

Zimbabwe's Tertiary Education During and Post COVID-19: Challenges and Opportunities. A Case of a University in Zimbabwe.

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ABSTRACT

The coronavirus disease code-named COVID-19 is a fatal disease that severely affected all facets of life globally, without sparing the education sector. This paper used the functional approach, examining the challenges to teaching and learning during and after the COVID-19 era in universities in Zimbabwe. The study assesses how the changes in the teaching and learning processes due to the COVID-19 pandemic affected learners and lecturers in universities in Zimbabwe and evaluates the measures taken by universities to address the effects of COVID-19 on the learning and teaching processes. A case study was undertaken in a metropolitan city in Zimbabwe. Seven lecturers were purposively sampled from the university's 8 faculties, seventy learners were chosen distributively from each faculty as a sample to represent the learners. Semi-structured interviews with lecturers, focus group interviews with learners, naturalistic observations and document analyses were used as tools for gathering primary and secondary data. The research established that an assortment of online platforms and applications were employed during the COVID-19 era to enhance e-learning, particularly during the lockdown periods. WhatsApp emerged as the most commonly used learning platform probably due to affordability and availability. Challenges faced by many learners included the high cost of data, electricity load-shedding, lack of advanced digital skills and poor internet connectivity among others. The study established that there was a decline in research output at local universities. Opportunities which arose included among others, increased awareness of platforms to share knowledge, opportunity to do business, and exposure to new online teaching and learning technologies which could transform the local education sector into a leading 21st century status. The study emerged as an important tool for various stakeholders including parents, universities and the government. It unearthed several important aspects of COVID-19 focusing on academia. The study revealed that the hybrid learning approach is likely to continue into the foreseeable future of tertiary education post-COVID-19 era).

Key Words: COVID-19, Learning in crises, Zimbabwe Tertiary education, Challenges and Opportunities, Post COVID-19 tertiary education, Online learning

INTRODUCTION

During the COVID-19 pandemic, many countries, including Zimbabwe, experienced significant unforeseen disruptions to their education systems. In response to the health risks posed by the virus, the government of Zimbabwe ordered the physical closure of all educational institutions. This forced academic institutions to quickly transition to virtual online learning platforms to continue their activities. The effectiveness of these measures varied from one institution due to a plethora of reasons and among individual stakeholders depending on the availability of resources such as internet connectivity, access to smart digital devices, the

capacity and willingness of teachers and students to adapt to online learning and socio-economic issues.

The paper reports the findings of a case study to highlight some facts about Zimbabwe's tertiary education during and after COVID-19, focusing mainly on the challenges and opportunities. The study highlighted some teaching and learning solutions to the effects of the COVID-19 pandemic on the education sector. This paper aims to equip stakeholders in education with 21st-century knowledge and skills to continue with their education during and after the COVID-19 era and in future disasters and pandemics. The other aim is to bring to light some opportunities for improving the education sector, which was unveiled by the challenges faced during the lockdown periods. These include formulating appropriate policies to manage tertiary education in times of crisis and enhancing the formulation of a curriculum that is flexible and can be easily implemented in periods of crisis. Tertiary institutions should invest in infrastructural development like big lecture rooms that allow for social distancing, procurement of more digital gadgets, and fast internet.

Based on the review of the literature, this paper noted that more research has been done on challenges faced by universities during the COVID-19 era compared to opportunities opened by the scourge. In Zimbabwe, there is a dearth of literature on tertiary education challenges and opportunities that emanated during the COVID-19 era. This paper, therefore, seeks to exploit this gap.

RESEARCH METHODOLOGY

This research was anchored in the qualitative approach which is embedded in the interpretivist paradigm. Qualitative researches allow for an in-depth study of a particular phenomenon within a particular context. Analysis and interpretation of results is contextual, no apologies are given if the analysis does not fit particular scenarios. This paper advocates that greater emphasis is given to understanding the effects of COVID-19 on tertiary education in Zimbabwe and identifying developmental opportunities posed by the pandemic than on generalising the findings to a large global audience although this is ideal and effort has been made to achieve this. The paper does not interpret findings based on ordinal values but on the deeper meanings of what is said no matter how many people said it. (Nayar & Stanley, 2015).

At the onset, the study envisioned studying all tertiary institutions in Zimbabwe as a target population, but because institutions are diverse and have vast populations, great geographical spacing and different academic and socio-economic needs that can hardly be generalised, coupled with travel and physical interaction restrictions enacted by the government to avert the spread of COVID-19, the study therefore, adopted the case study design and was delimited to one major and accessible university in Zimbabwe to get an in-depth understanding of the situation at hand, which may or may not be generalised to the entire country or continent.

The case study design was selected to obtain a detailed description of the object of study in a real-life context, in this case within a tertiary institution setup. In Zimbabwe this university is one of the prime academic institutions in the country with a mandate to advance science and technology, thus it was considered ideal for the study. Case study and ethical protocols were observed during data collection and analysis, these included employing several data collection methods in a bid to achieve triangulation, pattern matching and analytical generalisation to other tertiary institutions. (Sena, 2023; Sarvimaki, 2017).

Sampling Procedure

A sample is a small quantity of a population that has representative characteristics that can offer valid results about the target population it is meant to represent. The university studied has 7 faculties, one lecturer from each faculty was purposively sampled and seventy learners were randomly sampled across the faculties,

albeit in a stratified manner to ensure that all faculties are represented. Purposive sampling was chosen because it offered a deliberate choice of informants most likely to provide accurate data due to their desired qualities and knowledge base of the phenomenon being studied, however, this sampling technique may be prone to researcher bias in selection. The researchers conducted peer debriefing sessions (physically and virtually) with other professional colleagues and embarked on a published literature review to lessen the impact of selection bias (Van Wyk, 2016).

Simple random sampling is a method which allows each element of the population to have an equal chance of being selected to become part of the sample. This sampling technique ensured an unbiased but balanced selection of the learner participants. This was used in the selection of the 70 participating students. Efforts were made to obtain participants from different gender differentials in a bid to avoid gender bias. Member checking was carried out throughout the study, even at the selection stage to ensure and ascertain that there will always be a reasonable number of participants and respondents (Denscombe, 2010).

Participants for the focus group discussions were randomly selected from a purposively selected pool on the criteria that the probability of them having something productive and constructive to say on the topic was high and they had socio-characteristics that made them comfortable talking to the interviewer and each other (Richardson & Rabiee, 2024).

Data Collection Instruments

The researchers carried out mostly online semi-structured virtual interviews due to COVID-19 restrictions on personal contact and social distancing protocols prevailing at the time of data collection. Semi-structured interviews allowed the researchers to obtain in-depth information from the participants. However, these were time-consuming given that the online interactions were conducted in an environment of expensive data bundles and unstable internet and phone connectivity in some areas where participants were located. In some cases, open-ended e-questionnaires containing similar questions were issued out to solicit data.

Both physical and virtual focus group discussions were employed to gather data from learners. In the analysis stage, these were not separated but the responses were bunched together, coded and themes derived. The COVID-19 travel and crowd gathering restrictions were a major challenge in organising physical engagement and the prohibitive cost of data and internet connectivity problems in Zimbabwe also posed huge challenges to conducting successful online engagements. Despite all these drawbacks, the study was completed owing to the rigour, patience and perseverance of the researchers.

According to Özkan (2023). Document analysis is a valuable research tool. It was employed in this study as a source of secondary data. This also served as a guide to the procedure and greatly assisted in analysing primary data and drawing themes from the data.

The reflexive approach in qualitative research in general and document analysis, in particular, underscores the idea that researcher subjectivity is an asset rather than an obstacle. It involves acknowledging the impact of researchers' perspectives and emotions on their findings. Reflexivity necessitates thoughtful contemplation of cognitive processes, awareness of influencing elements, and adaptation of the coding process. This approach enables the discovery of unforeseen interpretations and the examination of data through the lens of the researcher's presumptions, ultimately resulting in themes that embody collective significance rather than a mere summary of the data (Braun et al., 2019; Sankofa, 2023).

During document analysis, about 70 articles from journals, periodicals, conference proceedings, books, and web pages were consulted using the broad terms learning in crises and higher/tertiary education during the COVID-19 pandemic. The list was cut down to about 40 after discarding some outdated sources, sources

without a clear methodology, and some not directly addressing the phenomenon under discussion. About 30 sources from mostly peer-reviewed journals, trusted books, and websites were retained and cited. These had information that resonated with the research questions, objectives and methodology. These sources either had direct mention of the Zimbabwean or African situation or posited ideas that directly apply to or imply the Zimbabwe situation

Focus group interviews were chosen for students because they enabled the interviewer and participants to ask further questions and explore specific comments and reactions, leading to a deeper understanding of the studied phenomena. Focus groups also save time as valuable information can be gathered from several people at once, rather than sitting several times with different participants. Generally, interviews provide the opportunity to interrogate the participant and get the background story behind their contributions. This greatly assists the researcher in accurately interpreting the meanings of their responses. (Creswell, 2011).

In many cases, Naturalistic observations within the natural settings where learning occurs provide the opportunity for the researcher to see first-hand the experiences that were discussed in the interviews in action. In addition, observations also support the researcher to notice pedagogical practices implemented in their specific contexts that routinely could have escaped the awareness of the participants. This research it was a huge challenge to embark on this because most lessons were conducted online and the few physical lectures that were observed were not enough to give conclusive ideas, however, they provided some insights that greatly assisted in formulating conclusions and recommendations (Miller, 2022; Marshall et al., 2023).

Research Ethics

Ethical considerations were strictly adhered to during primary data collection. Lambert (2019) opined that there are three major ethical issues to be considered, these are informed consent, ethics of observation, confidentiality and anonymity. Ethical considerations are sets of moral and ethical principles respected to protect participants and respondents in research. This assertion resonates with that of Cacciattolo (2015) who also added that participants must be clearly made aware of the research they are participating in and do so at their free will. In this paper, the researchers made every effort possible to adhere to these guidelines. Clearance letters were obtained from the mother ministry governing the university and from the university itself, all participants and respondents were made to sign consent forms and were assured of confidentiality and anonymity of their persons and responses, they were all coded to avoid using their natural names or identifiable marks on questionnaires and were not asked to identify themselves in interviews (Resnik, 2018).

ANALYSIS OF RESULTS

All 7 lecturers participated, and 63 out of the 70 students managed to participate giving a 100% lecturer response rate, 90% student response rate and an overall 90, 9% response rate. The researchers managed to conduct interviews with lecturers. Some learners could not attend their focus group interviews due to failure to obtain necessary legal travel documents that were required by law enforcement agents during that period, clashes between physical and online study commitments in their different courses, poor networks and lack of funds to procure data for online engagements. The data was thematically analysed following robust procedures that involved revisiting the collected data several times, prolonged engagement with the verbal qualitative data, scrutinising it, coding and compressing it according to different themes identified by the primary researchers being informed by the research questions and objectives and also through consultation of literature on existing similar trends and themes in the raw data. This was done in collaboration with other proficient colleagues during peer debriefing exercises (Peel, 2020; Xu & Zammit, 2020).

Fig 1 summarises the research procedure that was adopted.

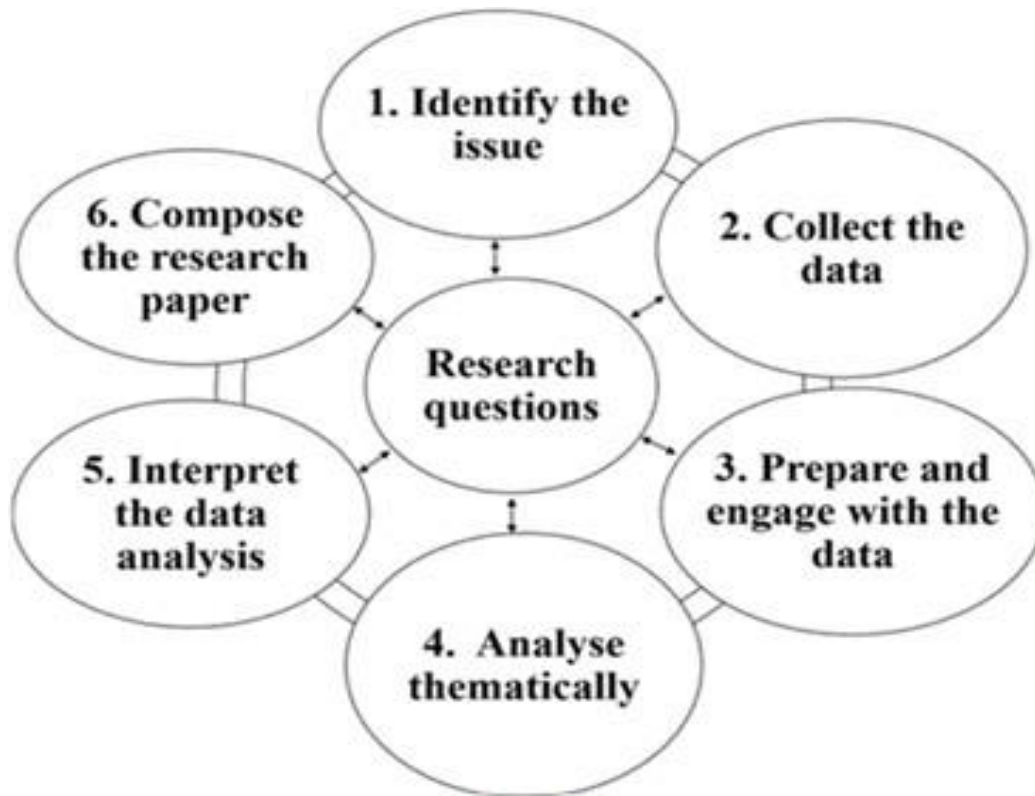


Fig 1: Research Framework (adapted from Butler 2011:349) cited in Peel (2020:5).

Themes Identified

The researchers engaged with the data for a prolonged period, meticulously studying and coding it and came up with the following themes that guided the analysis, interpretation, drawing of conclusions and recommendations for the study. Some of the themes are salient and not explicitly addressed in this paper. These themes are the impact of COVID-19 on Tertiary Education in Zimbabwe; Challenges Faced in Transitioning to Online Learning; Opportunities availed by COVID-19 scourge; Tertiary Education Post-COVID-19; Role of Technology in Higher Education during a Pandemic; Opportunities for Improvement in the tertiary Education Sector; Research Output and global Academic Engagement; Hybrid Learning Approach for the Future.

Credibility and Trustworthiness

To establish credibility, triangulation was established by employing different research instruments including interviews, focus groups, e-questionnaires and document analysis and obtaining correspondence between primary and secondary data.

Robust measures were undertaken to ensure that the results obtained, and their interpretation are trustworthy and credible thus reliable. Coding and transcription of people's views was carried out. More than half of the participants and respondents were consulted during the analysis stage as a way of member checking to ensure accurate transcription, correction and interpretation of responses. Long and exhaustive discussions were carried out by the researchers in consultation with professional academicians and other distant experienced researchers. This was an effort to establish peer debriefing which is necessary in such studies to greatly reduce researcher bias and improve the quality of interpretations of the data obtained from both primary and secondary sources. The researchers took drastic measures amid the COVID-19 restrictions to ensure prolonged engagement with participants and respondents and to personally observe the situation on the ground, albeit in consultation with other professional researchers and educators. This paper posits that this excruciating exercise was necessary to provide a rich and thick description of the situation at hand

(Guba & Lincoln, 1982)

Learning in Higher Education During the COVID-19 Era

COVID-19 emerged in late 2019 and blew into a global pandemic. It had an enormous impact on people's lives and the global economic landscape. A rapid rise in COVID-19 cases resulted in the temporary closure of most sectors of the economy including Higher education. Due to the need to enforce COVID-19 protocols of social distancing and safe hygiene, universities stopped face-to-face education and adopted online learning (Crawford *et al.*, 2020). Physical interaction between learners and lecturers was put to a halt and learners had to attend lessons via the internet hence the need for using ICT tools and skills which were unfortunately lacking. The teaching staff in tertiary institutions had to meet new online education challenges such as demonstrating instructional skills and teaching techniques in a virtual classroom, addressing their managerial role, establishing relationships with learners, and providing technical support. Many lecturers in the study attested to treading on the unfamiliar territory of acting as technicians to guide students in navigating the virtual world. However, some educators expressed the embarrassment they faced when some students appeared more knowledgeable than them in computer technologies. This put a strain on quality lecture delivery due to the sudden shift from traditional face-to-face physical lessons (people had to suddenly leave their comfort zones). According to Zvomunya (2021), for continuity in the face of COVID-19, Zimbabwean tertiary institutions had to abruptly migrate to virtual platforms like Zoom, Microsoft Teams, Google Classroom, Twitter, and WhatsApp for learning purposes.

Several students faced a plethora of challenges in coping with the sudden changes, some were locked down in remote rural areas with no or poor internet connectivity, and many grappled with exorbitant data costs to be online for several hours to attend all lectures in various modules. In the university study, lecturers were assisted in buying data bundles to continue teaching online. This was a good mitigatory move, however, it emerged that many were not given any physical ICT gadgets to use, they had to use their own. Those who could not afford quality gadgets were at a loss. On the other hand, students were not subsidised in any way, this created a new problem where those who had resources continued learning while those who lacked suffered the double tragedy of the pandemic itself and loss of education continuity.

WhatsApp emerged as the most widely used platform despite not being the best. This was probably due to being readily available and accessible to most students. This period enlightened people that social media platforms can be effectively used as learning platforms thus dismissing the myth that they are purely for social discourse. (Tarisayi and Munyaradzi, 2020),

Regional Higher Learning Landscape

At the height of the pandemic, academic institutions in Nigeria also suffered a sudden shift from traditional face-to-face to virtual pedagogy when the government ordered the closure of educational institutions. This shows that Zimbabwe was not alone (Abubakah *et al.* 2022),

A study by Kaisara and Bwala (2020) echoed that universities in Namibia were negatively affected by excessive data costs and the isolation of learners who were accustomed to physical interaction with their educators and mentors. The advent of COVID-19 also exacerbated existing socioeconomic inequalities and widened the gap between the resource-rich and the resource-limited learners and learning institutions (Hassan *et al.*, 2021). This trend was also prevalent in Zimbabwe. This paper argues that academic institutions in collaboration with relevant stakeholders need to come up with strategies to bridge the socioeconomic divide among students. Financially challenged students also have a right to quality education. A South African case study by Landa *et al.* (2021) concluded that many South African Universities were quick to adapt to the "new normal" probably due to the availability of resources.

In South Africa, the government collaborated with various mobile network providers in a bid to secure subsidised costs for educational purposes but it is still documented that the South African education system was ill-prepared to handle the effects of the pandemic. The Zimbabwe government should take a leaf from this in future crises to assist students in affording data for education (Dube, 2020).

Effects of COVID-19 on the Teaching and Learning Process: Summary of Selected Questions from Questionnaires and Interviews

Interview guide for lecturers (IG 1): In your opinion, how has COVID-19 affected the teaching and learning process?

Focus group questions for learners (FG 1): Briefly share your learning experience during the COVID-19 era.

The results revealed that the COVID-19 pandemic resulted in the derailment of the curriculum. Many teaching and learning objectives and activities were shelved in adherence to WHO guidelines that specified social distancing as a means of mitigating the spread of the coronavirus disease code resulting in the temporary shutdown of the university. The normal schedule of the university was disrupted as physical lessons were banned at the height of the pandemic.

Many learners fail to go on industrial attachments which are crucial for their exposure to the real world of work and in attaining practical experience relevant to their particular fields of study. This was probably due to several reasons including companies scaling down operations, closing down in adherence to COVID-19 protocols, and retrenchment of qualified employees who would have given these trainees an invaluable wealth of practical industrial knowledge.

The results pointed towards a situation that is antagonistic to Education 5.0, as the temporary closure of the university meant that there were no practical lessons conducted particularly in the STEM and sports disciplines. From the results, it was deduced that the university's library was temporarily closed. Although online library resources were launched, they were inadequate to address all academic concerns of students from different faculties with diverse academic needs. Some of these resources were not easily accessible to learners who were locked down in rural areas with no electricity and or internet coverage, it is worth noting that Zimbabwe is facing electricity power shortages so even people in urban centres face prolonged periods of power cuts failing to attend scheduled lectures. Examinations had to be rescheduled, this caused some emotional and psychological trauma among some learners who had hopes of completing their studies and moving on with their lives. This paper argues that further research has to be carried out to ascertain the actual level of this trauma and possibly find mitigatory measures necessary to eradicate it in future pandemics or crises. The respondents highlighted that online lessons became the order of the day, and both Lecturers and learners had to navigate the unfamiliar territory of virtual learning.

Teaching Methods Employed During the Pandemic

Question to lecturers (IG 2): Have you been conducting lessons during the COVID-19 era?

If yes, briefly outline the teaching methods you employed.

A summary of the responses is given in Fig 2.

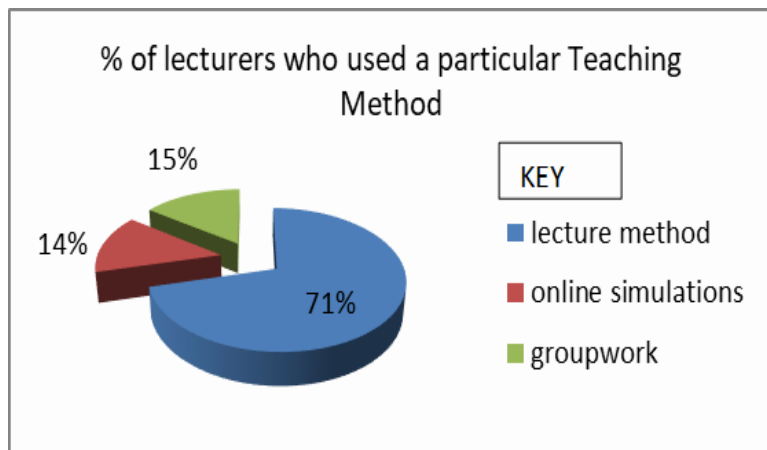


Fig 2: Teaching methods used to conduct lessons during the COVID-19 era

Analysis of the pie chart above indicates the prevalent use of the lecture method. However, it can be credited that this method was improved from previous eras to be in the form of recorded voice and text notes and lecturer-dominated PowerPoint presentations and audio recordings on Google Classroom which accounted for 71%. Online simulations were used by a smaller proportion of about 14%. Group work mostly in the form of collaborative presentations and assignments was also used by a few lecturers, accounting for a 15% representation on the pie chart. This could be a result of high data charges resulting in low lecture attendance rates by both educators and students in many cases. Many learners accessed their lecture information asynchronously, thanks to technology but this could have cost them the richer learning experience of interacting with lecturers and fellow learners in real time and asking or contributing to discursive points as they arise and are still fresh in everyone's mind.

Pre-COVID-19 teaching learner-centred methods like using models, experimentation, and field trips became very difficult to apply during the COVID-19 era. Some enterprising lecturers used simulation applications to replace experimentation and modelling, however, this move was derailed by less access to compatible ICT gadgets, appropriate software applications and technical support from technicians. Many students could not access these in cases where lecturers were able to avail such experiences virtually. Thus the COVID-19 scourge exposed technological gaps that had been overlooked in previous education settings.

Close analysis of primary data revealed that the use of the laboratory-based experimentation method in STEM disciplines drastically dropped as learners could not physically manipulate laboratory equipment. Uploading videos of experiments meant that students learnt by watching as opposed to doing. Uploading videos of experiments proved to be expensive in a country with high data tariffs, education thus became a preserve for the economically advantaged students. The COVID-19 scourge thus allowed faculty to ascertain the reality of socio-economic disparities among their learners. This paper challenges all relevant stakeholders involved in tertiary education to collaborate in a bid to cover the existing socio-economic gap and achieve quality education for all learners, thus helping to achieve the global agenda 2030 and Sustainable Development Goal (SDG) 4.

Challenges Faced by Educators and Learners During the COVID-19 Era

The constituted closure of schools and subsequent banning of public gatherings shifted educational venues to individuals' home settings. People's homes were thus drastically changed to become areas of continued education. It is unfortunate that many homes in Southern Africa, Zimbabwe included, lacked the appropriate infrastructure, resources and space to provide quality, world-standard educational experiences for students. This created a competition among family members for the limited resources available for use as study areas, work areas for those in paid employment and personal entrepreneurship activities. The point is, that many homes were overwhelmed and ill-prepared to handle the imposed challenges. (Magaisa, Moyo,

Chamunorwa, Makokoro, Shava, 2023).

Question to lecturers (IG 3): State the challenges you faced in the teaching and learning process during the COVID-19 era.

Responses were varied and summarized in Fig 3.

Fig 2 shows the challenges faced by lecturers during the lockdown periods.

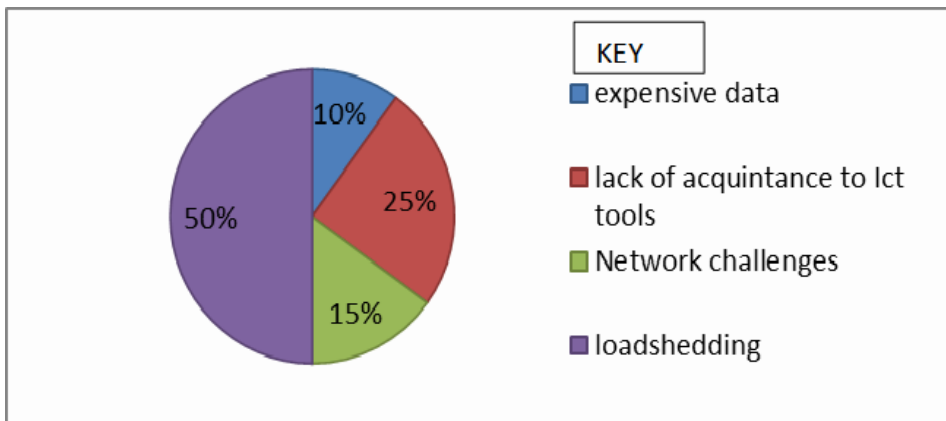


Fig 3: Common challenges faced by lecturers in teaching and learning during COVID-19 (Pie chart developed by Kurehwatira, 2023)

Question to students (FG 2): Briefly outline the challenges you faced in learning during the COVID-19 era.

Fig 4 shows a summary of challenges faced by learners during the height of the pandemic



Fig 4: Challenges faced by learners in learning during COVID-19

One great challenge faced by stakeholders in different geographic locations was electricity load shedding as seen from the 50% representation from the responses of lecturers. Lecturers worked from home where power cuts were rife. From the data collected, it can be ascertained that some lecturers, especially the old horses lacked advanced ICT skills to create stimulating and engaging online lectures. This is shown by the percentage that highlighted a lack of acquaintance with ICT tools of 25%.

Most lecturers highlighted that there was a provision of WIFI services at the university campus. To conduct lectures, they had to travel to the campus or university library. During the COVID-19 era, the number of people allowed at the university campus was greatly reduced. This could be one of the reasons why during the first wave, few lessons were conducted. The results highlighted a challenge when a need to work off-

campus arose, particularly with the learners who usually take their classes in the evening. Working from home meant purchasing expensive data bundles to access virtual classrooms, this was beyond the financial capacity of most students and some faculty.

Other than the challenges shown in Fig 2 and Fig 3, the results also pointed towards the direction of some lecturers who faced challenges in identifying the most suitable and economically viable teaching and learning method and platform to cater for a majority of their learners. Many lecturers available online experienced poor learner turn-out in virtual lessons. As soon as online learning resumed, lectures in different courses (on average, 4 to 6 for each student) took place daily, this was done to bridge the gap between lost learning time and the pre-scheduled graduation dates for the final year students to enable enrolment for the next academic year. This paper argues that this caused a huge financial strain on un-sponsored students thus resulting in poor lecture participation. The results suggested that lecturers struggled to maintain the same depth of engagement with learners that they could have in a physical classroom setup and faced challenges in measuring learner engagement and outcomes while learning online (Landa *et al.*, 2021),

This paper posits that there could have been a decline in research output at the university during the COVID-19 era. This was due to the lockdowns and social distancing guidelines which posed a major hindrance to the collection of primary data by both lecturers and learners. Data collection was restricted to online platforms like Zoom meetings for the focus groups, which a small percentage of the university population could afford or had access to. This paper further argues that it is possible that the challenges mentioned above could have resulted in the elimination of some learners from the learning process, especially the socio-economically challenged ones.

Large mass classes of 100 or more learners were strenuous and challenging to manage online especially when it came to marking and grading essay-type assignments and tests. Educator-learner engagement was compromised and overly dependent on ICT skills and possession of appropriate modern ICT gadgets.

Some learners remained alien to their lecturers, they graduated without knowing each other personally. This poses a challenge for lecturers to make personal and professional recommendations for students when they enter the employment world or decide to further their education elsewhere. This paper gives a thumbs up to several educators who managed to render online assessments but criticises the authenticity of the results based on the fact that there was very little that lecturers could do to avoid copying, virtual discussions among learners during the test or researching for answers while writing. This brings to light an opportunity for tertiary institutions to collaborate and also engage their ICT technicians to come up with applications that can detect and deter cheating during online tests and individual assignments, otherwise, the credibility of the results will be greatly compromised. In the future, if a greater crisis occurs that calls for online examinations, students' results cannot be justified and counted on if no online invigilation and monitoring strategies are put in place.

The university under study claimed to be client-oriented. Incumbent researchers, after robust consultation with other professionals boldly state that many students in the institution faced severe financial constraints. Some were established to be heavily reliant on parents or guardians who were either engaged in small-scale entrepreneurial activities (back door businesses) or in companies that either scaled-down business activities or shut down, thus cutting their income, rendering them incapable of fully paying for required academic costs. Some students were self-funding themselves from proceeds of similar economic activities stated above. Both classes were at a big loss during the pandemic, thus many students unfortunately dropped out of the education system. However, the case was not entirely lost, some students managed to benefit from the measures implemented by the institution and government to effect outstanding fee deferrals and tuition assistance to deserving students. Transforming face-to-face classes to a virtual mode has created a steep learning curve for many educators, undermining the quality of learning in some cases (UNESCO, 2020).

Several students expressed concern that their lecturers were hardly audible while teaching wearing masks in subsequent phases when physical classes were resumed, albeit with strict conditions of adherence to COVID-19 protocols. Maintenance of the required 1m social distancing was greatly compromised in many classes due to lack of space and limited time to bring students in batches for the same course, in some faculties several lecturers had 2 or 3 lectures to attend in one day thus they were forced to strictly enforce the wearing of masks and massive use of sanitisers in cases of contact with other people and surfaces where COVID-19 germs could be spread.

According to Apriyanti (2020), learners have been affected psychologically by college closures, lack of equipment and appropriate ICT gadgets to participate in courses delivered on online platforms, being unable to leave home for a long period and travel long distances to access Wi-Fi and electricity due to lock down protocols. From the primary data collected, there was evidence that some facilitators were ICT illiterate to the extent of missing some of the scheduled online lessons. This point led the writers of this paper to advocate for the enhancement of digital literacy among faculty and students in a bid to mitigate the same calamities in future global or local crises. (Mkwelie, Satamwe, Ntandoyenkosi, & Shiza, 2022).

Cranfield et al., (2021) echoed that in their comparative qualitative study of universities in South Africa, Hungary and Wales they uncovered the challenge of digital illiteracy exhibited by many South African Learners. This suggests that the phenomenon under study is regional if not global thus solutions suggested will benefit not only the university studied but many institutions around the globe.

Results from learners lament expensive data bundles which hindered many of them from joining Google classrooms and the Google Meet platform where interactive learning took place by way of video conferencing. Respondents echoed that other platforms proved to have been weak in terms of learner-facilitator interactions due to frequent electricity power cuts and poor internet connectivity. During the second and third phases of the lockdown period where physical contact was accepted, most learner participants complained about the poor audibility of lecturers who taught wearing masks and also expressed discomfort in learning with masks in rooms characterized by poor ventilation, this paused a health hazard above the COVID-19 they were trying to prevent.

During the lockdown period, some learners travelled back to their rural homes characterised by a lack of electricity and internet services. This resulted in a natural elimination from the virtual classrooms and a severe loss of learning time. The situation presented unequal guarantees to access to quality education and indirectly promoted exclusivity in education as opposed to the global goal of inclusivity. This paper laments the plight of learners with special educational needs (SEN) who faced a greater calamity during the COVID-19 pandemic.

Furthermore, the results indicated that the COVID-19 restrictions posed a negative psychological toll on international learners enrolled in the university when face-to-face lectures were resumed as they could not travel back to the country to join their locally based colleagues in the marathon catch-up period opened, lecturers had to rush through their modules in preparation for the pre-scheduled examinations. Learning objectives were thus exam-oriented and not competence-oriented, it is thus possible that most learners managed to pass these exams without having in-depth knowledge of the subject matter. This is detrimental to the advancement of learning outcomes for those learning to be educators and also detrimental to industry for those pursuing industry-affiliated courses.

Research indicated that learners who had to climb the tree for network ended up dropping out of university as women particularly in the post-graduate programmes could not be climbing a tree for more than 3 hours. The above concurs with the ideas of Dube (2020), who postulates that rural teachers and learners were consequently marginalised.

Measures taken by the university to overcome some of the challenges

Interview question for lecturers (IG 4): Discuss any measures that your university is taking to address the effects of COVID-19 on the teaching and learning processes.

Question for students (FG 3): What do you feel your institution should do to make learning easier for you during the COVID-19 era and beyond?

The data collected revealed that Lecturers, despite being given some financial incentives to purchase data turned to cheaper online platforms like WhatsApp as a way of trying to attain 100% student engagement. Some lecturers researched to deduce the diverse backgrounds and needs of their learners to decide on the platform to explore during the online lesson delivery. The university tried to utilise available resources to practically adopt the blended learning approach previously taught theoretically. This resonates with the views of Szeto (2013:1) who argued that Higher education has continued to evolve which has seen a gradual increase in the use of blended learning, which is the use of both face-to-face and online teaching. However, after the outbreak of the pandemic, learning was made easier and more enjoyable for many students through the use of technology. This paper posits that sometimes a crisis is a necessary evil that happens to make people think outside the box and act on what they have been preaching over the years.

This paper ascertained that the COVID-19 pandemic resulted in the proliferation of virtual learning management systems, course management systems and virtual learning environments like Moodle, Blackboard Learn, Sakai and other web-based systems. However, to realise their full potential for *all* students, these new tools must be selected and adapted to suit the local context of the learners concerned. The university introduced blended learning towards the end of the lockdown period when restrictions of movement by people were relaxed. This teaching methodology allowed lecturers and learners to interact both physically and virtually. A new learning era has emerged.

Online platforms employed by lecturers during the COVID-19 era

Question to lecturers (IG 5): Which online platforms did you use during the COVID-19 era?

The results are shown in Fig 5 below:

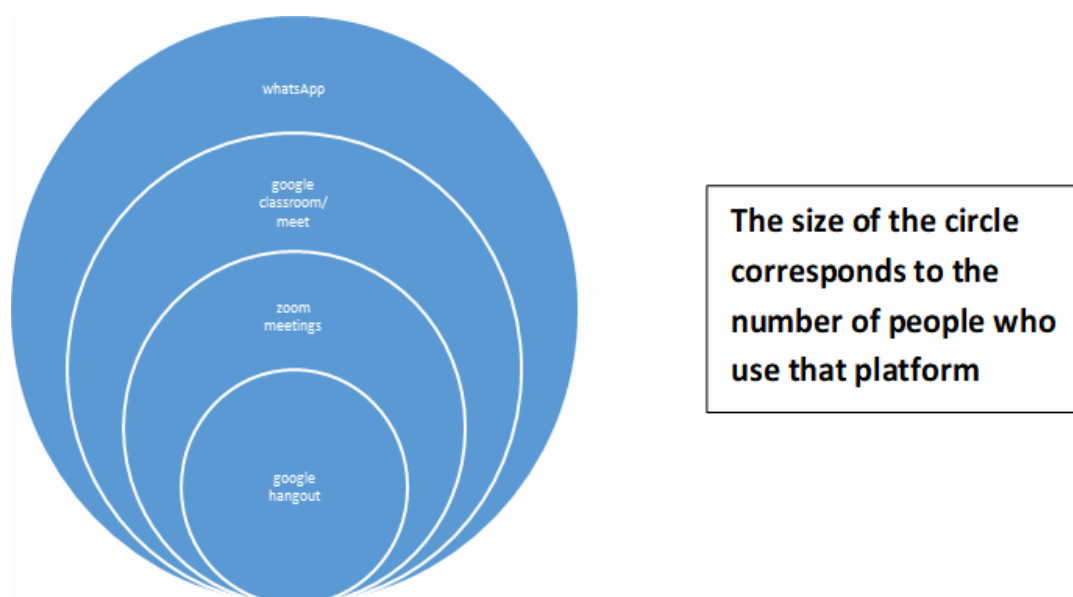


Fig 5: Online Platforms used during the COVID-19 era

The results establish that lecturers to a greater extent used WhatsApp platforms and Google Classroom/meet. Zoom meetings were used in cases of large classes that are taken by an estimated 120 learners. The respondents used to a lesser extent Google Hangout. The paper posits that the above methods were chosen based on affordability to both the lecturer and learner and user-friendliness. The platforms proved to enable sharing of videos and other audio and visual materials. WhatsApp proved readily available to the participants. Platforms that allowed asynchronous learning seemed to be greatly favoured probably because they allowed people to revisit the content at any convenient time.

Focus Group Interview Responses from Learners: Learning Experience During the COVID-19 Era

The results show that Wi-Fi would sometimes be very poor. The data showed mixed feelings of learners; some learners thought lectures delivered on WhatsApp were on an inappropriate platform. On the other hand, some learners preferred the use of WhatsApp as it was affordable to many. The results expressed the unwillingness of some lecturers to adjust to the learners' needs and abilities. This implies that some lecturers were adamant about using online social platforms like WhatsApp which almost everyone could afford and insisted on Google Classroom which was officially adopted by the university. Learners experienced limited resources. This could be because of the closure of the library and the limited time the learners are permitted into the library.

Learners in their final year of study who were doing research had to shift data collection procedures from field-based to online. This meant that data collection was done using Zoom meetings, Google Meet, and WhatsApp video calling. Consultation with the supervisors was done using emails until submission of the dissertation. This was a great challenge to many.

Effectiveness of Teaching Methods Used

The results reveal that the teaching methods were to a lesser extent effective as some learners could not log on to online platforms due to the high costs of data. This could be due to the different backgrounds of the learners, and little to no supervision of learners. Lecturers could not fully get to know the learners individually, their needs and weaknesses. Those learners who hide behind others did so without any hurdles. The undergraduate respondents cited the ineffectiveness of the testing tools. The respondents echoed a lack of standards in the testing methods that were employed during the COVID-19 era. Learners could easily refer to the notes.

The results show that the postgraduate learners found the teaching methods employed sufficient and satisfactory. This could be because most of the work is research-based. The methods used by their facilitators were research-driven. These methods stimulated the learners' research skills and the individual capacity to articulate concepts and shared knowledge. In a nutshell, the post-graduate learners found virtual learning tolerable. The postgraduate learners also experienced challenges in internet connectivity hence taking away from the effectiveness.

Possible Solutions that can be Adopted to Solve the Challenges Outlined

This article advocates for blended learning with the online component being in the form of Synchronous and Asynchronous Learning pedagogies. Synchronous learning involves real-time interactions such as live lectures, virtual discussions, or group projects conducted through video conferencing tools. Asynchronous learning, on the other hand, allows students to access pre-recorded lectures, discussion boards, or assignments at their own pace and convenient time (Tucker; Wycoff; Green, 2017).

Using synchronous learning involves having students and instructors participate in learning activities simultaneously and in real-time, even though they may not be physically present in the same geographical location. This typically involves using video conferencing tools, chat platforms, or virtual classrooms to

facilitate live interactions. This is very convenient in times of crisis where physical interactions are not possible. In a synchronous learning environment, students can engage in discussions, ask questions, receive immediate feedback, and collaborate with their peers just like in a face-to-face lesson (Yamagata-Lynch, 2014).

Asynchronous learning, on the other hand, does not require learners and lecturers to be present at the same time. Instead, students have the flexibility to access learning materials, complete assignments, and participate in discussions at their own pace and convenience. In this approach, course content is typically pre-recorded or made available in written form, and students can engage with it whenever they choose. Asynchronous learning provides flexibility for students to manage their schedules and progress through the course material at their preferred pace. Communication and collaboration with instructors and peers often occur through discussion boards, email, or other asynchronous communication tools (Wang; Huang, 2018).

The results revealed that learners suggested the use of WhatsApp. The use of the WhatsApp platform reduced data costs although could have resulted in reduced interaction. The study expounded that learners went out of their way to call the lecturers to remind them about scheduled lessons. To curb the frequent disruption of learning due to internet connectivity, the learners resorted to calling the lecturers way before the lecture time to confirm if the network was available to the lecturer as well as to the learners. Learners had to take responsibility for the learning process by creating groups where notes were shared, and past examination papers were discussed among a whole lot of other issues. This was made possible by the use of Wi-Fi. In addition to the above, learners had to incur additional costs of purchasing extra laptop batteries to counter power outages during online lessons or data collection sessions with the respondents which was done by interviews or focus groups.

Measures that can be Implemented by the Institution to Make Learning Easier During the COVID-19 Era and Beyond

The enhanced incorporation of ICT including internet-based teaching pedagogies has opened up new possibilities for most people to engage in lifelong learning, to easily access information despite geographic boundaries. Academic institutions have been shaken up to develop their curricula to brace for future pandemics and crises. Curriculum reforms should incorporate much-needed 21st-century skills like digital literacy, critical thinking and problem-solving. They can do this using expertise and tools that were previously not easily accessible to them which are freely available on online platforms (UNESCO, 2016: 12).

The paper argues that the COVID-19 pandemic has given many universities an eye-opening experience and exposed their poor technological infrastructure, now they have an opportunity to revamp this and invest more in robust technology and infrastructural development and human capacity building to equip all lecturers, learners and technicians despite their socio-economic status. This also calls for enacting a sound technology integration policy (Ramorola, 2013).

Successful ICT integration in education becomes much more likely when educators share the values expressed within their institution's policy framework. This also calls for widespread consultation of all stakeholders involved in formulating an acceptable policy.

The paper established that several lecturers, highly qualified in their respective fields lacked expertise in digital technologies required to effectively implement virtual learning and hybrid learning methodologies which seem to be the in-thing in future education, factoring in the advent of new technologies like artificial intelligence(AI). In-service staff development and educator training are crucial at this point so that lecturers are competent and able to impart a worthwhile learning experience to their learners.

In most of the physical lectures observed by the researchers, all the lecturers who endeavoured to integrate

technology were more or less young to middle-aged. Very few older ones prepared a technology-driven lesson. From the interviews, it was discovered that all the teachers who were active in the technology integration processes had relevant qualifications in some technological fields or had received ICT training of some sort. This brings to light the need to instil confidence in educators by actively intervening to equip them with the required ICT skills and change the status quo.

Education-Related Opportunities that have been Availed During this COVID-19

Focus group question to students (FG 4): Briefly discuss the education-related opportunities that have been availed during this COVID-19 era.

Interview questions to lecturers (IG 6): Which education-related opportunities provided by the COVID-19 pandemic did you observe?

A summary of responses obtained suggests that the COVID-19 pandemic forced lecturers and learners to obtain advanced practical computer and ICT skills. The respondents and participants identified opportunities which include enabling learners and lecturers to embrace the digital teaching and learning world, the adoption of a hybrid teaching and learning style and exploration of virtual learning platforms.

The paper established that one size does not fit all as learners and lecturers come from diverse socioeconomic backgrounds and have different intellectual, social, and economic needs. The results posit that lecturers have been presented with an opportunity to re-invent the classroom and probably use artificial intelligence applications.

Lockdown protocols allowed learners to multi-task. This implies that learners had the opportunity to engage in enterprising income-generating entrepreneurial activities whilst pursuing their education online. This facilitated the achievement of Education 5.0.

The study establishes that COVID-19 presented some opportunities to learners. COVID-19 exposed learners to new technology. According to George and George (2020), COVID-19 has been viewed as an opportunity to expand the use of technology in teaching and learning, in line with the notion of the 5th industrial revolution which is expected to present a huge shift in the interaction of individuals and machines.

The pandemic made people realise that physical distance and space do not matter anymore. International learners were able to send their assignments to the university in Zimbabwe and also write their examinations without having to physically travel to Zimbabwe. This provided the university with an opportunity to expand its catchment area through distance learning. Bilgin and Tuzan (2015) concur with the above notion by echoing that distance education provides learners with environments and space with the support of advancing technologies.

The results indicate that learners improved their capacity to self-teach. Learners learn to use various sources of knowledge. The sending of notes by some lecturers suggested and encouraged a learning path, learners had to embark on an inquiry to add to the knowledge sent by facilitators and as well as understand concepts. This resulted in the acquisition of self-study skills. The results indicate that learners improved their capacity to self-teach.

The Future of Tertiary Education Beyond COVID-19

The results from the lecturers show their view of the future of tertiary education, thus post-COVID-19. The views are clearly shown in Fig 6 below

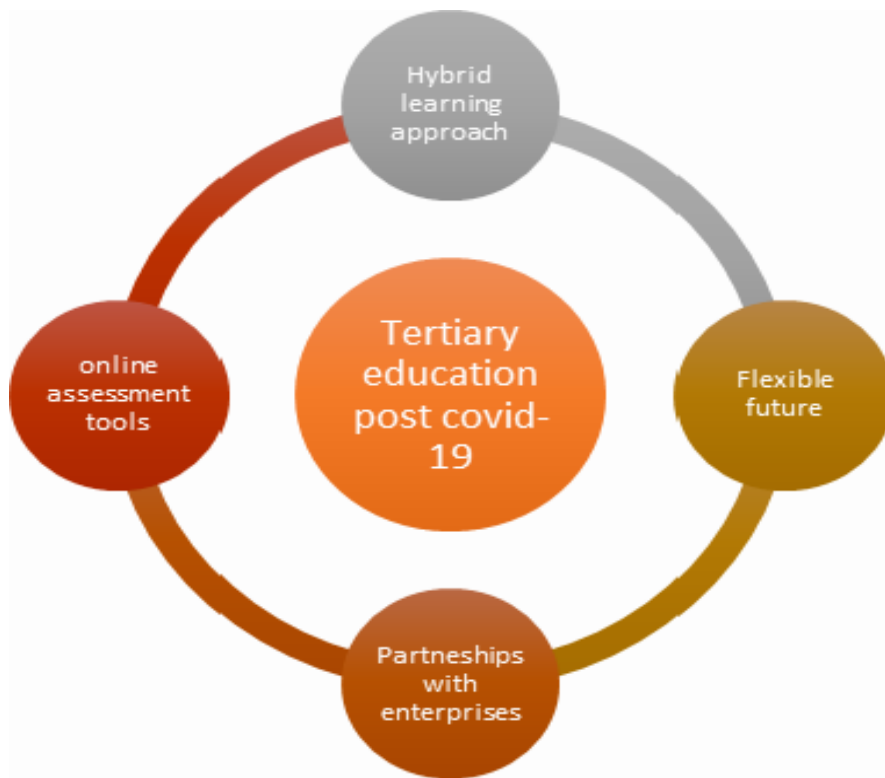


Fig 6: Tertiary education post-COVID-19

The data from the lecturers indicate that the hybrid learning Approach is likely to continue in tertiary education. This implies that universities are likely to explore the opportunities unravelled by the pandemic. These opportunities include increased interaction and increased platforms for sharing knowledge by adopting the hybrid Approach, thus the blended learning approach which considers both online learning and face-to-face learning. This implies the need to establish the percentage of facilitators with experience teaching online, those with experience teaching in the classroom and those with experience in both. This will assist in identifying gaps in the human resource skills who is the facilitator and invest in them through training. The learners will need training as well.

Despite all measures taken to curb the negative effects of the pandemic on higher education, there is still a lot of work that needs to be done in Zimbabwe and other Southern African countries to achieve quality education by 2030. The COVID-19 pandemic assisted in opening the eyes of the stakeholders in education on the need to improve the education delivery system (UNESCO, 2016).

CONCLUSION

The study conducted on tertiary education in Zimbabwe during and after the COVID-19 era has shed light on the substantial challenges encountered by both learners and educators. The swift transition to online learning has exposed discrepancies in access to essential resources such as internet connectivity and digital devices, thereby impacting the efficacy of educational delivery. Furthermore, the study has underscored the imperative need for adaptable educational policies and enhancements in infrastructure to better manage prospective crises.

Amidst the challenges, the study has also unveiled opportunities, including the potential for heightened knowledge dissemination, entrepreneurial prospects, and exposure to novel online pedagogical technologies. These findings emphasize the significance of embracing hybrid learning methodologies and harnessing technology to cultivate a more resilient education system.

This research is envisaged to serve as a valuable scholarly resource for stakeholders in the realm of education, furnishing insights into the repercussions of the COVID-19 pandemic on the tertiary education sector in Zimbabwe. It accentuates the necessity for proactive measures to tackle challenges and capitalize on opportunities, ultimately shaping a more adaptive and robust educational framework for the future.

RECOMMENDATIONS

Collaboration and Partnerships: Collaboration between educational institutions, government agencies, and stakeholders may become increasingly important. This could involve partnerships with non-governmental organizations (NGOs), private sector entities, and international organizations to leverage resources and expertise in areas such as infrastructure development, teacher training, or technology integration. The government could also stride towards the establishment of community WIFIs for those who are less privileged. This could be achieved through partnering of the government with the network service providers

Virtual and technology-driven teaching and learning can be improved by the university's partnering with data service providers like Econet, Telone and Netone. This will enable access to data bundles at affordable rates. The results strongly indicate that universities in Zimbabwe could also unite and pool their money together, becoming a single customer to enjoy economies of scale like bulk buying discounts. The results also indicate the need for the university to own a business continuity plan, so that the institution is always ready to handle any other crisis like this in the future.

Institutions of higher learning should purchase more computers, laptops and any other relevant modern ICT gadgets to add to those at the library and create a viable digitalised library for use by faculty and students. The research established that many learners could not afford to purchase modern gadgets and were thus left behind in the learning process. This will therefore boost the learner-gadget ratio at the library. Learners will therefore be able to manipulate these gadgets at whatever time there is a lecture; the scramble for gadgets in the library would to some extent decline. This article recommends the need for an increase in Wi-Fi services and internet connection and download speeds (Azubike et al., 2021).

Affordability of data by both learners and lecturers will ensure that no learner is left behind, especially on interactive platforms like Google Meet, Microsoft Teams, and Moodle. A great improvement in internet connectivity is required, This will also enable higher education institutions in Zimbabwe and Africa in general to leverage the benefits of artificial intelligence which is capable of assisting learners acquire quality education remotely using educational chatbots (UNESCO,2019).

Massive human resource development and capacity building coupled with robust infrastructural development are required so that lectures and students possess the relevant online teaching-learning skills for effective learning experiences to occur (Okonkwo and Ade-Ibijola, 2023).

The data collected further suggests programmes like staff development of the university lecturers on the use of ICT.

To aid learners cope with stress during such unprecedented times, this article suggests that university departments and student affairs office has to organize academic mentors that will form an intimate relationship with learners in smaller groups. This will allow easy follow-up on learners, understanding of the diverse backgrounds of learners at the university as well as identifying learners with backgrounds that need serious attention. This approach results in inclusivity. The university has to make the counselling department, try and curb stress, such that learners cope psychologically and academically.

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