech would never succeed. According to Osorio-Saez et al. (2021) in their research on *Parents' Acceptance of Educational Technology: Lessons from Around the World* one of the long-term lessons from the school closures due to the global pandemic COVID-19 was that “technology and parental engagement are the best levers to access education so as to bridge the achievement gap between socially disadvantaged children and their peers” (Osorio-Saez et al., 2021). A consideration for those reading this report, and potentially advocating the use of technology tools for learners outside of school is that according to Osorio-Saez et al. (2021) parents are more engaged in children’s learning when well-structured technological tools are provided or suggested by schools, and when parents are socially influenced by the opinions of other parents, teachers, children, the general public, relatives, etc. Conversely, they are less engaged when they perceive the technological tools to be challenging and beyond their knowledge or skills (Osorio-Saez et al., 2021).

6.2.3.7 Governments Lacked Distance Learning Plans for Educational Continuity

COVID-19 caught everyone off guard, and 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 initiatives. It was also apparent that even when continued learning was offered, awareness of these solutions was poor. This was mentioned in nearly all the KII, but the most sobering example was in DRC, where one participant reported a survey conducted in one DRC province. It showed that 80% of the survey participants were unaware of the EdTech and paper-based initiatives that the government had tried to roll out. However, participants from Zambia said that the government and education civil society organisations were very effective at monitoring and adapting approaches to continued learning, and the relatively quick re-opening of schools is equated with this monitoring.

6.2.3.8 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 emerged. The majority are centred on the devastating effect of school closures on learners in all eight countries, and it was apparent that school closures had a high social and economic cost for learners. However, it was particularly severe for the most vulnerable and marginalised boys and girls, and their families. The resulting disruptions exacerbated already existing disparities within the

education system, but also in other areas of their lives (UNESCO, 2021c). UNESCO states:

“Schooling provides essential learning and when schools close, children and youth are deprived of opportunities for growth and development. The disadvantages are disproportionate for under-privileged learners who tend to have fewer educational opportunities beyond school” (UNESCO, 2021c).

While this report aims to bring to the fore 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 to be 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 (UNICEF, 2021a). Furthermore, according to latest data by UNESCO, more than 888 million children worldwide continue to face disruptions to their education, due to full or partial school closures (UNESCO, 2021d).

Lastly, 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 obtain a nutritious meal. The longer schools remain closed, the longer children are cut off from these critical elements of childhood (UNICEF, 2021a).

6.2.3.9 Girl Learners Experienced Educational Continuity Challenges with a Need for Safeguarding

Women and girls continue to be the most marginalised and at-risk populations when pandemics and emergencies such as COVID-19 occur (Rafaeli & Hutchinson, 2020). Reports on previous emergencies and crises suggest that outbreaks exacerbate the existing vulnerability of girls and women, create new ones and increase gender and social inequality (UNFPA, 2020; Krug & World Vision, 2020). These secondary consequences to girls and women will reverse the advancements that have been made in the last few decades to enhance women’s and girls’ agency, if they are not addressed urgently (Grown & Sánchez, 2020). Furthermore, ignoring these issues will threaten the commitment made in the African Union’s Agenda 2063 to eliminate gender disparity at all levels in the region (Odhiambo, 2020).

In all countries researched, it was clear that school closure disproportionately impacted the girl child. The majority of interviewees reported that when schools re-opened, a large number of learners did not come back to school, but these were mainly girls. 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 child. Plan International (2020) found that, in addition to school fees and attendance by girls, access to technology and online learning approaches should be implemented with an intersectional feminist lens, otherwise gender gaps in education might increase (Rafaeli & Hutchinson, 2020). A study done on online learning in Sierra Leone, during the Ebola crisis, found that only 15% of girls surveyed said that they participated in home study, compared to 40% of boys (Plan International, 2020). One explanation for this finding could be that girls continue to have less access to technology than boys (Rafaeli & Hutchinson, 2020).

In *Real Girls, Real Lives, Connected Using Mobile Phones to Reach Girls*, published by Girl Effect and Vodafone Foundation (2018), boys are one and a half times more likely to own a mobile phone than girls. Malala Fund (2020) found that women are 33% less likely to use the internet than men. Studies conducted by Malala Fund suggest that girls may be unable to participate in online learning due to taking on domestic chores, family care and income-generating activities to support the family (Malala Fund, 2020). With this in mind, it is important to note that when implementing technology and continued learning approaches, the intersectional feminist lens cannot be overlooked, as significant evidence suggests that the girl child will be unfairly disadvantaged.

Furthermore, Rafaeli and Hutchinson (2020) state, “in times of crisis, due to school closures, loss of livelihood, significant stress on families and lack of access to safe spaces and services, girls and women face great risks. They are more frequently exposed to gender-based violence and experience higher rates of early marriage, unwanted pregnancies and school dropout” (Rafaeli & Hutchinson, 2020:3). This was reported in the interviews, as was an increase in child marriage and teenage pregnancy.

It is important to pause here and acknowledge that when discussing girl children and early pregnancies in particular, patriarchy must be called out and male figures, like fathers, husbands and other men in society held to account in the framing of findings. Alarming, the interviews made it evident that the patriarchal structure of Malawian society facilitated and enabled a shocking increase in child marriages: 25,000 child marriages were reported between the first and second wave of COVID-19. As noted in the findings chapter of this report, the figures quoted by key informants were confirmed by UNICEF (2020b). In addition, we were told that in any given year before the pandemic, roughly 5000 teenage pregnancies were reported. However, in the eight months between the first and second wave of COVID-19 in 2020, 45,000 teenage pregnancies were reported. From a feminist perspective, these statistics stress the need for education regarding consent, and opens up

questions regarding the impact that gender-based violence (GBV) had on schooling during the pandemic.

Studies show that patriarchy perpetuates the belief that girls and women have less value, and in patriarchal societies in sub-Saharan Africa, GBV is often widely accepted by society (Malek et al., 2014). Explicit recognition of GBV is essential when developing healthcare and education policies, laws and legislation, because what is unnamed is more likely to be unsupported (Javed & Kumar, 2020). Javed and Kumar (2020) argue that commonly used measures of gender equality scores, such as the female labour force and the number of seats held by women in national parliament, did not significantly influence society's acceptance of GBV (Javed & Kumar, 2020). UNHCR makes the important point that international and domestic violence prevention policies are needed that do not focus solely on narrowly defined economic or political 'empowerment', because that is insufficient to challenge existing gender inequalities (UNHCR, 2020), particularly in terms of schooling. Lastly, it is also important to note that even two years after the onset of the COVID-19 pandemic, data on the unique reality of women and girls, specifically those living in conflict areas and in emergency contexts, is still scarce (Rafaeli & Hutchinson, 2020; Women for Women International, 2020).

6.2.3.10 Children with Disabilities were Largely Left Behind

Another marginalised group mentioned in a number of KIIS was children with a disability and the disproportionate impact that school closure has on these children. This was particularly concerning for those in Malawi. Globally, children with a disability are often marginalised, economically disempowered, experience poor social conditions, and lack access to health care, education and social services (Mbazzi et al., 2020). Furthermore, a growing body of evidence shows that both the virus itself, as well as the measures implemented by governments to contain its spread, disproportionately impact children with a disability and their families (UNICEF, 2021b; Mbazzi et al., 2020). In sub-Saharan Africa, like in many other low-income countries, children with a disability are already disproportionately disadvantaged, as they are less likely to go to school than typically developing children, and are unlikely to receive a quality inclusive education (UNICEF, 2016). In particular, children with a disability - and especially those with difficulty in the domains of hearing, seeing and cognitive functioning - also face real barriers when accessing remote continued learning resources (UNICEF, 2021b). A study conducted by Human Rights Watch (2020) indicated that all the factors that affect children's education during the pandemic become magnified for children with a disability (Human Rights Watch, 2020). Furthermore, EdTech still presents a huge opportunity for children with a disability that cannot be overlooked. According to a

report on *Technology for Inclusion* by UNESCO (2020), technology has considerable, but largely unused potential to support inclusive education for learners with a disability (UNESCO, 2020c). It also has the potential to increase enjoyment and motivation to xxx (UNESCO, 2020c).

6.2.3.11 Need for Enhanced Safeguarding and Child Welfare Services Spiked during Pandemic

The abruptness of school closures and the sudden reality of children and parents living together 24/7 resulted in conflict in the home, which was apparent in a number of the countries researched. Studies of past epidemics and crises have documented the devastating impact on violence against children being reported and related services being delivered. For example, during the Ebola outbreak in West Africa, systems such as child welfare structures and community mechanisms were weakened, and child protection responses were delayed or otherwise affected (Overseas Development Institute, 2015). Interviewees from DRC notably reported an increase in violence within the home, because many parents were not used to having their children at home the whole day. This was particularly the case in households where parents and caregivers had experienced job loss due to the COVID-19 lockdowns. This has been reported globally, for example Koos et al. (2020) found that, at the household and community levels, domestic violence/crime, mental health and issues related to social cohesion increased significantly during the pandemic. Koos et al. (2020) explain that domestic violence may increase during a lockdown, as people are more likely to stay at home. Loss of employment and income, and higher levels of uncertainty may affect mental health (Koos et al., 2020). Social cohesion can come under threat when scarce resources may have to be allocated in new ways (Koos et al., 2020). Lastly, Porth & UNICEF (2020) acknowledged this as a global challenge, but the long-term impact of the pandemic and the implications for children being exposed to violence remain largely unknown (Porth & UNICEF, 2020). However, based on the literature and mounting anecdotal evidence, UNICEF suggest some broad directions that are emerging:

“The data presented in this brochure confirm that the establishment of national lockdowns and containment actions taken by governments have resulted in disruptions of child protection services by either forcing closures or requiring significant adjustments to the way services are delivered. In many cases, movement restrictions and social distancing mean that child welfare and social workers are no longer conducting in person visits, whether at home or in an office, and much of this work is now being conducted remotely – either online or over the phone. Mechanisms for reporting and referring cases of violence against children have also been affected. Child helplines in particular have become even more critical, particularly in places where regular reporting

mechanisms have been interrupted. The effects on service delivery are likely exacerbated in contexts where child protection systems were already weak prior to the pandemic (Porth & UNICEF, 2020:16).”

6.2.3.12 Pandemic Job Losses Squeezed Finances, Parents were 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 the schools re-opened. Interviewees mentioned that many parents had no choice but to keep their children at home because they were no longer able to pay school fees. A report by Koos et al. (2020) titled, *Household wellbeing and coping strategies in Africa during COVID-19 – Findings from high frequency phone surveys*, found that, across sub-Saharan Africa, employment levels dropped significantly and a large share of households - up to 35% - employed crisis level coping strategies (e.g. reducing food consumption, selling assets), which could result in adverse long-term consequences (Koos et al., 2020). Furthermore, it was clear that children were expected to help parents replace lost income. This impact of the COVID-19 pandemic exacerbated child labour across the continent. According to a new report by the International Labour Organization (ILO) and UNICEF, population growth, recurrent crises, extreme poverty and inadequate social protection measures in sub-Saharan Africa have led to an additional 16.6 million children being in child labour over the past four years, with millions more at risk due to the impact of COVID-19 (ILO & UNICEF, 2021).

6.2.3.13 Effect of School Closure on Children’s Mental Health was Negative

Interviewees mentioned that school closures had a severe impact on morale, and heightened anxiety amongst many children and other learners. This was one considered one of the contributing factors for the pressure to re-open schools in Zambia. The mental health consequences of COVID-19 on children have been significant and recent literature suggests that an elevated mental health impact of COVID-19 on children and adolescents has been seen globally (Idele et al., 2021). Furthermore, UNICEF has argued that, in an increasingly globalised world, the risk to children from natural disasters and pandemics is magnified (Idele et al., 2021).

If the COVID-19 crisis has taught us anything, it is that global development partners, governments, communities, caretakers and young people themselves can no longer simply react to these types of emergencies: they must also put in place measures to anticipate the most plausible risks and build resilience measures and contingency plans to protect the mental health of children and adolescents at the global, national, societal and individual levels (Idele et al., 2021). Furthermore, Human Rights Watch

(2020) reported that many students in Africa reported feelings of stress, anxiety, isolation and depression, which they linked to the lack of contact with their school community (Human Rights Watch, 2020).

6.3 It Must Be Seen to be Believed: Building Snapshots of EdTech Impact in the Eight Countries Studied

Earlier, counter-storytelling was noted as a critical approach used to present the findings from the data collection phase for this study. Counter-storytelling was used to centre the perspectives of people who are not often given the space to speak in international education development. Use of counter-storytelling was illuminating when data from the KIIs and online survey were considered alongside the findings that emerged from the continental literature review since it was observed that dissonance existed between what was written in the literature since December 2019 about how EdTech has been harnessed during the COVID-19 pandemic and what was said by people who lived through the pandemic in the eight countries of focus. What follows is a discussion about this dissonance between these two data sources and the implications of the same.

During the period when the research team reflected on the data collected following the completion of the literature review, there was a realisation that despite several major and seemingly insurmountable hurdles that were shared by KII participants and the online survey participants, the overall tone and presentation of data in the literature review, and indeed in the texts from which the literature review was sourced, erred on the side of positive. In fact, the positivity in the verbiage of the literature review texts observed was consistent with the overarching rhetoric in international education development whereby failure is not an option and shortcomings, when they are mentioned, are themselves couched in positive terms.

This phenomenon is best encapsulated in a quote from the *Guardian UK* “Poverty matters blog” sponsored by the Bill and Melinda Gates Foundation: “A feeling of positivity and optimism is essential for effective collective action to tackle global poverty” (Glennie, 2011). The OECD & Solheim (2014) stated the following in a report on engaging with the public to help them understand the importance of international development efforts,: “Development co-operation must therefore inspire – and be able to withstand – critical assessment from the public. This means we must be better at telling people what an enormous success story global development has been” (p. 9). Although this text also makes reference to explaining failures, the overwhelming focus of the report remains on communicating feel good stories. A serious piece from Ghedi Santur (2019), humorously titled, “The F-Word of The

Development World", shows just how taboo discussion about failure in international development is, mostly because to discuss failure is to admit fault that could potentially lead to funding loss.

In the literature review, it is clear from the descriptions of the scope and scale of the various EdTech interventions reported that large sums of money were involved - particularly public financing. This is corroborated through KIIs where participants recounted the costs of various expenditures during the pandemic (for example, see Namibia KII data presentation). This factor alone could be the cause for more cautiously optimistic framing of the outcomes since to admit that millions were spent only to, in the case of the DRC as one example, have learners not engage with schooling for seven months or more could be cause for embarrassment. Additionally, it was known that governments around the world, in the global minority and global majority alike, were woefully un- or under-prepared for the onset of the COVID-19 pandemic and the need to pivot from face-to-face to virtual learning. For nearly every country in this study, we know that EdTech had been experimented with or piloted in some form. Yet, we also know that most of these countries had had in place strict regulations that prohibited the use of educational technologies on school grounds with computer labs being the singular notable exception in most public education institutions. With an attitude towards EdTech that was already trending somewhat negatively, it should not be a surprise or cause for anything to be hidden with regards to the failures and shortcomings witnessed by the KII and online survey participants. The focus on the positive in the literature review, therefore, is doing a disservice to the real lessons that could and must be learned from what has transpired during the past two years.

A common refrain among the KII participants was that it is not just the pandemic that is driving the use of EdTech to support educational continuity for learners. Several participants noted that war, climate change, distance and other factors also regularly interrupt schooling in sub-Saharan Africa, including in the eight countries that were a focus of this study. 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. The affordability of EdTech interventions is one recurrent barrier to participation, one where progress will continue to be slow when choices are made to avoid serious discussion of how public-private partnerships and other innovative funding mechanisms are needed to ensure that there are no gaps in the delivery of potential solutions that can help keep children learning. Although this particular barrier relating to cost has been continuously underscored, it was also mentioned in relation to the lack of electricity infrastructure required to power EdTech devices. Solar power was mentioned by key stakeholders in Madagascar to demonstrate that

while the country may not be wealthy, it is rich in sunlight that could help mitigate the impact of locales that remain unconnected to electrical grids. These major issues are mentioned almost in passing in some of the literature reviewed by the research team, with the focus placed squarely on the amount of learners allegedly reached and how.

The lack of intersectional considerations in the literature review was another surprise that has significant implications for the potential of EdTech interventions to be harnessed in the eight countries of focus in the future. There were several groups of comparative disadvantages mentioned in the literature review, the KIIs, and the online survey. However, it was only through the data collected that we saw the connections being made between marginalised stakeholders such as girls, rural dwellers, the impoverished, those without electricity, those without connectivity, those without access to public or individual technologies, and the disabled. Quite frequently, the connections were made by the stakeholders the research team spoke to, putting on stark display how multiple axes of exclusion were instrumental in severely blocking the potential of all learners in the eight countries to benefit from the EdTech approaches that were made available during the pandemic. The failure to conduct intersectional analyses when recounting the impact and exploring the effectiveness of the various instances of harnessing EdTech during the pandemic is demonstrative of thinking that entrenches existing systems of cyclical poverty in places where the continuance of such cycles inevitably means that equality will never be realised in the current generation. The implications of this are profound and it is increasingly necessary that more sophisticated analyses holistically consider matters with an intersectional lens when determining the effectiveness of EdTech interventions.

6.3.1 Policy Recommendations from Those Who Were There

As part of the KIIs, the research team took the opportunity to ask the education sector experts in seven of the eight countries of focus about their policy recommendations related to the use of education technology during the COVID-19 pandemic. Although this would normally be considered part of the findings, the reflections of the interviewees have instead been included here to aid the contextualisation of the overall policy recommendations that arose from the data triangulation earlier outlined. To elicit these policy recommendations, we specifically asked research participants the following question:

What policy recommendations, if any, would you make to _____ (country) so that EdTech can be better leveraged to improve the right to education moving forward (during the pandemic and beyond)? Please share any supporting evidence for your response.

Based on the responses given, the research team then engaged with the recommendations made by the interviewees before subsequently formulating policy recommendations following theirs to be considered as potential pathways forward for GCE and other interested stakeholders. What follows is a presentation of these policy recommendation findings from the KII participants.

6.3.1.1 Burundi

If EdTech was to be introduced, those interviewed in Burundi suggested the following policy recommendations: Firstly, “there was stated and shared importance for Burundi to move with the world, and move forward with technology, and as technology continues to develop Burundi should not be left behind”. Secondly, interviewees underscored the importance of not only considering learners but also providing sufficient awareness campaigns for teachers, and parents, because if new technologies are introduced the teachers would need training on how they could use these tools in the classroom. Thirdly, they felt that 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 of the country.

6.3.1.2 DRC

Thinking about the circumstances schools found themselves in during the pandemic, the interviewees were asked to suggest policy recommendations when considering the introduction of EdTech in the DRC. Firstly, the research team was told that COVID-19 surprised everyone and shone a harsher light on the gaps that already existed in the DRC’s education systems. This demonstrated that there was a real need to consider EdTech as a mechanism for learning support whether there is a pandemic or not. Participants pointed out that there was a need for policies to help continue learning during emergencies since many natural disasters occur in the DRC, as well as civil unrest and other issues that block learners from regular school attendance. Because of this, those we interviewed encourage the Government to seek additional alternatives to support educational continuity. People also felt that user-centred design must be prioritised when creating EdTech interventions and that the Government should consult the beneficiaries before any solution is implemented. The suggestion was also made to establish a national education strategy during emergencies and that this strategy should take 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.

6.3.1.3 Madagascar

KIIs with participants in Madagascar revealed that they believe that it is time for Madagascar to mature and create a good education system that will work, that will provide quality education:

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. With our government, how it works with EdTech implementations is that 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.

The KII participants also shared that Madagascar is not even 50% electrified, but that they do have sunshine for 12 months of the year. They believe 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. Participants felt that there is a need to give learners the confidence and ability to learn without a teacher being right there and following them.

Interviewees believe that 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, and even violent attacks on villages, schools will close again for weeks. There are several circumstances where face-to-face learning cannot happen. So, the government needs to wake up and create a national plan for digital learning in primary and secondary schools.

To help sensitise the population to these changes, informants think that there should be awareness campaigns, workshops, and information sessions to help implement EdTech programs. Teachers and parents must be integrated sufficiently, too, participants felt, since if parents do not understand the necessity, they will not allow their children to participate in such an intervention. It was argued that parents must believe that EdTech learning can be just as effective as face-to-face learning so that they will not be sceptical about it. Participants also suggested that there needs to be a comprehensive assessment of different locales to understand which parts of the country are already ready for EdTech interventions due to connectivity and electricity access, for example, and the gaps present in others 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, interviewees stated that Madagascar should explore how EdTech and/or the curriculum be adapted to work well.

6.3.1.4 Malawi

Policy recommendation perspectives from KII participants in Malawi included that taxes must be removed from devices like laptops, desktop computers, and mobile phones in order for EdTech to succeed due to affordability considerations. Secondly, participants mentioned that the government needs to mandate that telecom providers in the country provide free data bundles for learners to access learning content. A third policy recommendation made was to introduce ICT lessons to the curriculum to support distance learning. 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.

Nonetheless, KII participants noted their concern regarding cybersecurity for learners and questioned whether Big Tech players could sufficiently safeguard learners when they eventually come online to learn. Participants subsequently noted the issue of cyberbullying and the concern of this taking place on Big Tech platforms over which the Malawian government does not have any control. These perspectives point to the need, in the interviewees' opinions, to have strong data privacy protections put in place when implementing education technology interventions. Concluding remarks from KII participants included that there is a lack of capacity in Malawi to develop its online EdTech platforms and there continues to be minimal EdTech knowledge in Malawi. As a result, they said that local solutions would not be able to compete with the big players and their platforms if they are ever rolled out nationally. The sentiment conveyed was that because of this positioning, Malawi must take care when engaging Big Tech to implement education technology within its borders.

6.3.1.5 Namibia

The policy recommendation discussion with participants from Namibia was informed by stakeholders' knowledge of existing government policy. KII participants noted that the MoE has an ICT policy developed through a multi-sectoral approach and that this policy makes several recommendations about how to make Namibian citizens computer literate. Interviewees noted that the Vision 2030 for Namibia also indicates similar goals by the next decade. But KII participants felt the government needed to move from paper to practice. It was strongly felt that there is a need for learning support materials for students and that the government should seek to procure educational devices such as tablets on which all educational content and textbooks can be loaded. Although 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 some other catastrophe that interrupts schooling, teachers and learners should be equipped to continue teaching and learning.

Alongside upskilling learners, interviewees think that teachers should also undergo extensive information technology training so that they can be empowered to share their knowledge with learners. The interview participants did not believe that the government saw this issue as a matter of urgency, as they do. As civil society members, interviewees felt that perhaps they need to strengthen their own advocacy skills and see how they can engage and encourage the government to enter public-private partnerships that will unlock opportunities for successful EdTech implementations for children.

6.3.1.6 Rwanda

In Rwanda, KII participants emphasised that there is a need to ensure that any approach to EdTech is inclusive and of high quality. Ultimately, they also felt that EdTech initiatives must be child-friendly. Participants reiterated the importance of the relationship between and partnership with Government and other players in the EdTech ecosystem, arguing that there must be a collaborative approach that uses existing resources. The interviewees noted that Rwanda's existing environment is open and encourages the introduction of technology, and when thinking about EdTech in schools, this forward thinking should be leveraged. They also said that offline channels that people can use to access EdTech resources even when they do not have access to the internet must be included; voice, interactive voice response (IVR), and SMS channels are still critical. As technology develops, interviewees admonished that we should not overlook channels for learning that people already know how to use. This is because, participants believed, that this approach would support students who are often unable to access the internet.

6.3.1.7 Zambia

The KII participants in Zambia told the research team that the government must invest in digital technologies that help improve connectivity in rural areas and ensure the affordability of data bundles for all learners. To realise this, participants suggested that the government must ensure that they waive duties on digital technologies, especially if they are for educational uses: "people should not have to pay tax on these [digital technologies]".

In the opinion of the interviewees, the government should continue to collect data to assess the reach of EdTech solutions in Zambia and ensure that the government develops an understanding of the access gaps and react accordingly. Participants expressed another policy recommendation regarding use of time during holiday breaks. They 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. In addition, those we interviewed said that a curriculum review must happen to ensure that it focuses on core competencies and that EdTech helps enhance these competencies. Finally, the Zambian interview stakeholders made the recommendation that EdTech solutions must remain flexible and continue to be adapted to ensure they remain useful tools for educational continuity.

6.3.2 Policy Recommendations from the Data Triangulated

After analysing the KIIs and placing that data into conversation with the online survey, the research team identified policy recommendations that must be considered as the pandemic wears on and particularly as more people begin to realise the connection between ongoing interrupted schooling and the potential for EdTech to support, there, too. First and foremost, 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. Coupled with this is the recommendation that while connectivity is being addressed non-internet solutions, as well as offline options be explored. Even Rwanda, which is the most advanced in EdTech and technology solutions amongst the countries we researched, indicated that offline channels that people can access even when they do not have access to the internet must be included. It is apparent that even as technology advances we should not overlook these channels that people already know how to use. In the same vein, access to EdTech continues to be too expensive for many learners. Those we spoke to believed 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 suggested that the focus could not be on the commercialisation of EdTech and be profit-driven. What was particularly noted in Malawi was for the government to remove taxes on devices and solutions aimed at EdTech.

Secondly, it was noted that governments must not see COVID-19 school closure as an anomaly. In many of the countries researched there are other potential threats, such as natural disasters, other infectious diseases, conflict and extreme weather periods that could lead to mass school closure. Participants from Madagascar, DRC, Burundi and Rwanda indicated that this is a key policy recommendation. The findings from this report show that planning for continued learning, especially with the use of EdTech, should be incorporated into the broader contingency planning strategies for education continuity.

One particular policy recommendation that was made in our interviews in Burundi that is worth noting is that EdTech cannot become a vanity project. There are many areas of the education system in the eight countries that need to be addressed before EdTech is prioritised. For example, participants in Burundi said that some schools still see class numbers exceeding 100 learners. These issues have to be tackled first before technology is entertained.

6.4 Chapter Summary

Overall, the data generated by the KIIs and the online survey complemented the literature review to allow a fuller picture to be built of what transpired during the pandemic with respect to harnessing EdTech. While the literature indicated the scale at which governments, INGOs, the private sector (to a lesser extent) and civil society organisations were mobilised in an attempt to maintain educational continuity for millions of learners in the eight countries studied. The unfiltered and sometimes difficult-to-digest testimony from educational practitioners on the continent pointed to the nuances and complex challenges involved in making an abrupt pivot to distance learning in contexts where the resources for doing so successfully were limited. The urgent need for governments to reimagine their existing policy frameworks with regard to the modes of education delivery is increasing every day, particularly for vulnerable learners, parents and teachers who depend on the government to help transform their lives positively through education. EdTech may be but one potential solution to long-term educational continuity during the pandemic and beyond, but it has yet to prove itself a silver bullet due to the myriad challenges that must first be addressed in all eight countries.



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7. Conclusion

During this scoping study, it was important to understand how and if EdTech could be leveraged to support the delivery of effective and relevant learning outcomes for people in sub-Saharan Africa, not just during the COVID-19 pandemic, but also during times of more perennial interruption to education. It was also imperative to understand the role that education technologies might play in hindering the desired teaching and learning outcomes during a period when educational inclusion is needed most.

Prior to 2020, it was evident that too many people in Africa could not access technology for school, work, health or financial services. The pandemic has underscored the vulnerability of the digitally excluded, who often have more difficulty accessing vital information. Akinwumi Adesina, president of the African Development Bank, is quoted as saying, “You cannot develop in the dark” (Economist, 2017). Adesina argues that, in order 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,” (Economist, 2017). Although 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 perspective of people who witnessed EdTech attempts first-hand in the eight countries of focus.

Overall, 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. 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 to urgently act to address the global digital divide, promote syntropic learning experiences, and reimagine education altogether (Železný-Green, 2020). Nonetheless, governments struggled to pivot rapidly and planning must be initiated now to ensure that future school interruptions - whether pandemic-related or not - have as few negative repercussions on learners as possible.

As the survey data shows, access to EdTech in schools and households before the pandemic was already limited and differed by household socioeconomic background and the type of school that children attended (government or private). In nearly all the countries researched, only privately-funded schools who had pre-existing technology systems in place adapted when school closures became a necessity. The digital divide between the haves and the have nots has therefore widened in the past two years, and even if children at public schools were able to access some form of learning, they were undoubtedly still behind their well-monied and well-equipped private school peers.

While this study focussed on the educational opportunity of technology and continued learning, it was made clear that we cannot overlook the socioemotional and safety needs of children in trying times – particularly girls, children with a disability and children living in rural and remote areas.

Teachers and parents also need to be supported: an important outcome of this study is that training, professional development and guidance on how to support learners during a school interruption is crucial if teachers and parents are to assume responsibility for effectively facilitate distance learning.

At the time of writing, the world is only just getting back on its feet after the COVID-19 pandemic, even though there is still evidence that COVID-19 is still amongst us, with China preparing for a further lockdown in Shanghai (CNBC, 2022). Even if it is not the pandemic, there are several other reasons why a child in the eight countries

of study may be unable to complete their schooling. It is hoped that all sectors of society will be able to contribute to educational continuity in the years ahead, led by governments that are empowered to make informed decisions about when, where, why and how to harness education technologies for the benefit of their children. This study identifies the myriad negative consequences of not doing so and should serve as a wake-up call to educational practitioners the world over.

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 not possible. EdTech must be a part of an ecosystem, of reimagined educational continuity approach but EdTech must be leveraged in a manner that is strongly focused on equity, inclusivity and feminist ideals, and must be free of neo-colonial pressures and influences that could harm locally relevant progress in the sector. Adopting any other approach will only mean that history repeats itself and this is simply too high a price for any nation in Africa to pay for its youth.

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Appendix:

Appendix A: Key Informant Interview Guides

Interview guide for stakeholders identified by GCE

Introduction and permission request:

My name is Dr Ronda Železný-Green/Ms Hannah Metcalfe and I am an independent consultant working on behalf of the Global Campaign for Education.

I am conducting this interview to find out more about how education technology was harnessed in response to COVID 19 in your country. This information may be used as part of a final report to provide the background and a blueprint for more detailed country case studies. The aim is to identify some pilot activities of remote teaching and distance learning practices that have been implemented since the pandemic began and their suitability for upscaling.

All your responses are **voluntary** and will be **confidential**. Your real name will never be used or written anywhere unless your express permission is granted.

The interview should take about 40 minutes to complete. With your permission, I would like to record the interview. However, if you want, I can simply take notes of what you have said. If you agree to participate, please state your name, your role, your organisation, your country, and whether the interview can be recorded.

If you decide during the interview that you no longer wish to participate, you may end the interview at any time.

If you have any questions during the interview, please let me know. Are you ready to begin?

Warm up questions – pandemic context

1. You mentioned that you are from _____ (country). Did _____ (country) implement a lockdown at any time from January 2020 until now? If so, what was the lockdown period(s)?
2. Have there been any other special measures implemented that were related to the COVID19 pandemic? If so, what were the special measures and what was their specific duration?
3. How, if at all, did the lockdown or COVID19 special measures affect the education system in _____ (country)?

Note: If participant responds that there was no lockdown, no special measures, and no disruption to schooling, the participant will be asked Q4 below before a decision is taken to conclude the interview. If the answer to Q4 is 'no', the consultant will conclude the interview.

Edtech during the pandemic (key RQ1)

4. During the pandemic, was education technology of any kind used to support formal schooling, specifically existing learning and teaching practices? If so, please tell me more about the technology or technologies used, their origin, and their purpose.
5. [Only ask if they state that education technology was used.] Thinking about your response to Question 4, who helped children in your country continue learning during school closures? [Provide prompts from key themes as needed: government, private sector/companies, civil societies/local NGOs, parents, learners themselves, etc.]
6. [If the participant says education technology was not used.] If education technology was not used, what other mechanisms were attempted or introduced?

[End interview after question 5 if a participant says education technology was not used.]

Effectiveness of edtech during the pandemic to facilitate the right to education (key RQ2)

7. To what extent do you think education technology (or technologies) you mentioned **were effective** during the lockdown(s) or special measures in terms of facilitating the right to education? Please share any supporting evidence for your response. [Provide prompts from key themes as needed: access to technology, availability of technological infrastructure, socio-economic status, data privacy, Big Tech, education privatisation, public private partnerships, teaching and learning, teacher training, student experiences, parent involvement, home context, gender, geography, etc.]
8. To what extent do you think education technology (or technologies) you mentioned **were ineffective** during the lockdown(s) or special measures? Please share any supporting evidence for your response. [Provide prompts from key themes as needed: access to technology, availability of technological infrastructure, socio-economic status, data privacy, Big Tech, education privatisation, public private partnerships, teaching and learning, teacher training, student experiences, parent involvement, home context, gender, geography, etc.]

9. What contextual factors, if any, do you think have to be considered when discussing the enhancement or hindrance of edtech to support the right to education in _____ (country)? Please share any supporting evidence for your response, particularly where you believe children are at risk of being left behind or are being excluded from the opportunities that edtech may offer. [Provide prompts from key themes as needed: age, gender, location, personal finances, etc.]

Edtech policy recommendations (key RQ3)

10. What policy recommendations, if any, would you make to _____ (country) so that edtech can be better leveraged to improve the right to education moving forward (during the pandemic and beyond)? Please share any supporting evidence for your response.
11. To what extent do you think that Big Tech or the introduction of foreign technology companies in _____ (country) is a concern? Please share any supporting evidence for your response, particularly where you believe the role of Big Tech could hinder the access of 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.
12. Is there anything else you would like to tell me about the use of EdTech in _____ (country) since the pandemic began that we have not already discussed?

Interview end

Appendix B: Online Survey Guide

EdTech In Africa during the COVID-19 pandemic

Thank you for agreeing to complete our survey.

The Global Campaign for Education is conducting research to learn more about how, if at all, Education Technology (Edtech), was implemented in response to COVID 19 in your country. The aim is to identify remote teaching and distance learning practices that have been implemented since the pandemic began and their suitability for upscaling. Your responses may be included in a report to provide background information and guidance on the education sector response to COVID-19 since January 2020.

All your responses are voluntary, will be confidential and remain anonymous.

The online survey should take about 5-7 minutes to complete.

1. What country do you live in?

Select from the drop-down menu

2. Did you experience a lockdown at any time from January 2020 until now?
 - a. Yes
 - b. No
 - c. Don't know
3. If yes, how many lockdowns have you experienced?
 - a. 1
 - b. 2
 - c. 3 or more
 - d. Never left lockdown

4. If yes, what was the average lockdown length?
 - a. Less than 1 month
 - b. 1-2 months
 - c. 3-6 months
 - d. More than 6 months

5. During this period did school closures occur in the country where you live?
 - a. Yes
 - b. No
 - c. Don't know

6. If yes, was there an opportunity for children to continue learning during school closures?
 - a. Yes
 - b. No
 - c. Don't know

7. If yes, how did children continue learning during school closures? Please select all that apply
 - a. Paper/printed resources
 - b. Radio
 - c. TV
 - d. Computer
 - e. Mobile phone
 - f. Tablet
 - g. Other, please state _____
 - h. None of the above

8. *Skip if person selected h (None of the above)* Thinking about your response to Question 7, who helped children in your country continue learning during school closures? Please select all that apply.
- a. Government
 - b. Private sector/companies
 - c. Civil societies/local NGOs
 - d. Parents
 - e. Learners themselves
 - f. Other, please state _____
9. From your perspective, what are the priority areas that edtech should have supported in the education sector but did not during the pandemic? Please select all that apply.
- a. Supporting remote teaching and learning
 - b. Delivering lessons
 - c. Supporting blended learning
 - d. Planning lessons/curriculum content
 - e. Offering independent/online learning
 - f. Communicating and engaging with parents
 - g. Tracking pupil progress
 - h. Delivering teacher training
 - i. Safeguarding
 - j. Collaborating and sharing resources with other teachers
 - k. Conducting formative assessment
 - l. Tracking pastoral support
 - m. Other
 - n. None of the above
 - o. Don't know

10. Which of the following options best describe the edtech impact on the right to education?

- a. Strongly compromised
- b. Compromised
- c. Neutral
- d. Enhanced
- e. Strongly enhanced

11. If you think edtech cannot support the education sector during the pandemic, please explain briefly why.

Written submission

12. Please use the space below to add any other thoughts on teaching and learning during the COVID-19 pandemic.

Written submission

Appendix C: Interview Schedule

Below is the tentative interview schedule that was put together by GCE and its partners. While not all interviews were possible, due to challenges with schedules and internet connectivity, the interviews that were planned are indicated below.

Country	Interview date and time (SAST)	Time	Language
Rwanda	16 Nov (Tue)	10:00:00 am	English
Rwanda	17 Nov (Wed)	2:00:00 pm	English
Namibia	15 Nov (Mon)	4:00:00 pm	English
Namibia	22 Nov (Mon)	10:00:00 am	English
Zambia	18 Nov (Thu)	8:30:00 am	English
Zambia	19 Nov (Fri)	11:00:00 am	English
Malawi	19 Nov (Fri)	3:00:00 am	English
Namibia	19 Nov (Fri)	10:00:00 am	English
Malawi	16 Nov (Fri)	12:00:00 am	English
Burundi	17 Nov (Wed)	3:00:00 am	French
Africa wide	16 Nov (Tue)	11:00:00 am	French
Burundi	16 Nov (Tue)	12:00:00 am	French
Burundi	17 Nov (Tue)	1:00:00 am	French
DRC	17 Nov (Wed)	11:00:00 am	French
DRC	18 Nov (Thu)	10:00:00 am	French
Madagascar	17 Nov (Wed)	11:00:00 am	French
Madagascar	18 Nov (Thu)	10:00:00 am	French

Appendix D: Data from all Countries

How did children continue learning during school closures?

Country	Paper/printed resources	Radio	TV	Computer	Mobile phone	Tablet	Other, please State	None of the above
Botswana								
Burundi								
Cape Verde								
Chad		X	X	X	X	X		
DRC	X	X	X	X	X	X		
Eswatini	X	X	X	X	X	X		
Ethiopia		X	X		X			
Gambia		X	X		X			
Kenya								
Madagascar								
Malawi	X	X	X	X				
Mali	X	X	X			X		
Mauritania								
Namibia	X	X	X	X	X	X		
Nigeria		X						
Palestine State	X			X	X	X		
Rwanda		X	X					
South Africa	X			X	X			
Tanzania								
Zambia		X	X		X	X		

Thinking about your responses to the previous question, who helped children in your country continue learning during school closures? Please select all that apply.

Country	Government	Private sector/ companies	Civil societies/ local NGO	Parents	Learners themselves	Other, please state
Botswana						
Burundi						
Cape Verde						
Chad	X		X	X	X	
DRC		X	X	X		
Eswatini	X					
Ethiopia	X		X	X		
Gambia	X					
Kenya						
Madagascar						
Malawi	X	X	X	X	X	
Mali	X		X	X		
Mauritania						
Namibia	X	X	X	X		
Nigeria	X		X		X	
Palestine State	X			X	X	
Rwanda	X		X			
South Africa	X			X	X	
Tanzania						
Zambia	X	X		X		

**Do you think Edtech can support the education sector during the pandemic?
Please briefly explain why or why not?**

Country	Response 1	Response 2	Response 3	Response 4
Botswana	Respondent skipped this question.			
Burundi	"Yes, because the learning continues and the children always remain in continuous training."	"Everything is bad; the covid-19 pandemic has reminded the world that distance education should be taken into account. Teleworking and teleteaching have taken a considerable place. The prolonged closure of schools has made it possible to see that learning can continue through distance education, especially digital."		
Cape Verde	Respondent skipped this question.			
Chad	Respondent skipped this question.			
DRC	Respondent skipped this question.	Respondent skipped this question.	"Yes, it would allow the children to continue their schooling, but let's not forget that communication is expensive in the DRC."	"Yes. It will allow students to continue to attend classes and avoid being late for the school year."
Eswatini	"Yes, because technology will drive education going forward and during hazards."			

Ethiopia	"Yes. Instead of leaving children out of school without any lessons, it helps them to engage and follow lessons, though it may not replace face-to-face learning."			
Gambia	"During the pandemic, EdTech was the only means that schools rely on to continue learning remotely. Teacher, learning and assessment would have halted during lockdown."			
Kenya	"Yes it can, there needs to be mechanisms for children of low income to access programs, especially as they were the ones most impacted by the absence of in-person schooling."	"Yes, only when the technology is made available to the teachers and pupils. Only when the teachers are inducted on the technology. Only when government regulates it so as to avoid abuse."		

Madagascar	"Education technologies can support the education sector during the pandemic by ensuring the connectivity of learning, will contribute to significantly increase the number of learners who would have access to quality learning resources, strengthening of links between teachers, students, parents."			
Malawi	"Yes, since remote teaching and learning is recommended during lockdowns and school closures."	"Yes. EdTech has exhibited potential to increase access, enhance quality, and ensure continued learning even during emergencies."		
Mali	Respondent skipped this question.			
Mauritania	Respondent skipped this question.			
Namibia	"Maybe if everyone is having tech."	"Help to enhance online teaching-learning during covid-19 pandemic."		
Nigeria	"It's possible to support through the development of emerging curriculum and provision of tech			

	tools and training for teachers."			
Palestine State	"Yes."			
Rwanda	"Yes. Parents need tips on dealing with kids being at home and resources to support distance learning."	"Yes, if there are enough computers and internet connection."	Respondent skipped this question.	
South Africa	Respondent skipped this question.			
Tanzania	Respondent skipped this question.	Respondent skipped this question.		
Zambia	"Yes it can, especially if the learning is uniform and it reaches out to all learners."			

Please use the space below to add any other thoughts on teaching and learning during the COVID-19 pandemic.

Country	Response 1	Response 2	Response 3	Response 4
Botswana	Respondent skipped this question.			
Burundi	"C'est encourageant"	"This innovative digital learning technology in the education sector is not well understood by teachers in our African countries in general, and in Burundi in particular. Added to this is the lack of computer tools and current electricity. Some schools have electricity and computers. Others have electricity and computer machines are lacking. Then come other schools in the most remote corners of the country that have neither electricity nor computer tools. For example in Burundi, out of 142 schools visited by the pedagogical advisers of the study office and the curricula of general and pedagogical post-basic education in April 2020, we find that 32 are equipped with computers, 46 have at least one desktop computer and 64 schools have neither a computer room nor a computer. In most establishments, the ICTE course is given by a teacher who feels capable but not the teacher who has benefited from any training in the matter. So, this ICT revolution is happening at a snail's pace due to the lack of adequate equipment and skills for its operation. This digital space is also very limited both in schools and in society in general.		

		<p>In Burundi, in 2019, only 8% have access to the Internet (UNDP report). In addition to teachers and learners, parents who, in general, are teachers at home and especially in the event of a crisis, are also less trained and informed about ICT in order to be able to effectively help and supervise their children. However, it is these teachers and parents who should first of all feel the importance of digitization, teach it to students and use it as a learning tool/channel. Taking lessons into account learned from the pandemic and its management in schools, digitization could be of paramount importance in improving learning conditions, but the path is always long in our developing countries."</p>		
Cape Verde	Respondent skipped this question.			

Chad	"In Chad, teaching/learning during the COVID-19 pandemic has aroused real enthusiasm, however it should be noted that anything new is never perfect equipment and prerequisites. electricity coverage and the illiteracy rates have also given a blow to this education system. Indeed in my humble opinion, this teaching/learning system is to be explored if the above issues are more or less analysed and solved."			
DRC	"The first problem is that it excludes children whose parents cannot afford to provide them with a tablet and an Internet connection."	"In the circumstances and the closing of the schools, it was essential to continue with the learning of the students so that they could not lose the notions learned. So some efforts have been made to remedy this. Unfortunately, social inequalities did not allow all the students to continue their learning during this period for lack of means. So, the public authorities should pay particular attention to this aspect in the future so that there is a certain inclusion in the care of children during times of crisis."	"Teaching has received a big blow."	"It is important that the Congolese state develop mechanisms that will allow students to continue to study normally during the pandemic and avoid extended school years."
Eswatini	"All schools need to be connected."			
Ethiopia	"1. Make the mobile network more accessible. 2. Use of mobile applications such as Telegram by schools. 3. More government intervention in TV lesson transmission."			
Gambia	"Scripted lessons, learning Apps for all core and non-core subjects should be developed and shared."			

Kenya	"Teachers also suffered deeply being unable to support their students in the public sector."			
Madagascar	"Innovation can guarantee young students to continue to learn, to study at home and to pass national exams, in particular to study at home and to pass national exams for a number of young girls, victims of pregnancies and early marriages."			
Malawi	"There was a general challenge of making teaching and learning for children with diverse needs. Most of the remote resources produced was for regular learners, leaving out children with special needs."	"Governments and development partners need to proactively invest in EdTech in order to build resilient education systems with potential for increased equitable access and enhanced quality to education."		
Mali	"Teaching and learning during the Covid-19 pandemic has certainly had positive impacts on the possibility of continuing courses by the beneficiaries because it intervened in Mali during a good period of confinement. It made it possible to maintain the level of pupils and to sufficiently reduce the cases of dropping out of school. However, it also had some negative impacts to the extent that the country had no experience in distance education, especially through new communication technologies. Information and communication, the lack of electricity in rural areas and the illiteracy of parents who in such a situation should be able to support. Most of the experiences and courses adapted to the contexts of Mali			

	are those provided by UNICEF and other international partners supported by civil society."			
Mauritania	Respondent skipped this question			
Namibia	"None."	"Inclusivity, access to online teaching-learning. Supporting vulnerable students during school closures and school re-openings."		
Nigeria	"Nil."			
Palestine State	"n/a"			
Rwanda	Respondent skipped this question.	"Teaching and learning during covid pandemic in African countries suffers a lot due to lack of sufficient infrastructures for remote learning."	Respondent skipped this question.	
South Africa	"Greater difficulty is poor connectivity. Digital can only be a complement to traditional education."			
Tanzania	Respondent skipped this question.	Respondent skipped this question.		
Zambia	"None."			



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