Preparedness of Higher Learning Institutions for Unknown Disasters: Covid-19

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Abstract

Although there is an increasing need to prepare for unforeseen disasters at institutions of higher learning in South Africa, the study examines to what extent institutions are prepared for the Covid-19 outbreak. The pandemic outbreak has led to the closure of institutions and caused major disruptions in teaching and learning activities. The Minister of Higher Education (HE) informed institutions to suspend all contact lectures to minimise the risk of spreading the virus amongst students and staff. As a result, this brought about a setback to the academic year from a curriculum perspective, inequality in terms of devices, and data accessibility. Due to these developments, the institutions have had to implement new methods of teaching and learning such as online learning. The study aims to find out how prepared the lecturers and students are for the changes brought about by Covid-19 to curriculum delivery within the undergraduate and postgraduate programmes. The studies that have evaluated preparedness plans reported that such plans were found to be weak and lack clarity. The study is qualitative by nature. Fourteen academics from different institutions and twelve students were interviewed using semi-structured interviews. Data were analysed using thematic analysis. Secondary sources based on historical research were consulted. Based on the investigation for the preparedness of institutions for unknown disasters, the results revealed that institutions of higher learning were not prepared. The unknown disasters can only be avoided through regular consultation with the umbrella bodies that are always vigilant for disruptive disasters that can result in institutional closure. The study recommends that the institutions need to appoint coordinators as well as student representatives to prepare for the unknown disasters. Policymakers and institutional structures can also acquire more information from the experiences of previous pandemic outbreaks.

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1 Introduction

Since the outbreak of the Covid-19 pandemic, countries have seen increasing numbers of institutions of higher learning globally migrating to online learning. It can be noted that even before the spread of the pandemic across the world, debate over online learning had already commenced with some universities opting for it (Gozalenza *et al.* 2018). As a result, the current pandemic has pushed the HE to enforce and adopt the use of online learning as a strategy to save the 2020 academic year from collapsing. Unknown disasters, like pandemics, are part of the context for institutional preparedness planning. However, little or no research has been undertaken in this regard. Therefore, the study aims to find out how prepared the lecturers and students are for the changes brought about by Covid-19 to curriculum delivery within the under-graduate and post-graduate programmes. Preparedness procedures are important to develop outlines for unknown disasters, thereby providing institutions with the opportunity to prepare, strategize and mobilise human and capital resources before a pandemic occurs (Sambala *et al.* 2017). Alexander (2002) defines preparedness as actions taken to reduce the impact of disasters when they are forecast or imminent. For the purpose of this study, in order to counter the threat of the pandemic, the institutions have had to explore online platforms of teaching and learning. Therefore, the researcher is interested to find out about the quality of the preparedness plans since the Minister of HE informed all institutions to suspend all contact lectures. HE took drastic steps to stop the spread of infection and now it is facing the biggest disruption. All the institutions have also suspended graduation ceremonies to protect themselves from the Covid-19 pandemic. Suspending classroom instruction has traditionally been used (e.g. during the 1918 influenza pandemic) to refer to shutting down buildings and closure of institutions (Tobey 1926). Often institutions' personnel and parents have questions regarding the risks of exposure to diseases within the institutional setting and the appropriate management of students with chronic infectious diseases (Kekic *et al.* 2016). However, this was an unprecedented situation as institutions had no time to prepare for this disruption in terms of curriculum delivery. Although

suspending classes may reduce the spread of the pandemic, lengthy closures may have a negative impact on students' learning. For example, this might result in student dropouts and reduced access to essential services, with negative and permanent socio-economic impacts for students and their communities (CDC 2007).

While some of the students who have internet access continued with their online learning, students with economic disadvantages had to wait for the printed study materials to be delivered. The main concern is how higher education institutions will be able to deliver learning materials to stranded and concerned students? Studies concerning the internet revealed that those with a lower income exhibit relatively negative Internet attitudes (Barzilai-Nahon 2006). They use the Internet less efficaciously, employ the Internet less productively and thus are at a greater academic disadvantage (DiMaggio, Hargittai, Celeste & Shafer 2004). Considering the historical inequality in our country, some universities are better prepared than others. However, not all lecturers and students are familiar with online learning. Most evidence from Internet research suggests that a lack of social support might have a negative impact on the use of the Internet (Scheerder *et al.* 2017). For example, those with less social support are less likely to engage in a wider variety of Internet use (Neves & Fonseca 2015). To address the above, institutions are busy trying to improve their online capacity by conducting online workshops, learning to set up live-streaming channels, and designing online courses. Disproportions in access to devices are also linked to imbalances in students' capabilities (Gozalanza *et al.* 2018).

The theory underpinning this study is resources and appropriation theory**.** Resources and appropriation theory (Van Dijk 2005) debates that categorical disparities in people produce an inadequate supply of resources and that an uneven supply of resources causes inadequate access to digital technology. The theory further stipulates that the procedure of appropriation is influenced by the public and technological context of Internet usage, and the social context consists of personal and positional imbalances among users. The low- and middle-income families with Internet access are often 'under-connected', due to periodic unpaid monthly bills, slow and broken hardware, and shared access (Rideout & Katz 2016). Personal and positional disparities, as the theory indicates, result in diverse resources. This is a typical reality for the positional categorical disproportions such as job position, level of educational attainment, and family size (Van Deursen & Van Dijk 2019). For

example, resources that are normally considered in digital divide enquiry, although under other labels such as economic, social, and cultural capital, comprise ownership, income, and access to a social network (Scheerder *et al.* 2017). As the theory indicates, the differences in Internet access that resources produce support imbalances of participation in people and therefore reflects on more disparities between people, positions, and resources (Reisdorf 2015).

The study is in line with the theory, since some institutions distributed learning device while others did not, and others do not have access to Internet, as a result of which they miss live-streamed lectures. The digital divide promotes inequalities in accessing reliable digital devices and Internet connection at home. Therefore, such students experience challenges with academic success, and their families are unable to provide a suitable environment with learning equipment. Students from low-income families disproportionately experienced lacks, and reliance on poorly functioning devices was linked with lower grade point averages (Gozalenza *et al.* 2018). Similar inequalities have also been found among students where research has revealed socio-economic differences in students' experiences with technology both at home (Robinson & Schultz 2013) and at their institution (Robinson 2014).

2   Methodology

The study is qualitative by nature, namely it investigates how the participants make sense of their realities and experiences. According to Rossman and Rallis (2016:5), 'Qualitative research is a broad approach to the study of social phenomena'. This kind of research takes place in a natural setting in order to understand better how people make meaning of the particular social phenomena through their experiences. In this research, the target population are lecturers and students that meet the set criteria needed for the research investigation (Alvi 2016:10). The participants in the study were purposively selected. Purposive sampling refers to "selecting participants with a particular criterion that will enable the researcher to answer their research question" (Waller *et al.* 2016:66). Qualitative research concerns itself with a thorough overview of a topic of interest through data collection (Naderifar, Goli & Ghaljaie 2017).

This research interpreted the data from the field on an epistemological position. According to Jackson (2013:53), "epistemology concerns the philosophical study of knowledge and the ground upon which we believe something to be true". By this, the researcher allowed the participants to

express their views regarding online learning and those very same views are informed by the different experiences they encounter. By analysing the data, the researcher used the interpretive approach to ensure that views of lecturers and students are captured in their true sense. The constructivist interpretive approach is concerned with the understanding of social phenomena from the perspectives of those involved. The process that transpires between the researcher and the participant is what creates the knowledge that feeds into the research question (Edward & Holland 2013:16).

For data gathering, the author conducted interviews with fourteen academics from various institutions and twelve interviews with undergraduate and postgraduate students in the humanities. The aim of this study is to find out how prepared the lecturers and students are for the changes brought about by Covid-19 to curriculum delivery, disruption of teaching and learning activities and institutional closures. The open-ended questions were asked in a way to allow the researcher (interviewer) to probe further for a better understanding of the study topic (Lune & Berg 2017:69). For this study, secondary sources based on historical research on the experiences of previous pandemics were also consulted, as well as publications from the medical and educational literature. An in-depth analysis of the responses was done to enhance the data collected from the participants using thematic analysis.

Qualitative data analysis is the interpretation and arrangement of material to change data collected into findings (Flick 2014:370). The collected data were coded and analysed to identify patterns that emerged from the responses. Braun and Clarke (2006:5) state that, "Thematic analysis provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex account of data". Thematic analysis was utilised to code the data and record patterns based on the participants' perspectives. When the author reviewed the data collected from the students and lecturers, five themes were commonly mentioned as the areas lecturers and students need to be prepared for before migrating to online learning. The following common themes are discussed broadly in the next section:

a) Preparedness for the institutional closures and teaching and learning activities;
b) Online learning versus classroom interaction;
c) Accessibility and convenience of online learning;
d) Technology as a tool for online learning post Covid-19; and

e) Students' perception of online learning.

The study complied with ethical requirements, i.e. the researcher made sure that the participants understood the purpose of the study and how their participation will be used to draw conclusions.

3 Discussing the Results

The researcher grouped the responses according to the identified themes to be able to compare the different views and perspectives. The themes that emerged from the data are as follows.

3.1 Preparedness for the Institutional Closures, and Teaching and Learning Activities

Regarding the preparedness and the institutional closures, the majority of the lecturers pointed out that the spread of the pandemic and institutional closure caught everybody by surprise, since institutions were not prepared at all. One lecturer indicated:

> *Through Blackboard and Moodle it has been easy as they are secure platforms. However, use of Zoom has been slightly problematic especially when not using passwords to protect participation. Besides, Zoom limits sessions to forty minutes which my students and I have found to be insufficient to deliver content effectively. We resorted to using Zoom for the lecture and then switching immediately to our WhatsApp class group for discussion and this has been more effective.*

Some indicated that their university has always encouraged blended learning, provided staff training and guidelines for teaching and now there is a report-back process to ensure compliance. Based on the above responses, preparing an institution for an unknown disaster, Sambala and Manderson (2017) argue that it extends beyond the improvement of the strategy to consist of an operation plan that indicates how the objectives of the strategy match existing resources, tasks and responsibilities, to meet the essentials of the people affected by the pandemic. Gozalenza *et al.* (2018) indicate that technological readiness is affected not only by access to and being able to afford digital

infrastructure (which means Internet and devices), but also by Internet skills and usage.

When students were asked about the level of preparedness, the majority indicated that students from rural and disadvantaged backgrounds are having difficulties in keeping up due to infrastructural predicaments such as network coverage in rural areas. One student indicated that,

> *Due to socio-economic inequalities, a significant number of under-privileged students cannot afford the constant purchase of data as some institutions do not allocate data allowances to students, and not to mention that some online learning systems are not user friendly. Unless such challenges are addressed, contact learning will remain an option until students from disadvantaged backgrounds are catered for.*

Horrigan's (2016) study has found that a little more than 50 percent of students felt unprepared, or unwilling when it came to digital readiness. Opinions concerning the technology and its effects on societal inclusion are reflected in the "digital divide" dialogue, with the evidence being that technological access offers benefits and that not having access to the technology has negative significances (Gozalenza *et al.* 2018). In a gradually connected and technologically innovative world, literature is concerned with those who do not have access to the Internet: digital divides (Van Dijk 2005; Warschauer 2004) and digital imbalances (DiMaggio *et al.* 2004; Hargittai & Hinnant 2008; Helsper 2011). Sambala and Manderson (2017) mention that studies that assessed preparedness showed that the majority of the African countries have plans that are inadequate, with many tasks necessary to address pandemic threats of the twenty-first century remaining unmet. This finding corresponds with studies that evaluated preparedness plans and responses to the 2009 H1N1 pandemic in Ghana and Malawi, where such plans were found to be weak and unable to elicit the most desired responses during the pandemic (Sambala & Manderson 2017). On the other hand, a study conducted by Ortu *et al.* (2008) reveal that the procedures lacked operational clarity and focus of the preparation purposes. The core argument of the theory is that personal (e.g., ethnicity, intelligence, and personality) and positional (labour position, education, household composition, and nation) differences across people produce inequalities in the distribution of resources (e.g. income, social network, intelligence, and status), which cause inequalities of appropriation.

3.2   Online Learning versus Classroom Interaction

Regarding online learning and face-to-face teaching, the majority indicated that in a regular classroom one can identify students who are struggling or disengaged. With face-to-face interaction, students can ask questions, take part in on-the-spot assessments, and even skits or role play. Another lecturer further elaborated*:*

> *Our students have not been taught towards online learning and are struggling. On campus, they have access to face to face lectures, the library, the Writing Centre and even consulting with tutors and their fellow students. Initially, the quality will go down, but I believe the quality will pick up once structures and equipment are up to-date with online learning.*

The study revealed that most of the lecturers are concerned that online learning will devastate many students who struggle face to face, while others indicate that it is ideal for students who may not be able to travel to campus. Some pointed out that, for employed people wishing to advance their education, online courses may be more accessible.

Few students indicated that material can be easily accessible, while the majority are in favour of classroom interaction. The majority of the students share the same view with some of the lecturers: *"Online learning is not possible for other institutions"*. One student mentioned that there are drawbacks to reading online versus classroom teaching, because the community at large is not well-prepared to navigate through the technological system as yet, combined with the fact that reading from a device is not good for one's eyesight. One elaborated:

> *There will be a drawback for students especially those coming from rural settings: they don't have access to computers and data, they may not have enough information about using Internet, and their home environment is might not be conducive for learning*.

The results indicate that some students do not always support online learning; they prefer to be taught using face-to-face interaction in a class setting. Theories of technology adoption suggest that one's attitude towards technology is crucial for owning it (Venkatesh, Morris, Davis & Davis 2003).

Negative attitudes decrease the likelihood that an individual will access the Internet (Reisdorf & Groselj 2017; Van Dijk 2005). On the other hand, positive attitudes might develop because of the potential benefits that it offers. Next, Van Dijk (2005) frames the concept of material access, which involves the opportunities and means to access the Internet. After having a positive attitude and acquiring Internet devices, one must acquire several Internet skills.

Hargreaves and Glynn (2009) argue that a traditional educational system centred on a physical structure and conceived in a relatively inflexible and hierarchical way may have difficulty creating and maintaining appropriately flexible delivery systems. Renes (2015) stipulates that some of the earliest works in distance education intended to meet the needs of the students transpired after World War II and the Korean War disruption. The author further elaborates that, among the alternative educational delivery systems explored during that time was the use of interactive radio; learning material were made available on tape; lectures were recorded; and students were taught using tutors, tape recorders, and the telephone. Veletsianos and Houlden (2019) argue that technological advances might make distance and online learning more widely accepted now than twenty years ago. It is a reality that online learning has been gaining responsiveness from higher education institutions and other sectors.

3.3 *Accessibility and Convenience of Online Learning*
Regarding the accessibility and convenience, one participant pointed out,

> *I have been using online learning to lecture at two universities that cater for two different social classes and I can say it is not easy. Students find it difficult to connect to online platforms. This is in terms of cost and network availability. It is also in terms of knowing how to use these online platforms. I am finding it difficult and tedious to mark online assignments, so, it is not as easy and convenient as it seems.*

Some students are in support of online education, since it limits traveling costs to attend regular classes and other costs related to the interaction between students and educators while others have a different opinion. One exclaimed,

> *Indeed, at the moment it costs more, because apart from the required*

> *devices that a student must have, the data prices are extremely high in SA compared to other countries, and also in terms of tuition fees; some may charge more for online learning.*

Others mentioned the issue of historical, economic imbalances, infrastructural difficulties, and the state of readiness for the 4th Industrial Revolution is not feasible for our economy, indicating that students from poor Black communities will first need to cater for technological devices, e.g. laptops.

Findings revealed that the experience is uneven, institutional closures were unexpected, students have limited or no access to some of the resources, and the material was unreachable, mainly due to connectivity-related challenges. Those technological struggles have consequences for students' academic performance. Gonzales *et al.* (2018) mention that access to information and the Internet has increased in current years, but technology-related disparities continue. Renes (2000) stipulates that institutions should be dedicated to,

> (a) increasing student access to devices;
> (b) improve student skills of understanding technology; and
> (c) improving issues of connectivity.

Such interventions are likely to ensure an increase in student enrolment and improve the chances for students from low income households to be successful in their studies. These findings are in line with Robinson's (2014) study, which reveals that technology-related strategies impact negatively on students from low-income backgrounds when they try to compete with higher-resourced students. Students of lower socio-economic status disproportionately experience hardships. This is an indication that institutions are far from ready.

3.4 Technology as a Tool for Online Learning Post Covid-19

Regarding curriculum post-Covid-19, one lecturer pointed out that post-Covid-19 teaching and learning have changed. We have unexpectedly embraced the Fourth Industrial Revolution.

> *I foresee more blended learning post-Covid-19 using technology and the rise of virtual classrooms, especially in higher education institu-*

tions. Use of Zoom and other platforms to foster this will be on the rise. Platforms like Microsoft meeting and even WhatsApp will increasingly be employed to foster this.

The majority indicated that even though they preferred to have more contact with students, the pandemic has forced them to revisit and value the use of technology. Other lecturers indicated that technology could be an invaluable tool post-Covid-19, but should not be limited to LMSs – other types to consider are Whatsapp, Facebook, etc.

Others indicated that some courses may need to be redesigned. The curriculum will greatly lean towards blended learning, and more so towards Block-release programmes underpinned by technology. One participant said:

This is bound to happen and I can say it is already happening as occasioned by Covid-19. I believe so as the seed has already been planted by Covid-19. It will be convenient and will cater for a wider range of students including those who may not have had time to attend traditional face to face classes. This has implications and will need to be underpinned by lower data costs.

The students also indicated that this is an era that demands the use of technology, and that the Covid-19 pandemic has forced the world into transformation. The continuation of the online learning approach is highly foreseeable, and the world is already in a revolution.

The findings revealed that the challenge now facing higher education is how to make online learning more stimulating, collaborative, and more inclusive than face-to-face interaction. Therefore, the effectiveness of educational technology depends on the strength of national network providers and connectivity to technology. Many institutions will be facing problems caused by contagious diseases. Educators who are at a serious health stage of the pandemic will often be away from work because of sick leave. As a result, their work will deteriorate, as they will not be able to give attention to their learners at all times, and syllabi will be left uncompleted (Fourie & Schonteich 2001).

3.5   Students' Perception of Online Learning
The majority of the students mentioned complaining, and experiencing severe

challenges regarding online learning. The inequalities that exist in the wider society also affect students. Besides, students in developing countries also need more support, which I feel face-to-face interaction provides. One lecturer pointed out that students, including middle and high-income students, and mostly NSFAS-funded students indicated that it was not ideal and that they still preferred face-to-face learning. As one student commented: "*If we wanted to study online we would have applied to study at UNISA*". At the moment, the students are resentful – which can be attributed to the notion of 'fear of the unknown'.

The students indicated:

> *For one to be able to answer this question we must first answer the question of institutional infrastructure, check the readiness of other institutions and come up with concrete solutions that allow all students to get equal opportunities no matter what their background is.*

They even indicated that some universities are not yet ready to introduce these systems in a manner conducive to all students to be realistic. They also pointed out that, on the part of the student populace it is highly impractical to fund all students with gadgets, knowing that we have limited funding from NSFAS, which is unsustainable, and has limitations, since it only caters for undergraduates, not postgraduates. They further indicated that they had not yet zoomed into the software part of the facilities where they could look at the issues of airtime, data bundles, and network points.

> *It is thus the reason why one can safely say 90% of the student populace from the above rural-based institutions are financially disadvantaged, which consequently makes the said percentage to be dependent on grants like NSFAS funding and NRF for post-graduates.*

Several studies reveal that, consistent with *the rich-get-richer* effect of media diffusion, digital innovations may aggravate societal disparities when the privileged exploit and embed digital technology in everyday social functioning, e.g. getting a job, or obtaining good results (Van Dijk 2005; Van Deursen & Helsper 2015). Related disproportions have also been found among students, where study has discovered socio-economic imbalances in students' capabilities with the Internet, both at school (Robinson & Schultz 2013) and at

home (Robinson 2014). Hargittai (2010) argues that unaccounted-for digital disparities may persist even with equal ownership and use. For example, low- and middle-income families with technology access are often 'under-connected' due to financial resources (Rideout & Katz 2016). Several studies have discovered that students from low-income families often rely on a range of devices that are borrowed, broken, unstable, o, without access to connectivity (Gonzales 2016; Gonzales *et al.* 2016). Robinson *et al.* (2015) indicate that the uneven distribution of resource requirements results in digital inequality supply, which contributes to socio-political inequality.

Based on the preparedness of the institutions, the results revealed that most of them were not prepared in terms of distributing digital devices to students, while Internet connectivity remained problematic. Those with a lower income are more likely to have Internet access only on their smartphones, whereas those with higher incomes have Internet access on smartphones and other devices such as laptops and desktops (Tsetsi & Rains 2017). Adequate and thorough preparation ensure that countries can respond immediately when a pandemic is declared (Evanson *et al.* 2018). Therefore, preparation plans need to make meaningful arrangements in addressing socio-economic inequalities such as education, because although most of the lower economic groups now use Internet technology, access is unstable and characterised by frequent periods of disconnection (Gonzales 2016).

4 Conclusion

The purpose of the study was to find out how prepared the lecturers and students are for the changes brought about by Covid-19 to curriculum delivery within the undergraduate and postgraduate programmes. The study has revealed that the present situation indicates the lack of institutions' readiness, because they have not been proactive as service providers. Higher Education will have to close the digital divide gap created by the inability to pay for Internet services. The study emphasises the critical need for all students to be in possession of all the necessary digital devices with access to a reliable internet connection. The institutions of higher learning need to develop a policy that will enable students to access financial aid and provide for digital technology costs to eradicate inequalities. The results also revealed that there is a huge gap between lecturers and students, since not all of students are familiar with the digital knowledge system. The study revealed that post-

Covid-19, contact teaching will no longer be the same as it used to be. There will be more blended learning post-Covid-19 and there will be a rise in virtual classrooms at higher education institutions.

As a way forward, the institutions need to cultivate competency by aligning the curriculum with appropriate technologies for online learning. The study recommends that institutions need to appoint coordinators as well as student representatives to prepare for unknown disasters. The institutions must prescribe a Plan for Emergency Situations according to which students and staff have to act in case of a major outbreak of diseases (Belgrade 2005). The study recommends that the institutions will have to look into all future unknown threats that may be disastrous as a result of unpreparedness. Unknown disasters can only be avoided through regular consultation with the umbrella bodies that are always vigilant to disruptive disasters that can result in institutional closure. Policymakers and institutional structures can acquire more information from the experiences of previous pandemic outbreaks.

Acknowledgments

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