

The Digital Divide in the Context of the COVID-19 Pandemic: A Zimbabwean Perspective

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Abstract : This article examines how the COVID-19 pandemic affected students from different family backgrounds studying in Zimbabwe's higher education institutions (HEIs). Data were collected through an online semi-structured survey administered by email using Google Forms, online focus group discussions and follow-up telephone interviews with students and academic staff from selected HEIs, including the Zimbabwe Open University, an open and distance education university. Guided by Khan's e-learning framework and Nancy Fraser's Social Justice Theory, the study examined the challenges that HEIs faced, their level of preparedness for online learning and the extent to which they were able to provide flexible and meaningful learning environments for all students, regardless of perceived and real differences in their backgrounds. The analysis suggests that the pandemic confirmed the divide between rich and poor students in Zimbabwe's higher education sector, because most students who were expected to participate in online teaching and learning were unable to do so consistently. The article therefore argues that, despite commendable progress over the past three decades in transforming and expanding access to higher education in Zimbabwe, the COVID-19 pandemic has shown that further efforts are required at the institutional, student and academic staff levels to minimise barriers to online learning. These efforts should ensure that all students in higher education experience a genuinely inclusive e-learning environment, regardless of their social background.

Keywords : COVID-19; online learning; equity; access; Zimbabwe

Résumé : Cet article examine l'impact de la pandémie de COVID-19 sur les étudiants issus de milieux familiaux différents au sein des établissements d'enseignement supérieur du Zimbabwe. Les données ont été recueillies via une enquête en ligne semi-structurée (diffusée par courriel via Google Forms), des groupes de discussion en ligne et des entretiens téléphoniques de suivi menés auprès d'étudiants et de membres du personnel académique d'établissements sélectionnés, dont la Zimbabwe Open University (université d'enseignement ouvert et à distance). S'appuyant sur le cadre théorique de Khan relatif à l'apprentissage en ligne et sur la théorie de la justice sociale de Nancy Fraser, l'étude a analysé les défis rencontrés par les établissements, leur niveau de préparation à l'enseignement en ligne et leur capacité à offrir des environnements d'apprentissage flexibles et pertinents à tous les étudiants, indépendamment des différences — réelles ou perçues — liées à leurs origines. L'analyse suggère que la pandémie a confirmé le fossé entre étudiants riches et pauvres dans le secteur de l'enseignement supérieur zimbabwéen, la plupart des étudiants censés participer aux activités d'enseignement et d'apprentissage en ligne n'ayant pas été en mesure de le faire de manière régulière. L'article soutient donc que, malgré les progrès louables accomplis au cours des trois dernières décennies pour transformer l'enseignement supérieur au Zimbabwe et en élargir l'accès, la pandémie de COVID-19 a mis en évidence la nécessité de poursuivre les efforts — tant au niveau des établissements que de celui des étudiants et du personnel académique — afin de réduire les obstacles à l'apprentissage en ligne. Ces efforts doivent garantir à tous les étudiants de l'enseignement supérieur un environnement d'apprentissage en ligne véritablement inclusif, quel que soit leur milieu social.

Mots-clés : COVID-19, apprentissage en ligne, équité, accès, Zimbabwe

Introduction

This article examines how the COVID-19 pandemic affected students from different family backgrounds studying in higher education institutions (HEIs) in Zimbabwe. When Zimbabwe implemented lockdown measures in line with World Health Organization (WHO) guidance and local health regulations, the government directed all institutions of learning to migrate from face-to-face teaching and learning to online delivery. The directive was not, however, accompanied by the funding that institutions, academic staff and students required for equipment and related needs. It consequently raised serious concerns about access, equity and inclusion in education. To access lessons and learning materials under the new arrangements, students needed electronic devices, stable and affordable broadband, and a home environment conducive to learning.

Online teaching and learning is a growing trend in open and distance learning (ODL) and is gaining popularity among HEIs in Africa and beyond. In Zimbabwe, however, access to online teaching and learning resources is uneven. Only a few students from privileged families can afford the resources that online learning requires. For the vast majority, the cost of tablets and broadband remains beyond the reach of their families. In addition, living conditions in most homes are not always suitable for online learning.

In this study, online teaching and learning refers to a method of instruction and knowledge acquisition conducted in ODL with the help of computers and related technologies via the internet (Mathew & Iloanya, 2016).

Objectives of the Study

The study examined how the COVID-19 pandemic affected students from different family backgrounds studying in HEIs in Zimbabwe. More specifically, it sought to:

- (a) identify the technological resources that students needed for optimal active learning;
- (b) examine the forms of support that the government, the private sector and HEIs provided to meet students' needs for optimal online learning; and
- (c) examine how students from different backgrounds were affected by COVID-19 and how this influenced their online learning.

1. Literature Review

To situate the study in its proper context, the literature is reviewed under four subheadings.

1.1. Higher Education in the Context of the COVID-19 Pandemic: A Global Perspective

The COVID-19 pandemic significantly disrupted higher education worldwide and necessitated a shift from face-to-face to virtual teaching and assessment. This shift relies on information and communication technology (ICT), online systems and devices. Although it offers convenience, flexibility and affordability, it also presents challenges, particularly in Africa. For online teaching and learning to succeed, universities must put

in place the necessary policies, infrastructure, facilities and strategies (Pillay & Erasmus, 2017).

The literature on the pandemic and the disruption it caused to HEIs can be grouped into three broad categories. First, before the outbreak, the literature supported the adoption of technology in teaching, but many institutions regarded it as expensive, and few HEIs therefore offered online teaching and learning. Second, the literature produced after the outbreak explores how HEIs adapted to online teaching and learning. It highlights challenges of preparedness relating to ICT infrastructure, data support for students and academic staff, and attitudes towards working from home during lockdown periods (Bao, 2020; Leung & Sharma, 2020).

Third, as the world came to accept the pandemic as the new normal, the literature concurs that HEIs will need to continue supporting academic staff in ways appropriate to online teaching. Such efforts will require, among other things, quality professional development, adequate resourcing and technical support. Regular communication between academic staff and students, together with interactive and engaging course design, can also support students in the online learning environment (Stone & Springer, 2019).

Mgaiwa and Poncian (2016) argue that universities across the globe that have gone virtual still face challenges, albeit to varying extents, regarding ICT infrastructure and financing, which deprive students of equal access to quality education. ICT preparedness is generally very low in African universities, including those in Zimbabwe (Pillay & Erasmus, 2017). These challenges were exacerbated when universities adopted virtual teaching and learning wholesale in response to the pandemic in order to observe physical distancing requirements.

The transition from face-to-face education to online learning in developing countries is also hampered by instructors' lack of prior training and experience. Singh et al. (2022) report that academics in African HEIs lacked adequate formal training in digital pedagogy, whereas academics in developed countries such as Australia had prior experience of online and blended delivery. Their study further established that, while academics in the Australian region used a learning management system (LMS), academics in Africa relied mainly on Zoom and WhatsApp.

1.2. Access to ICT Tools for Online Learning During the COVID-19 Pandemic

Studies generally concur that the pandemic widened long-standing economic, racial and gender divides within society (Kang, 2021). With regard to online learning, Kang (2021) notes that the pandemic further widened the digital divide between rich and poor families, especially in developing countries such as Zimbabwe.

Kang (2021) further observes that the pandemic worsened educational inequality between rich and poor families during online learning, although these inequalities were less widespread in high-income nations than in developing ones. The same study reports that educational institutions in more than 100 countries and regions remained completely closed because of the pandemic, which widened the education gap between advanced

economies and the middle-income and low-income nations that were unable to provide online learning.

In India, Roy and Brown (2022) report that the transition from face-to-face teaching to online learning was not smooth for underprivileged groups. It widened the gap between rich and poor and affected the accessibility, affordability and acceptance of digital education. This was particularly evident in the availability of digital resources, the cost of technology, and the social and behavioural factors associated with its use (Roy & Brown, 2022). The rich can readily acquire digital knowledge, whereas the poor cannot afford to do so. Questions of equity and equality therefore need to be addressed urgently in order to narrow the widening accessibility gap between rich and poor.

Governments have implemented various interventions to make online learning more accessible to students from different backgrounds. In India, mobile phone pools and television channels were introduced to give children access to educational content (Roy & Brown, 2022). In North Macedonia, the Ministry of Education and Science, in collaboration with UNICEF, created EDUINO, an online learning platform for pre-primary and primary school learners, and an educational programme called TV Classroom was broadcast on national television. These initiatives aimed to reduce the accessibility and affordability gap between rich and poor families so that learners could continue their education through video lessons, resources and games (Roy & Brown, 2022).

Despite these interventions, underprivileged families still faced other challenges, especially in relation to power supply and internet connectivity. Research concurs that most poor families do not enjoy uninterrupted access to electricity and the internet, which affects their receptivity to digital education.

This body of literature shows that the pandemic underlined the importance of technology-based interventions in education, especially in developing countries. It is nevertheless crucial for governments to address all the requirements of online learning, including devices, infrastructure and energy, for all students regardless of family background. Failure to do so could widen the digital divide between rich and poor families. ICT and digital learning should be regarded not as temporary solutions but as opportunities for the future of education. Making ICT more accessible, available and acceptable is essential to safeguarding education as a fundamental right.

1.3. Higher Education in Zimbabwe

Zimbabwe's education sector, like those of other countries in Southern Africa, is undergoing rapid change intended to advance social justice by giving previously disadvantaged groups access to primary, secondary and higher education, which was once the preserve of a few (Garwe & Thondhlana, 2018). As part of the transformation of the higher education sector, the number of state universities increased from one before independence to 13, spread across the major towns and cities of the country's ten provinces.

The government has also expanded the sector by allowing private, church-run universities to complement state universities. As a result, seven private universities now offer degree programmes across different faculties. Post-independence higher education

has thus been transformed from an elitist system into an inclusive one, with increased participation by students from diverse socio-economic classes, particularly the previously disadvantaged black population.

During the colonial era, higher education in Zimbabwe was characterised by racial discrimination in favour of the white minority. Post-colonial education, by contrast, made great progress towards inclusivity. Guided by the principle of growth with equity, it sought to redress colonial biases. The government built numerous schools, increased enrolment, addressed gender equity and implemented supportive educational policies that complied with the United Nations Convention on the Rights of the Child (UNCRC). Literacy levels consequently rose from 77.79% in 1982 to 83.51% in 1992, 83.58% in 2011 and 88.69% in 2014 (United Nations Development Programme [UNDP], 2010).

Education scholars note, however, that this favourable trend lasted only a few decades and brought challenges of its own (Chihombori, 2013). These included high student to lecturer ratios, overcrowded lecture rooms, libraries and laboratories, and shortages of textbooks. All were linked to economic and political instability, which significantly eroded the gains of the first two decades of the post-colonial era.

Research on higher education also concurs that, while educational institutions in industrialised countries have ready access to computers and the internet, the same cannot be said of developing countries such as Zimbabwe (Chihombori, 2013). Nherera (2000) notes that only about 700 000 people in Africa, or about 0.1% of the population, have access to basic internet services such as email, owing to a lack of financial resources and poor infrastructure in most parts of the continent. Although Zimbabwe's education curriculum incorporates computers, their use is limited to a few well-funded non-government schools and universities, and most HEIs face a significant deficit in computer facilities and technologies.

Against this background, Chihombori (2013) points out that the advent of smartphones and laptops has opened new avenues of learning for students from wealthy families. In recent years, the use of online sites has grown considerably, especially among high school learners and university students. Nevertheless, Zvavahera and Masimba (2019) argue that the evident demand for ICT tools and online learning sites has not been matched by increased accessibility and availability, especially in public universities and among students from poor families.

1.3. Open Distance Electronic Learning in Zimbabwe

Open distance electronic learning (ODEL) in Zimbabwe dates back to 1999, when the government established the Zimbabwe Open University (ZOU) through an Act of Parliament to make higher education more accessible to Zimbabwean citizens. ZOU, one of the 13 state universities, is mandated to provide higher education through ODeL (Ruparanganda et al., 2012). Its mode of delivery is modelled on that of the University of South Africa (UNISA), which has been a major provider of distance education and teacher education in the Southern African region since the 1940s (Ruparanganda et al., 2012). Traditionally, the government handled teacher training through teachers' colleges and mission colleges. In the early 2000s, however, a large number of vacant teaching posts made ZOU a crucial player in teacher education and development.

ZOU's ODeL model relies on modules written by experienced university and college lecturers. These modules are consistent, student-centred and well researched, and they are highly sought after. Students can reach their tutors at any time through ICT, the modules and mobile phones. ZOU has made online tutoring a reality through MyVista, an online platform that provides unlimited access to learning materials and tutors.

In addition, the University of Zimbabwe introduced a Bachelor of Education in Science and Mathematics Education delivered through ODeL at Mutare, Hillside and Belvedere Technical Teachers' Colleges. Two intakes were enrolled in September 2010, and the first graduates completed their studies in June 2012. The innovation generated considerable interest across the country.

Although ODeL was not common in Zimbabwe's higher education system, the COVID-19 outbreak compelled most educational institutions, including traditional HEIs, to adopt e-learning so that education could continue. The main obstacle was the shift of emphasis from the face-to-face mode to online learning. Successful implementation of e-learning required a change of perspective and a re-examination of procedures.

2. Theoretical Framework

The study combined Khan's e-learning framework with Nancy Fraser's Social Justice Theory to analyse the data. Khan's framework comprises eight dimensions, each with sub-dimensions (Khan, 2001). According to Khan, understanding how HEIs migrated to online learning, and how institutions and students from various family backgrounds adapted to the new practices, requires attention to the factors that affect the successful delivery of e-learning at three levels: the student, the academic staff member and the institution.

To provide students with flexible and meaningful learning environments, HEIs must continually assess those environments and ask what resources they need. Khan's framework compels HEIs to consider the factors that affect the effectiveness of e-learning at the student, academic staff and institutional levels (Lightfoot, 2016). Its eight dimensions are institutional, pedagogical, technological, interface design, evaluation, management, resource support and ethical. The institutional dimension covers administrative, academic and student services. The pedagogical dimension concerns teaching and learning. The technological and interface design dimensions concern technology infrastructure and the design of the learning interface. The management dimension concerns the maintenance of the e-learning environment and the distribution of information. The resource support and evaluation dimensions concern the support available to students and the assessment of students and of the learning environment. The ethical dimension addresses social and cultural diversity.

For the purposes of this study, the researchers focused on four of Khan's eight dimensions: pedagogical, technological, resource support, evaluation and ethical. The study examined how online programmes were conducted in Zimbabwe's HEIs during the pandemic and how prepared students and academic staff from different backgrounds were. It sought to assess the readiness of HEIs to provide flexible learning environments for students, regardless of perceived or real differences in their backgrounds, and

thereby to provide a comprehensive understanding of online teaching practices in Zimbabwe.

Nancy Fraser's Social Justice Theory complemented Khan's framework. The theory holds that social justice can be achieved through a fairer allocation of resources, including technological and educational resources (Fraser, 1996). It locates socio-economic injustice in the economic structure of society, where it takes forms such as economic marginalisation, deprivation and exploitation (Fraser, 1996). The theory therefore seeks to address these inequities through equitable resource distribution.

According to Fraser (1996), the remedy for economic injustice is redistribution through economic restructuring. This may mean reallocating funds, reorganising the labour force or changing other fundamental economic structures. Applied to Zimbabwe's higher education system, the theory draws attention to the way in which educational resources such as books, libraries and technology are skewed in favour of the wealthy. Fraser's proposal for redistribution thus offers a basis for a fairer allocation of educational resources that would expand access to education for all citizens.

The researchers used Social Justice Theory to investigate how equitable financing and resource allocation in Zimbabwe's higher education system might enhance access to education for all. The theory also enabled them to consider the kinds of partnerships that the government, the business community and non-governmental organisations would need to form in order to widen access to education in Zimbabwe, especially in the wake of crises such as the COVID-19 pandemic.

3. Methodology

This study is one of several that responded to a call by the Government of Zimbabwe for research into COVID-19 and its impact on different sectors of the economy. The call prompted academics and researchers to investigate the effects of the pandemic on tourism, manufacturing, mining, transport and education, among other areas.

Because of the stay-at-home measures in force in Zimbabwe, the research used three methods that allowed data to be collected remotely. The main method was an online semi-structured questionnaire administered through Google Forms. The questions were qualitative and were aligned with the four dimensions of Khan's framework selected for the study, as further discussed by Khan et al. (2021). This enabled the researchers to examine in depth how online teaching and learning was conducted in Zimbabwe's HEIs, with particular reference to students' levels of participation on the various online platforms.

The participating universities were sampled to ensure that both private and public institutions were represented. Zimbabwe has 18 universities, of which seven are private and 13 are public. One of the public universities, ZOU, is the only open and distance education university in the country. It was established in 1999 through an Act of Parliament (Zimbabwe Open University Act [Chapter 25:20]) to provide higher education through ODeL. In terms of enrolment, ZOU is the largest university in Zimbabwe, and it offers its academic programmes through eight faculties. By 2018, ZOU had graduated 30 000 students, all of whom had benefited from its physical regional campuses located

around the country (Ruparanganda et al., 2012). ZOU also has a Virtual Regional Campus that caters for regional and international students.

Two private and four public universities took part in the study. They were selected through a combination of purposive and convenience sampling. Letters requesting permission to conduct the study were first sent to the registrars of all 18 universities, and nine positive responses were received. When the researchers approached these universities again to request access to academic staff and students, only six agreed to participate. The universities were initially chosen purposively because the researchers knew that they had used a variety of e-learning platforms for teaching and learning during the pandemic (Palys, 2008).

Once the six universities had approved the project, academic staff and students were selected through convenience sampling on the basis of their availability and willingness to take part. Participation was voluntary. As indicated above, gatekeeper consent was obtained from the six universities through their registrars' offices.

The Google Forms questionnaire was first distributed electronically through the social networks of academic staff and students, who then circulated it further within their own networks by means such as WhatsApp and direct email. Google Forms has the advantages of being quick, easy to use and free on all devices, and it can be completed either in an application or in a web browser.

The questionnaire was completed and returned by 77 academic staff and 110 students from the six participating universities. It took approximately 20 minutes to complete and was anonymous. Although the demographic data identified the category of university (private or public), the participant's position (student or academic staff) and, for academic staff, years of experience, all reporting was anonymous.

The researchers also held two follow-up online focus group discussions (FGDs), one with students and one with academic staff. The purpose was to elicit further views on the resources needed for online teaching and learning and their availability, the levels of participation of students from different backgrounds, and the forms of ICT support provided to students and academic staff. FGDs were used to facilitate interactive discussion among key stakeholders and thereby to gain a deeper understanding of participants' perspectives on online teaching and learning during the pandemic (Teddle & Yu, 2007). The FGDs were conducted on Google Meet. The student FGD comprised 43 volunteers and lasted about 60 minutes. The academic staff FGD comprised 21 academics drawn from the participating private and public universities and lasted about 90 minutes. Seven follow-up telephone interviews were also conducted with academic staff for the same purpose. Participants in the FGDs and telephone interviews were first selected purposively and thereafter on the basis of their availability and willingness to take part.

The FGDs and telephone interviews were conducted a few weeks after the initial thematic analysis and coding of the questionnaire responses had begun. This enabled the researchers to develop follow-up questions, based on recurring responses in the questionnaires, which guided the FGDs and interviews and allowed the initial responses to be probed further.

The questions asked in the questionnaire, the FGDs and the telephone interviews were similar and elicited responses in the following thematic areas:

- (a) video-conferencing tools and learning management system options available to students and academic staff in HEIs;
- (b) the readiness of students and academic staff to use these tools;
- (c) access to, and the availability and provision of, online teaching and learning resources for students and academic staff in different HEIs;
- (d) individual and institutional support for online learning, such as hardware, software and training;
- (e) challenges regarding the availability of resources, proficiency in using them, class attendance and participation in different HEIs; and
- (f) perceived and real disparities among students and academic staff in the availability and provision of, and access to, online teaching and learning resources in different HEIs.

The study thus employed data, methodological and theoretical triangulation to enhance its credibility and trustworthiness. Data were gathered from students and academic staff through a semi-structured questionnaire distributed electronically, FGDs and follow-up telephone interviews. Their views on teaching and learning during the pandemic were then analysed using the four selected dimensions of Khan's e-learning framework together with Nancy Fraser's Social Justice Theory.

4. Results and Discussion

The analysis of the data established three main findings:

- (1) Most public HEIs in Zimbabwe were ill-prepared for online learning compared with some private HEIs, although they had to adopt it as a necessary intervention.
- (2) Students from low-income families were more severely affected by the pandemic than those from well-to-do families, because most lacked the tools required for online learning and were therefore excluded from it.
- (3) Support from the government, the private sector and HEIs was inadequate to meet the needs of students, especially those from poor backgrounds, and the needs of academic staff.

These findings are discussed under the subheadings that follow.

4.1. Demographic Profile of Participants

A total of 187 valid questionnaires were returned, 77 by academic staff and 110 by students. Of the student questionnaires, 21 were returned by postgraduate students and 89 by undergraduate students. This distribution was not unusual, given that undergraduate enrolment is generally higher than postgraduate enrolment at both public and private universities. Respondents from private universities accounted for 37% of the responses and those from public universities for 63%. Females made up 58.6% of the respondents and males the remainder, perhaps because more female than male students are now enrolled at Zimbabwean universities.

Among academic staff, those in the lecturer grade had the highest participation rate. This was expected, because most university academics are employed in that grade and fewer are employed in the higher grades of senior lecturer, associate professor and professor. Most of the academic staff had more than five years of experience in higher education and were permanent employees. Eleven teaching assistants (tutors) and seven part-time lecturers also participated.

A simple technique was used to code the responses. Each response is identified by the type of respondent and an allocated number (for example, Student#12 or AcademicStaff#21). For academic staff who took part in telephone interviews, the code TI was added (for example, AcademicStaffTI#9).

4.2. Preparedness of HEIs in Zimbabwe for Online Learning

Data from the online FGDs with students and academic staff from the six universities corroborated the findings of the semi-structured survey. Both groups confirmed that public HEIs in Zimbabwe were ill-prepared for online learning, although they had to adopt it as a necessary intervention. When asked to compare the preparedness of public and private HEIs, participants indicated that private HEIs were better prepared for online learning than state universities.

According to participants, the most common online platform in Zimbabwe's HEIs was WhatsApp, followed by Google Meet and Zoom. One private university also used Moodle as a course management system. At the time of the study, no institution had adopted Microsoft Teams or Blackboard. In addition to WhatsApp, Google Meet and Zoom, three of the participating public universities relied on locally developed course management systems, namely *Tsime* (loosely, the well from which one drinks 'academic' water) and *Changamire* (loosely, a champion in learning).

All these platforms, however, required broadband, which was too expensive for most students and which their institutions did not provide, even at subsidised rates. During the pandemic, one of the major service providers, for instance, charged US\$9 for 4 gigabytes of data, US\$13 for 8 gigabytes, US\$18 for a bundle of 10 gigabytes with 300 minutes of calls and 300 short messages, and US\$17 for a bundle of 8 gigabytes of peak-hour data with 2 gigabytes of off-peak data and 250 minutes of calls. These prices placed a heavy burden on students from poor backgrounds. Fraser (1996) identifies the unaffordable prices of goods and services as one of the causes of inequality that must be redressed.

4.3. How Students from Different Family Backgrounds Were Affected by the Pandemic

Students from low-income families were more severely affected by the pandemic than those from wealthy families, because most lacked the tools required for online learning and were therefore excluded from it. When asked about the availability of, and access to, the ICT resources required for online learning, the majority of students from low-income families enrolled at state universities indicated that they lacked proper equipment to attend online classes. One student responded:

Most of us do not have electronic devices such as computers, smartphones and tablets. The number of these devices in our homes is often limited which

can be very inconvenient for online appointments, classes, and meetings that take place simultaneously for two or three siblings.

Students also raised the problem of power and network interruptions. Student#12 responded:

Some teachers do not consider the fact that during online exams, the student may lose internet connection. Unfortunately, if this happens, the student is graded based on the number of questions answered and recorded in the system before the connection was lost.

Academic staff across the universities generally agreed that resource constraints were severe for students from low-income families. They listed frequent power outages, expensive data and a lack of equipment for online education. Asked about the accessibility of e-learning materials, an academic from a public university (AcademicStaff#21) stated:

During the Covid-19 crisis, academics and students faced numerous challenges, including frequent blackouts, high data costs, and financial constraints. They also struggled to afford common laptops and eLearning without government or university assistance, making it a nightmare for many.

Academic staff also stated that most students from low-income families lived in noisy, crowded homes, which made it difficult for them to learn effectively online. An academic from the university offering open and distance electronic learning (AcademicStaff#13) responded:

Even though eLearning is not new at ZOU, most township homes do not have the best circumstances for eLearning. Because everyone had to work from home during COVID-19, there was a worsening of the noise problem, the lack of workspace, and the scurry for electronic equipment.

These responses barely scratch the surface of the resource difficulties that students from low-income homes encountered. Whereas students from wealthy families had access to the newest technology, unlimited broadband, large homes with study rooms or libraries, and backup power, conditions for students from low-income families were dire. According to Fraser's Social Justice Theory, such gaps between wealth and poverty need to be addressed in the interest of social justice.

4.4. Levels and Forms of Support Rendered to HEIs in Zimbabwe

Participants indicated that support from the government, the private sector and HEIs was inadequate to meet students' needs, especially those of students from poor backgrounds. As an example that the higher education sector could follow, one respondent (Student#79) mentioned the assistance that UNICEF and other partners gave to the Ministry of Primary and Secondary Education, which led to the introduction of radio and television classrooms so that learners in primary and secondary education could continue learning remotely. The interventions introduced for students in HEIs, by contrast, were expensive and therefore unaffordable for most students from low-income families. HEIs were quick to introduce online classes through digital platforms such as

Google Meet, Zoom and Microsoft Teams and through learning management systems such as Moodle. Although these were positive interventions, not all students had the means to attend their online classes.

The views of academic staff concurred with those of their students. Academic staff from all the universities agreed that online learning increased their workload in the absence of the required resources. Those from state universities, however, were more severely affected by the lack of funding and technological support than their counterparts in private universities, who enjoyed superior support, including data and training in the use of a variety of online teaching and learning tools. One respondent from a public university (AcademicStaff#07) reported:

Academic staff and their students found themselves in a situation where they were unprepared and without proper support.

Academic staff further indicated that the criteria and guidelines for online teaching that HEIs imposed on them were insufficient for the new situation. One area of concern was assessment, including tests and examinations. Most academic staff agreed that the existing assessment criteria were unsuitable for digital learning, given the digital resources available. During the FGD with academic staff, one participant (AcademicStaff#49) said:

No lecturer can assess with certainty whether the work assigned to students was written independently. Apart from this, assigning separate work to each individual student is simply an overload and difficult.

This response points to gaps in the resources and support available for monitoring students who were working remotely.

On the question of support, most students challenged their institutions to offer training on how to access materials from databases and digital libraries, so that they could navigate digital information with greater ease. This view requires HEIs to address Khan's resource support dimension.

Academic staff also indicated that online teaching requires serious preparation if online tools and platforms are to be used effectively. Most academic staff, particularly those from state universities, indicated that they were not adequately prepared for the new situation, which exposes wider weaknesses in Zimbabwe's education system. During the follow-up telephone interviews, one academic (AcademicStaffTI#9) said:

We are all aware that if we want to improve the quality of education, we need to use digital technologies effectively, but we also need to provide appropriate support and training to teaching staff to improve the quality of their instruction.

In most HEIs in Zimbabwe, with the exception of a few private universities, technical support was not available to either academic staff or students. Both groups taught themselves to use the various online teaching and learning platforms, and it took them some time to become proficient.

4.5. Implications of the Findings

The analysis suggests that, in Zimbabwe's higher education sector, the pandemic confirmed the divide between rich and poor, because the majority of students who were expected to participate in online teaching and learning were unable to do so consistently. This is despite Sustainable Development Goal 4 of the United Nations' 2030 Agenda, which calls for inclusive and equitable quality education and lifelong learning opportunities for all by 2030. In Zimbabwe and other parts of the developing world, the pandemic exposed some of the hidden obstacles to the achievement of this goal.

In terms of the four selected dimensions of Khan's e-learning framework, the findings have implications for HEIs, students and academic staff if e-learning programmes are to be inclusive and successful. First, HEIs need to ensure that students and academic staff have the technological resources required for optimal active learning.

Second, support in the use of digital resources emerged as a major concern among students and academic staff across the social divide. HEIs should therefore ensure that both groups receive the training they need (Khan's technological dimension) to use online teaching platforms and related digital resources effectively.

Third, the findings have pedagogical and technological implications for academic staff (Khan's pedagogical and technological dimensions). Academic staff need to take due care when designing online curricula, so that the platforms and the curricula are as innovative, interactive and engaging as possible and take into account the needs of different students, including those with special needs and those from poor backgrounds. Due care should also be taken with formative and summative assessment, which should consider individual circumstances without requiring already cash-strapped HEIs to invest in expensive online invigilation tools.

5. Recommendations

Given that all students have the right to education regardless of their social background, the study recommends policies that bridge gaps in the education system, especially between rural and urban students. For students from low-income families, it recommends the provision of affordable online learning tools such as tablets and laptops, the provision of power backup devices, and partnerships with telecommunications service providers so that students can obtain data at subsidised rates.

To secure access to education during crises such as the COVID-19 pandemic, it is crucial to support underprivileged students, particularly those attending state universities. Such support would help to reduce inequality and marginalisation, in line with Fraser's call for equitable economic redistribution. Establishing community computer laboratories and libraries would help students from impoverished neighbourhoods in densely populated cities to complete their studies. Existing libraries and information hubs in high-density areas should also be improved so that they can provide the necessary services in unforeseen circumstances.

The study revealed significant disparities in Zimbabwe's higher education sector that affect both students and academic staff. The introduction of online learning in an

underperforming economy worsened the situation, especially for underfunded public institutions, and the pandemic deepened the exclusion of a significant proportion of the student population. The government and the higher education sector should therefore collaborate to develop interventions for disadvantaged students that promote fair and equitable access to higher education, especially in periods of economic hardship such as the COVID-19 pandemic.

Finally, the study recommends that those who work in the higher education sector support legislation that prohibits discrimination in the sector. Practitioners should also encourage the improvements and investments that would give all students access to better internet connectivity, ICT infrastructure and information hubs.

Conclusion

On the basis of the results and discussion presented above, this article draws three conclusions. First, despite commendable progress over the past three decades in expanding access to higher education in Zimbabwe, the COVID-19 pandemic has shown that further resource mobilisation is needed to minimise barriers to learning and to ensure that all students in HEIs experience a genuinely inclusive environment.

Second, the unexpected lockdowns that closed all learning institutions caused a number of students, particularly those from disadvantaged backgrounds, to miss their lessons. Because very little was yet known about COVID-19, most of the actions and decisions that the government adopted were ad hoc, as the pandemic did not allow adequate time for careful deliberation. No one can be blamed for this lack of knowledge, since the government, individuals and institutions alike were still learning about the novel coronavirus and about appropriate responses to it.

Third, most students from under-resourced backgrounds missed lessons because they lacked the resources required for online learning: broadband, electronic devices, a reliable electricity supply and a home environment suitable for study. Policy makers in Zimbabwe need to address urgently the gaps in access to learning devices and in the availability and cost of broadband and other information and communication technologies, in order to prevent large numbers of students from being left behind. Inequitable access will significantly hinder the country's long-term development potential, because its human capital will be unable to compete effectively in the global marketplace.

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