CHALLENGES OF INTEGRATING VIRTUAL LEARNING PRACTICE IN ZIMBABWE SECONDARY SCHOOLS DURING COVID-19

Dudziro Nhengu

College of business, peace, leadership and governance, Africa University, Mutare, Zimbabwe

ABSTRACT

COVID-19 brought multiple challenges to the education sector globally. While introduction of virtual learning advanced benefits such as lowered costs of education, greater flexibility, easy access and reduced need for physical infrastructure in economically viable nations, many economically challenged nations in the Global South experienced risks and challenges from online education. This study investigated the challenges faced by the Zimbabwe education sector in integrating effective virtual learning practice into the secondary school system in Harare Metropolitan province since the advent of Covid-19. A triangulation of research methods including an online survey and key informant interviews conducted with curriculum specialists, teachers and learners, and a review of available literature, aided the collection of primary and secondary data for the study. NVIVO and grounded theory were used to analyse and organise the compiled data into thematic data sets, which were in turn used to theorise befitting findings for the study. Study findings established an array of challenges which reinforced each other to hinder effective learning during the lockdown. Substantial academic and policy research has focused on health specific impacts of Covid-19, while a few studies that have explored the effect of Covid-19 on education have not zeroed in on the context specific geopolitical risks of the pandemic on countries with challenged economies. This study seeks to contribute to this knowledge gap. The study proffers recommendations for improving preparedness for virtual learning in secondary schools during crisis times.

KEYWORDS

Virtual, education tools, Covid-19, education, curricula & Zimbabwe

1. INTRODUCTION

This study investigates the risks and challenges faced by the Zimbabwe education sector in integrating effective virtual learning practice into the secondary school system during the Covid-19 lockdown. Focusing on a case of the Harare Metropolitan province, the study was guided by the following research questions: What was the role of education technologies in influencing the continuity of secondary school education after the Covid-19 lockdown? What challenges did teachers and learners encounter in the changeover from face-to-face to virtual learning? Which ICT tools did secondary level learners utilise most to access virtual learning? The study is in five sections: the introduction and background, the literature review, the methodology section, the results and findings, and finally the conclusions and recommendations.

The advent of the Corona Virus (Covid-19), whose first outbreak was experienced in China in 2019 created multiple challenges for global citizens, and one of them was how to adjust a system

of education anchored around physical schools and face-to face learning (OECD, 2020). As the pandemic reached its peak, at least 188 countries, representing 91% of enrolled global learners shut down schools as part of the measures to seek to contain the spread of the virus (UNESCO, 2020. A transitional process characterised by a creative deployment of learning and communication platforms and institutions that traditionally were thought of as being conducted in a physical environment to virtual platforms was the only was the globe could ensure continuity in learning and other communication processes (Turnbull, 2021).

The expediency that policy makers and national governments globally implemented the changeover to virtual learning did not match the reality that was needed to make this transition a smooth one, and part of that reality entailed a consideration of the geographies of insecurity that exist between nations, especially between the West and the Global South. The notion of geographies of insecurity brings to the fore the heterogeneities of global regions and nations, and the different ways in which they experience the impact of development trends and dynamics, such as national disasters, wars, climate change, to mention a few (Philo, 2012). As such the insecurities faced by the world's majority, citizens in the Global South, and the measures that may be necessary to improve their security, may not be the same as the experiences of the elite in the West. Developing nations had no option but to, likewise, embrace virtual learning as the necessary measure to enhance affordability and accessibility of higher education. Owing to the economic and related infrastructural challenges already prevailing in these developing nations, especially those still suffering from economic set-backs, introducing virtual learning practice came with a plethora of added challenges, in the face of already existing challenges, as well as the added budgetary constraints wrought by the requirements to mitigate Covid-19. Within this rubric, this study sought to investigate the challenges faced by the Zimbabwe education sector in integrating effective virtual learning practice into the secondary school system since the advent of Covid-19.

The study presents findings from a desk review of foregoing literature on Covid-19 and virtual learning, as well as an online survey with 30 curriculum specialists and 35 secondary school students and key informant interviews with 35 secondary school teachers in Harare Metropolitan province, regarding the experiences and challenges that they encountered following the introduction of the virtual learning system post Covid-19 in Zimbabwe. Thematic content analysis using NVIVO and grounded theory was effective in analysing the compiled data. Quantitative findings from the survey proved that while many teachers and students face resource challenges to access mobile devices and internet, online technological tools remained the only possible means available to access academic information. Findings from the content analysis likewise concurred with the quantitative data findings, demonstrated through the seven key ermeging themes which include inadequate qualified technology teachers, shortage of resources for acquisition and maintenance of state of the art learning tools, electricity and internet challenges, poor parental involvement, unavailability of legislated policy on technology usage, ignorance of technological know-how and technophobia.

The key argument in the study is that although mobile learning cannot replace physical learning, it remains a necessary alternative during lockdown periods because mobile technologies transcend geographic barriers. A further argument is the need to lessen the currently existing dynamic of geographies of insecurity, especially the economic and technological barriers in the face of pandemics that know no geographical barriers (Philo, 2012). As such, policy makers at national, trans-national, regional and global levels have to work together for realistic and context sensitive policies that can effectively address the myriad of challenges currently faced by developing nations in attaining effective virtual learning practices that match global standards.

2. BACKGROUND

In Sub-Sahara Africa, 60% of youths between the ages of 15 and 17 are reported to be out of school (UNESCO, 2022). The World Economic Forum's 2016 Global Information Technology Report produced by the World Economic Forum (2016) has positioned Zimbabwe fourth out of all African countries, in the quality of mathematics and science education, with a literary rate of 83.58 percent. In 2015, the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2021) ranked Zimbabwe's at 9th position in Africa, at 86,4 percent, in the area of adult literacy. Zimbabwe utilises a formal and non-formal education system. The Formal education systems are recognised as such by the Ministry of Primary and Secondary Education and the Ministry of Higher and Tertiary Education, Innovative, Science and Technology Development, and the non-formal education system while the non-formal system is an alternative or complement to the formal education System, offering part-time schooling for learners, who do both academic and professional courses (Zimstat, 2020). The Zimbabwe curricula mandates 7 years of primary education and6 years of secondary schooling before proceeding to tertiary, and learning is in English and either Shona or Ndebele, the two vernacular languages which are recognised in the education system so far.

The design of the Zimbabwean education system is two years of early childhood schooling known as Early Childhood Development (E2222CD), for children between 3 to 5 years of age; seven years of primary school and four to six years of secondary education, then higher education in the college and university system (Zim-factsheet, 2022). In line with Sustainable Development Goal 4 which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all", (United Nations Development Programme, 2015) Zimbabwe holds education as a fundamental right, and has a policy for compulsory primary and secondary education. The country's education system is regulated through the Education Act of 1987.

There is evidence, though varied, which proves that many school learners dropped out of school as a result of Covid-19 in Zimbabwe. The Family Aids Caring Trust ZIMBABWE (Fact), pegged the figure of schools dropouts since pandemic began in 2020 at 20 000, while the Human Rights report (2021), estimated that 840 000 children dropped out of school during the COVID-19 pandemic. It is noteworthy that the reasons for these school drop-outs also included marriages, early pregnancies and HIV/Aids, in addition to Covid-19, as major reasons for children, especially girls, dropping out of school. Non-governmental organisations (NGOs) in Zimbabwe estimated that 840 000 children dropped out of school during the COVID-19 pandemic (Human Rights Report, 2021). The Ministry of Primary and Secondary Education on the other hand contested both figures presented above, arguing that 290 children left school because of various illnesses, 5331 dropped out due to marriage, pregnancy led to the dropout of 4676 children, bringing the total of dropouts countrywide to 10 297 for that year, half the number reported by the Family Aids Caring Trust. Over and above these three arguments, this study observes that in a country with a huge rural-urban divide in terms of communication and information flow, access to technology and related resources, it would be difficult to come up with an etched in stone figure of school-drop outs during Covid-19. Firstly, the notion of school drop-outs itself would have to be clearly defined first, given the reality that at one time all institutions of learning had to shut down for quite a significant period while policy makers. Institutional leaders and the government jostled for ways of containing and dealing with the new phenomena of Covid-19. Adapting to the new situation through introducing virtual learning in schools was characterised by a general lack of uniformity and consistency. Furthermore, most of the rural schools in areas that have no electricity and internet services were not able to catch up with this new trend of virtual learning, until the end of the lockdown period.

3. LITERATURE REVIEW

The COVID-19 pandemic has caused exceptional global disruptions on people's social, political and economic since the Second World War (WW11) (Kaisara & Bwalya, 2021). In the education sector, the pandemic caused closure of learning institutions, further increasing the rural - urban divide in access to education, knowledge and information, hence in the utilisation of information and communication technologies (ICTs). As such, close to 1,184,126,508 learners have been affected by school closures globally as a result of the COVID-19 pandemic (UNESCO, 2020). While it is undeniable that ICTs have been used for virtual learning for a long time in the developed world, in Africa, there is no agreement on when virtual learning became a practice in the education sector, and this can be well explained by the issue of scarcity of resources to access ICTs and internet, as well as by the limited and lack of uniformity in the knowledge of ICT usage. In Southern Africa, use of ICTs can be traced back to the 1960s (Alkharang & Ghinea, 2013, Alkharang & Ghinea, 2013), while virtual learning started between 1990 and 1999 (Bagarukayo & Kalema, 2015; Hubackova, 2015). As far back as 2009, Donner and Gitau (2009) foretold that the future of Africa would be techno-centric. Rumanyika, Tedre, Mikko and Mramba (2019) likewise argue that Africa has the highest technology, especially mobile phone adoption rates in the world, further projecting this trend to remain so till at least 2025 (GSMA, 2019).

In Zimbabwe, although many private schools and elite government schools were already accustomed to the usage of ICTs as tools of managing knowledge and increasing engagement (Gunga & Ricketts, 2007; Mohammadi, 2015), very few schools already had plans, modalities and a culture of virtual learning, or of using ICTs as a remote mode of instruction information, and learning content (Bhuasiri, Xaymoungkhoun, Zo, Rho & Ciganek, 2012), before the advent of COVID-19. This being said, success of Intergrating online education technologies in education cannot be generalised from the national to the global levels, as it was anchored on social determinants of successful virtual learning such as the previously prevailing economic, social and political conditions in any given context. The capability of policy makers to plan for inclusive and effective education service delivery at national, regional, and global levels should address the context specific economic strengths or vulnerabilities of nations, as a prerequisite for making suitable recommendations, decisions and reforms. Global institutional power structures and mechanisms are organised in a manner that naturally gives developed nations hegemony over developing ones, in turn breeding systems that saliently deploy discriminatory and skewed policies and services in a top-down manner. This argument brings in two notions which are important for this study, which are geographies of insecurity and geography of economic inequality.

Geographies of insecurity in this paper emphasises firstly the fact that Covid 19 was inherently geographical in its impact on society secondly (Philo, 2012). After its outbreak in Wuhan, China, the spread of the pandemic spread from neighbourhood to neighbourhood, first in countries with intense proximity and relations with China, and later to other countries globally, taking advantage of the forces of globalisation to spread all countries (Amdaoud, Bourdin, Costanzo, Iatu, Ibanescu, Jeanne, Levratto, Noiret and Succurro, 2020). Amdaoud et al (2020) , formulated the theory of spatial autocorrelation, which helps to clarify the patterns in the spread of Covid-19. The theory of spatial autocorrelation condents that close geographical units are more affected than distant geographical units. As such, these spatial heterogeneities in time frames within which Covod-19 reached different countries determined first the impact on the epidemic on citizens and on development processes. Secondly, these spatial heterogeneities also determined the response rate of various nations to the effects of the pandemic, the decisions for lockdown periods and levels, as well as the responses in couching suitable stop gap measures for various services, and in this case for the virtual learning services. As such, while the first Covid-19 lockdown was

enforced in January in China, in Zimbabwe, the first lock-down was enforced three or four months later. China being a technologically advanced country muted the idea of transitioning from physical to virtual learning as early as January 2020. In Zimbabwe the first lock down was operationalised in April 2021.It took the country long to figure out modalities for transitioning to virtual learning. Furthermore, when virtual learning finally took off, it was possible only for a few learners in some urban areas, while the majority of learners in both urban and rural areas could not afford it, reality that leads this argument to the notion of geography of economic inequality (van Ham, Manley & Tammaru, 2022).

The geography of economic inequality predicts the spatial categorization of both learners and teachers by income, both vertically and horizontally, as well as the associated modeling of opportunities and affordability (van Ham *et al*, 2022). Agreeably, the usage of ICTs landed people into different levels of vulnerability, depending on their geographic positioning as well as their economic and social standing. Such geographies of inequality thus range on a spectrum: differences in access between individuals and among groups in urban areas where, although there was internet access, some students and earners could not afford the expenses associated with acquiring ICT gadgets and internet, and differences in access and affordability among urban and rural residents, especially in those remote rural areas where access to internet has been for long devoid. As such, the disruptive manner of Covid-19 in the education sector was on universal historic record.

The OECD (2020), supports this argument, positing that in times of crisis, a holistic approach to education addresses students' learning, social and emotional needs. This includes the need to take care of the needs of marginalised students, who are more at risk of increased vulnerability are less likely to receive the support that they require, for example when they fail to acquire the required ICTs and internet services. Material disparities among students have considerable effects on students' sense of belonging to schools, as well as on their feelings of self-worth (OECD, 2020).

The Zimbabwe education sector, like education sectors in other countries globally, utilised all opportunities possible to use ICTs for virtual learning purposes during Covid-19. Mare (2013) and Rambe and Bere (2013), argue that even before the advent of Covid-19, the usage of ICTs is an unavoidable development that has had a huge transformative power on various facets of life in the history of African development. Covid-19 was thus, a catalyst to development through increased usage of ICTs which became inevitable owing to the reality on the ground. The term 'increased usage' can also refer to aspects of inclusion and participation across gender and class divides. Where virtual learning technologies and practices used to be a preserve for the affluent, Covid-19 made it a necessity, prompting even the less affluent to stretch their means to ensure that they had access to and usage of technology, which became inevitable. Shen and Ho (2020) argue that virtual learning has positively impacted on the performance of students, on their interest in learning as well as on learner performance wrought by the attraction that ICT usage brings (Zongozzi, 2020). Virtual learning has also promoted massive investment in ICT infrastructure ad technology, as well as in electricity and usage of other power sources that promote internet usage, such as solar power and related power batteries.

The correlation between massive investment in CT infrastructure, tools and knowledge and the success of virtual learning practice in Africa is contested by a number of scholars. In Africa, Awidi and Cooper (2015), in their case reference to a Ghanaian university, highlight a contestation between investments in ICT infrastructure and the lack of clear corporate e-learning strategies and policies that facilitate successful virtual learning. The major setback of virtual learning is mainly centred around an institutional obligation to reproduce face-to-face classrooms online by means of existing distance education infrastructure (Turnball, 2021; Arasaratnam-Smith & Northcote, 2017). Another scholar, van Stam (2021), also established that in Africa, the

success of internet service provision depends on the effectiveness of the mobile service operators. Absence of context specific policies, plans, rules, regulations and legislated implementation frameworks have potential to contribute to e-learning failure, as the same ICTs can be used for negative learning such as access to information on drugs, pornography and trafficking, to mention a few (Barteit *et al,* 2019). Exploding what they term 'myths' around e-learning, Njenga and Fourie (2010) argue for a balance between successful virtual learning and sanitised learning through ICT usage as a trend. Munro (2018), citing the over-rated claims for success and the over publicisation of virtual learning success in the United Kingdom, likewise propounds warnings against education Neoliberalism, further arguing that the over emphasised usage of technology can result in commercialisation of tools for education, and into subsequent commercialisation of education.

4. METHODOLOGY

A triangulation of research methods, including an online survey with 65 participants sampled from a population of curricula specialists, teachers and learners as well as with 35 key informants, also sampled from a population of curricula specialists, teachers and learners. The response rate for sampled study participants was 35 for the online survey (54%) and 24 for the key informant interviews (69%). A review of available literature further aided the collection of primary and secondary data for the study. Using key words to search, fifty three published online journals, reports and articles were identified from the database search. A careful scanning of the identified papers was done to eliminate all papers that were not directly related to the topic under review. Finally, a total of thirty nine articles were reviewed. Quantitative data were analysed and presented through tables and chats, and qualitative data was presented under relevant themes.

5. FINDINGS

The study sought to investigate challenges faced by the Zimbabwe education sector in integrating effective virtual learning practice into the secondary school system in Harare Metropolitan province, since the advent of Covid-19. We present findings from the both the quantitative and the qualitative data.

At the outset, the study sought to establish the role of various educational technologies in influencing the continuity of secondary school education after the Covid-19 lockdown. The findings established two types of education technologies that were utilised for virtual learning in Zimbabwe during the Covid-1 lockdown as computers and mobile phones. Hundred percent of the respondents indicated that both these educational technologies played a major role to facilitate the transition from physical learning to virtual learning. The specific roles of computers included accessing learning platforms such as Google Classroom, Zoom, Moodle and Whatsapp groups, typing of notes and assignments, as well as storing learning notes and related materials. Computers also better facilitated the reading of text books owing to their screen surface which is larger than that of a mobile phone. The role of computers was also highlighted as that of transmitting information and documents through email, blue tooth or Send-it. The respondents indicated that mobile phones had the same roles as that of computers, highlighting however that it was difficult and time consuming to read big text books and bulky notes from the small surface of mobile phones. While those respondents who did not possess computers still used mobile phones for all learning tasks, all respondents generally agreed on the ideal role of mobile phones as that of communicating with teachers and school mates, as well as transmitting documents and related information to school mates and teachers. All respondents also agreed that where there is no direct internet service installed, it is more affordable to use a mobile phone than a computer to send documents from a distance, as blue tooth and share it can only send to devices in proximity.

Secondly, the study sought to establish which ICT tools were most utilised by secondary school learners to access virtual learning platforms during the Covid-19 lockdown.
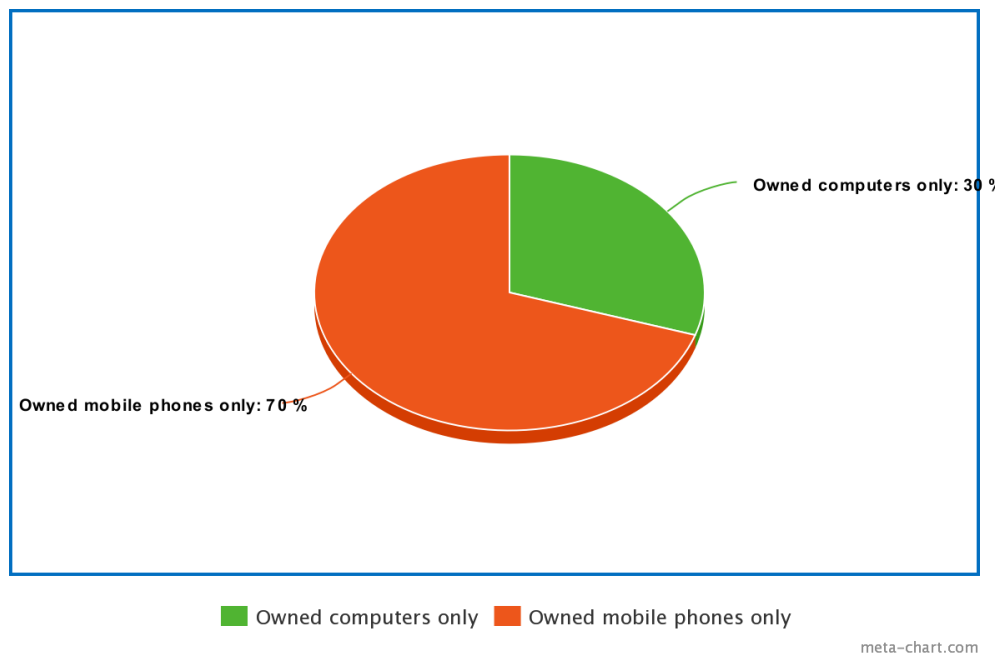

Figure 1: Types of education ICT tools used

While all the respondents accessed learning material either through computers or through mobile phones, the mobile phones, which are less expensive than computers, were established to be the primary devices used. Only 30 percent of the students and teachers who participated in the study attested to owning a family computer or a personal one and a personal mobile phone, whilst 100 percent of the responding students and teachers attested that they owned either a family mobile phone or a personal one, because mobile phones were found to be more affordable than computers.
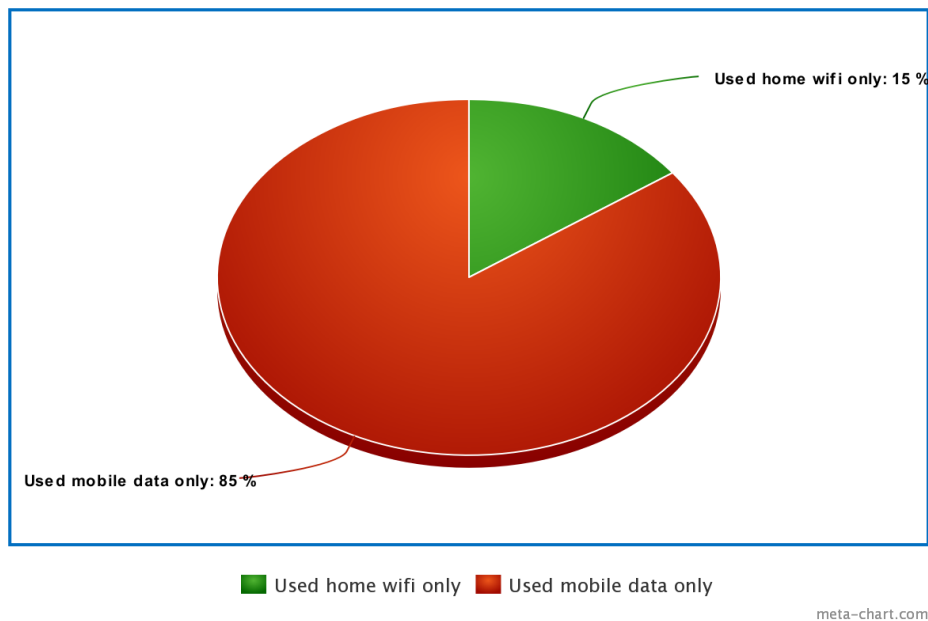
Figure 2: Type of internet service used

Furthermore, the majority of the respondents (85%) used mobile data packages to connect to the internet and only a few (15%) indicated that they had a home WiFi connection and thus had a choice to use either the installed WiFi service or the data, which again, makes mobile phones the more utilised than the computer. These findings concurred with foregoing research findings by a number of scholars, as noted in the reviewed literature. Donner and Gitau (2009) predicted that the future of Africa is anchored on usage mobile phones. Further establishments were that there is evidence to prove that mobile phone adoption rates in Africa are the highest than in the world (Rumanyika, Tedre, Mikko & Mramba, 2019). Mobile phone adoption rates were further projected to remain highest in Africa till at least 2025 (GSMA, 2019).

The final objective of the study was to establish the challenges that teachers and learners encountered while transitioning to virtual learning during the Covid-19 lockdown. The key finding under this objective was that virtual learning is very important for secondary school children in Zimbabwe as a complimentary method of learning in both times of crisis and out of crisis. The key argument was that virtual learning for secondary school learners was faced with a many of challenges at the time of inception, and that these challenges still exist in their myriad forms, and as such, virtual learning cannot entirely replace physical learning for secondary school learners in Zimbabwe. The data presented by the respondents was organised into 5 relevant themes, also supported by direct quotes that are presented below each thematic finding. In the following section, the study expounds on the identified challenges, some of which expound on some of the themes already identified in the presentation of quantitative findings above. All the findings put together are critical determinants of successful virtual learning for secondary school learners that policy makers should consider to roll out in full force both at policy and practical levels, in order to establish permanent virtual learning service provision practice that can remain effective both in crisis periods and in out of crisis periods.

5.1. Internet Accessibility Challenges

All the study participants, comprising curricula experts, learners and teachers concurred that both teachers and learners experienced challenges in gaining access to the virtual learning and research

platforms, as well as in accessing their emails for communication purposes. The most outstanding quotes selected from the data are presented anonymously below:

Quote 1: *It was always frustrating to get cut off in the middle of the lesson. Network connection is always falling where I live, and sometimes I could hardly access the learning platform. I had to rely on notes sent by a colleague after the lessons.*

Quote 2: *I often got booted out of the classroom whilst the lesson was on, when the data ran out. Downloading materials sent through email by the teachers was likewise very expensive. Most of the times virtual learning left me discouraged.*

Quote 3: *There was always a mismatch between the allowance that I got from the school for mobile data bundles and the actual usage time that I got from the data bought. Many a time the data got depleted before the end of the lesson or in the midst of an email. I ended up using my own data to ensure that I provided service to the learners, and in most cases this was never compensated.*

Quote 4: *My parents could hardly afford the mobile data expense because my father got out of employment during the lockdown. It was hard to keep up with the virtual learning pace without enough internet access.*

Quote 5: *My typing skills were terrible, I had gotten used to manual presentation of assignments. It was always hard and slow to cope.*

Quote 6: *In Google classroom my problem was that I was always inaudible each time I wanted to make a contribution. I could hear what the teacher and my classmates were saying but I could not be heard. The microphone of my device was not working properly all the times.*

Quote 7: *As Education Officers we were in such a dilemma, we had no way of monitoring that learning was being done according to expected standards because it was hard to listen in to various learning platforms at the same time. Our mode of monitoring during physical learning is attending classes to monitor the teacher during lessons. It was impossible on virtual learning platforms.*

At a general level, Zimbabwe has a challenged network coverage problem, especially in areas that are remote form the city centres (van Stam, 2021; Gwaka, May & Tucker, 2018). Furthermore, internet services are often congested. Furthermore, there are a few indigenous internet service provision companies in Zimbabwe, namely Tel One and Econet, while the rest that relied on provision of hardware from outside the country could not cope with the import costs in a country that legal utilises local currency and yet businesses have to import with foreign currency. The reality with internet access in Africa is that mobile network operators manage fixed infrastructures that house a radio access network with base stations, a broadcast network providing the communication spine, and a core network with alternating facilities and database servers handling user information (van Stam, 2021). As such, what citizens are able to access, and the speed with which they access the internet, all depend on the viability of a given mobile network provider. Where there is limited competition like in Zimbabwe, effectiveness of internet access if affected. While a few rich people from the rural areas could access mobile phones and internet services, the speed with which they accessed internet still remained a huge challenge to contend with. As such, comparing the state of secondary school learners from Zimbabwe with that of secondary school learners from countries like China will further reveal how virtual learning was indeed gendered in all spaces, from the micro to the macro levels, further confirming the notions of geographies of insecurity (Philo, 2012) and geography of inequality

(van Ham, Marley & Tammaru, 2022) already discussed in the theoretical framework sections. Accessibility, as established by Alshehri, Rutter and Smith (2019), is a very important variable that influences learners, parents and teachers perceptions of virtual learning, while also affecting the delivery rate of learning, in any context.

5.2. Lack of Regulated Policy on Usage of Technology Usage

Zimbabwe also embraced the transition from physical to virtual learning in all schools that could manage the dynamic, and these were mostly private schools and a few state run institutions. The lack of preparedness in terms of resources and time frames, transition to virtual learning was done haphazardly, without any policies, rules and regulations in place to ensure uniformity in service provision. As such, virtual learning benefitted only a few, and its effectiveness, impact and potential to replace physical learning during Covid-19 remain questionable. The following quotes were likewise selected from the data, for their outstanding nature:

Quote 8: *The challenge was to ensure that we caught up with the global trends, but we had no binding laws, policies and regulations for doing virtual learning. As such, it was done haphazardly, creating lots of gaps and inconsistencies in the manner of learning and delivery of teaching services.*

Quote 9: *Internet provision in this country depends on the capability and willingness of the service provider to deliver the service. The major challenge is that you cannot sue a service provider for failure to provide network service because there are no policies for such.*

Quote 10: *It is difficult to regulate without laws and policies. Virtual learning was not done systematically. Each school or teacher used the learning platform that was at their disposal, which did not enable learners to benefit the same. There is need for policies on virtual learning to be put in place.*

Again, most citizens do not have internet sources installed in their homes, and rely on mobile data networks which are too expensive to sustain effective daily learning, as established by the findings in Figure 2. It is also noteworthy that the lockdown affected income levels for most parents, who either had their jobs terminated or their salaries cut, and as such, money for mobile network expenses became a real challenge. This finding concurs with van Stam's (2021) postulation that the success of accessing digital platforms in Africa depends on the viability of mobile network operators (van Stam, 2021). All these factors combined, affected both the teachers and the learners access to learning platforms. Virtual learning thus, remained a preserve for the affluent who could afford both the mobile phones and the internet data, and also for those in the city centres where there is internet coverage.

5.3. Ignorance of Technological Know-How and Inadequate Qualified Technology Teachers

Before the advent of Coovid-19, not all schools in Zimbabwe made the study of ICTs compulsory. Some learners and teachers did not have access to computers, except to mobile phones only. As such, the period of transitioning to virtual learning became for some, the time to seriously learn and get used to using ICTs. This delayed the uptake of the virtual learning exercise, as well as affected the uniformity of the exercise, as some learners and teachers would always lag behind. This challenge affected the effectiveness of virtual learning during Covid-19.

Quote 11: *What we needed as preparation for the transition to virtual learning was the rolling `out of technical lessons on how to use technologies for learning, for both teachers and learners*

alike. This was not possible given the crisis that was at hand. It was a huge set-back. We knew this as education officers but there was nothing that could be done under the circumstances.

5.4. Lack of Adequate Parental Involvement in Virtual Learning Processes

Almost all teachers and learners who took part in the study highlighted many parents could not assist their children with home work. Secondly, virtual learning did not facilitate any kind of motivation on the part of learners and enough feedback on the part of teachers. Higher secondary school learners argued that although they were mature enough to manage their learning on their own, they used to benefit from the feedback that parents got from their teachers on parent day events, when parents came for one on one encounters with their teachers. These feedback sessions, in the learners' views, helped them because teachers were able to make the parents understand some of their needs especially for material and moral support, in a manner that they as children could not make their parents understand. In the view of teachers, time constraints and lack of technological know-how, as well as lack of internet facilities made it difficult for such feedback sessions to be organised with all parents. The teachers also highlighted that there was very little involvement of parents in terms of assisting their children in lower secondary school with homework because families did not have enough gadgets; some mobile phones were too small to accommodate more than one person at once for serious work.

Quote 12: *We got cut off from the parents, who are very important allies in the learning process. With virtual learning you cannot interact with the parent because there is shortage of gadgets, there issue of data bundles and also some of the parents did not have knowledge to access the learning platforms.*

Quote 13: *The virtual learning opportunity became both a blessing and a scare. Learners got too exposed to technology, spending half their time on-line. Some of them took advantage of this to divert to adult sites, which disturbed their learning. Parents at the same time could not monitor this all the time as most students used mobile phones, which do not permit interaction with others.*

6. DISCUSSIONS

Overall, the results from this study revealed that the operationalisation of virtual learning in Zimbabwean secondary schools during Covid-19, in the absence of physical learning, caused a number of challenges for both learners and students in Zimbabwe. This confirms findings by foregoing researchers who also established that due to its multiple complications, virtual learning has only succeeded in presenting promises that it could not accomplish (Alkharang & Ghinea, 2013). While these scholars were referring to a period prior to Covid-19, the finding is indeed still applicable now, further showing the complications associated with virtual learning. The benefits of virtual learning cannot be over emphasised, yet the rendition for these benefits to be realised is a prior fulfillment of other requirements that make the practice work for all.

While virtual learning is indeed good in terms of transcending the time and cost hurdles that physical education brings, it can only work effectively and inclusively as a compliment to physical learning, but never as an alternative to it in this context, to avoid the exclusion of the majority of learners and teachers, as Uppal (2018) and Njenga and Fourie (2010) opined that learner attrition rate increases in virtual learning as opposed to face to face learning. Virtual learning can only work effectively for all after a lot of considerations such as policy reforms, infrastructural development and training of trainers has been implemented first, as preparatory measures. Perhaps the Covid-19 era was a learning period for Zimbabwe, for the whole of Africa,

and for the globe, on what needs to be done to make virtual learning a success both in times of peace and in times of crisis, since *ad hoc* disaster risk mitigation may pose more challenges than solutions.

7. CONCLUSIONS

I conclude that the transition from face-to-face learning to virtual learning, which happened in some parts of the country during the Covid-19 lockdown, was a highly critical move which remains important for secondary school education in Zimbabwe and beyond. However, given the resource and other identified complexities in this country, virtual learning was not highly effective as the better part of the population of students, teachers and parents were excluded from enjoying its benefits. In Zimbabwe and similar countries in the Global South, virtual learning can only be effective as a complimentary method of learning to physical learning, not as an alternative to physical learning, in both times of crisis and out of crisis. There are a number of considerations that policy makers should put into action to roll out effective virtual learning practice that can remain effective both in crisis and out of crisis times, and these include investing more in state of the art ICTs in both rural and urban areas in order to bridge the inequality gap rural and urban citizens; ensuring that all schools and homes are electrified or have access to alternative sources of energy that enable them to use ICTs and internet services; providing viable internet services to all citizens at affordable and subsidised rates; rolling out training for ICT usage to all able citizens, especially in all schools and putting in place binding policies that make internet service providers commit to efficient service delivery, as putting in place policies and regulations on how schools should provide online teaching services to learners.

ACKNOWLEDGEMENTS

REFERENCES

[1]   OECD (2020). "The impact of COVID-19 on student equity and inclusion: Supporting vulnerable students during school closures and school re-opening." OECD policy responses to corona virus (COVID-19),   OECD Publishing, Paris.
[2]   UNESCO. (2020). COVID-19 impact on education.   Retrieved   from https://en.unesco.org/covid19/educationresponse. [08 July 2020]
[3]   Kaisara, G. and Bwalya, J.K. (2021). Investigating the E-Learning Challenges Faced by Students during   Covid-19 in Namibia. *International Journal of Higher Education*, 10(1).
[4]   Turnbull, D., Chugh, R. and Luck, J. (2021). *Transitioning to E-Learning during the COVID-19 pandemic: How have Higher Education Institutions responded to the challenge?* Springer Nature.
[5]   Philo, C. (2012). Boundary crossings security of geography/geography of security. *Transactions of the Institute of British Geographers New Series*, 37(1), 1-7.
[6]   United Nations Educational, Scientific and Cultural Organization (2022). UNESCO World Higher Education Conference Report. [18-20 May 2022].
[7]   World Economic Forum. (2016). The Global Information Technology Report 2016. [06 July 2016].
[8]   Zimbabwe National Statistical Agency. (2021). Education Statistics Report 2018-2020. Harare: ZIMSTAT
[9]   Alkharang, M. M. & Ghinea, G. (2013). E-learning in higher educational institutions in Kuwait: experiences and challenges. *International Journal of Advanced Computer Science and Applications*, 4(4),   1-6.
[10] Bagarukayo, E. & Kalema, B. (2015). Evaluation of e-learning usage in South African universities: a `   critical review. *International Journal of Education and Development using ICT*, 11(2), 168-183.

[11] Hubackova, S. (2015). History and perspectives of e-learning. *Procedia-Social and Behavioral Sciences*, 191, 1187- 1190.

[12] Donner, J. & Gitau, S. (2009). New paths: exploring mobile-centric internet use in South Africa. Paper presented at the International Communication Association (ICA) Conference, 20-21 May, Chicago, Illinois. Chicago.

[13] Rumanyika, J., Tedre, M., Mikko, A. & Mramba, N. R. (2019). Mobile technology usage for street traders' market search in Dodoma – urban Tanzania: an exploratory study. *The African Journal of Information Systems,* 11(4), 249-278

[14] Global Systems Mobile Communications Association. (2019). The mobile economy: sub-Saharan Africa. Retrieved from https://www.gsma.com/mobileeconomy/sub-saharan-africa/[30 April 2020].

[15] Gunga, S. O. & Ricketts, I. W. (2007). Facing the challenges of e-learning initiatives in African universities. *British Journal of Educational Technology*, 38(5), 896-906.

[16] Mohammadi, H. (2015). Social and individual antecedents of m-learning adoption in Iran. *Computers in Human Behavior,* 49, 191-207.

[17] Bhuasiri, W., Xaymoungkhoun, O., Zo, H., Rho, J. J. & Ciganek, P. C. 2012. Critical success factors for e- learning in developing countries: a comparative analysis between ICT experts and faculty. *Computers & Education,* 58(2), 843-855.

[18] Amdaoud, M., Bourdin, S., Iatu, C., Ibanescu, B., Jeanne, Levratto, N., Nadou, F., Noiret, G., Succurro, M., (2020). Geography of COVID-19 outbreak and first policy answers in European regions and cities Policy Brief. *EPSON Study*. Luxembourg.

[19] Van Ham, M., Manley, D. and Tammaru, T. (2022). Geographies of Socio-Economic Inequality. Discussion Paper Series, IZA DP No. 15153. IZA Institute of Labor Economics.

[20] Mare, A. (2013) A complicated but symbiotic affair: The relationship between mainstream media and social media in the coverage of social protests in southern Africa. Ecquid Novi: *African Journalism Studies*, 34(1), 83-98.

[21] Rambe, P. and Bere, A. (2013). Using social embeddedness to explore ubiquitous learning in mobile environments at a South African University of Technology. *In International Conference on e-Learning* (p. 353-362), June 27-28, Cape Town, South Africa

[22] Shen, C. W. and Ho, J. T. [2020]. Technology-enhanced learning in higher education: a bibliometric analysis with latent semantic approach. *Computers in Human Behavior*, 104, 106177.

[23] Zongozzi, J. N. (2020). A concept analysis of theory in South African open distance and e-learning research. *The Journal of Open, Distance and e-Learning,* 1-15.

[24] Awidi, I. T. & Cooper, M. (2015). Using management procedure gaps to enhance e-learning implementation in Africa. *Computers & Education*, 90(1), 64-79.

[25] Arasaratnam-Smith, L. A., & Northcote, M. (2017). Community in online higher education: Challenges and opportunities. *Electronic Journal of e-Learning*, 15(2), 188–198.

[26] van Stam, Gertjan. (2021). Access to digital platforms: can mobile networks coverage reports be relied upon? Observations from rural Zambia and Zimbabwe. Virtual Conference 2021,26 - 28 May 2021.

[27] Barteit, S., Neuhann, F., Barnighausen, T., Bowa, A., Walter, S., Siabwanta, H and Jahn, A. (2019). e-Learning for medical education in sub-Saharan Africa and low-resource settings. *Journal of Medical Internet Research*, 29(1).

Njenga, J. K., & Fourie, L. C. H. (2010). The myths about e-learning in higher education. *British Journal of Educational Technology,* 41(2), 199-212

[28] Munro, M. (2018). The complicity of digital technologies in the marketisation of UK higher education: exploring the implications of a critical discourse analysis of thirteen national digital teaching and learning strategies. *International Journal of Educational Technology in Higher Education*, 15(11), 1-20.

[29] Alshehri, A., Rutter, M. & Smith, S. (2019). Assessing the relative importance of an e-learning system usability design characteristics based on students' preferences. *European Journal of Educational Research*, 8(3), 839 - 855.

[30] Gwaka, L., May, J.D. and Tucker, W.D. (2018). Towards low-cost community networks in rural communities: The impact of context using the case study of Beitbridge, Zimbabwe. *Electronic journal of information systems in developing countries,* 84(2).

[31] Uppal, M. A., Ali, S. & Gulliver, S. R. (2018). Factors determining e-learning service quality. *British Journal of Educational Technology*, 49(3), 412-426.

AUTHOR

Dudziro Nhengu has submitted a PhD thesis to the College of business peace leadership and governance at Africa University, where she awaits to graduate, pending assessment of the thesis. She is currently based in Norton, Harare.