Technology-based Teaching and Learning in Higher Education during the Time of **COVID-19**

Editors:
**Nobuhle Ndimande-Hlongwa, Labby Ramrathan,
Nhlanhla Mkhize, Johannes A. Smit**

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A list of 2020 published titles follows overleaf

*Alter*nation African Scholarship Book Series
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Ramrathan, L., N. Ndimande-Hlongwa, N. Mkhize & J.A. Smit (eds.). *Rethinking the Humanities Curriculum in the Time of COVID-19. Volume #01.*

Ndimande-Hlongwa, N., L. Ramrathan, N. Mkhize & J.A. Smit (eds.). *Technology-based Teaching and Learning in Higher Education during the Time of COVID-19. Volume #02.*

Mkhize, N., N. Ndimande-Hlongwa, L. Ramrathan & J.A. Smit (eds.). *Teaching and Learning in Higher Education in the Time of COVID-19. Volume #03.*

Smit, J.A., N. Mkhize, N. Ndimande-Hlongwa & L. Ramrathan (eds.). *Learner and Subject at the Dawn of Digital Humanities Online Research-Led Teaching and Learning. Volume #04.*

Amin, N. & R. Dhunpath (eds.). *(Re)Learning to Teach in the Context of Crises. Volume #05.*

Bob, U. (ed.). *The COVID-19 Pandemic: Impacts of the Corona Virus on Sport and Society. Volume #06.*

Manik, S. (ed.). *Sports amidst a Global Pandemic: Crisis, Capitulation and Creativity during COVID-19. Volume #07.*

Technology-based Teaching and Learning in Higher Education during the Time of COVID-19

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CSSALL
Durban

Preface

Emerging first in Wuhan, China, followed by its spread to other parts of the world, COVID-19 has had governments globally, systematically initiate a variety of forms of intervention, to curb its spread. These include lockdowns, the restriction of movement, forms of social distancing and sanitizing practices, as well as the requirement that citizens wear face-masks. Since the responses took place according to regional exigencies and directives, and were not uniform and equally comprehensive, internationally, they have also had diverse effects. Ranging from shortcomings in medical and health care provisioning, through economic downturns and fears of the increase in practices of governance surveillance, to the disrupting of schooling and tertiary education systems, sports, and cultural and religious events and practices, COVID-19 bodily, mentally, materially and socially, destructively affected the whole world as we know it. Apart from its continued deadly impacts, and barring the arrival of universally effective vaccines, the spectre of COVID-19's expected second surge with the arrival of winter in the northern hemisphere, also have populations across the world readying themselves to learn to live with the presence of infection on a continuous basis.

Given this very brief and though limited scenario, this Preface provides the context for the first seven volumes of the *Alter*nation African Scholarship Book Series (AASBS).

Focused on the impacts of COVID-19 on the Higher Education sector, especially from curriculum perspectives, at all levels and a sample of disciplines and subjects, the first four volumes were in principle conceptualised by the *Alter*nation Editorial Committee (AEC), on 31 March 2020.

This initial project problematisation has grown into twelve research groups with seven AASBS volumes, and five *Alter*nation Journal issues in production. Indications are that even if the world is rid of COVID-19 through vaccination – which might not happen in the near future – its impacts will be lasting. In the short to medium term we may also have to learn to live with the reality of the presence of the pandemic, and possibilities of infection and potential resultant death. These dynamics are being traced in the research, in, as well as outside academe, as we learn to transform and adapt to new realities, possibilities, risks, and drawbacks, of digital education and media.

In many ways COVID-19 brought communities of teaching and learning closer together across the usual social and professional divides. The hope is to ensure the optimal wellbeing for the greatest possible number of our fellow human beings (*Ubuntu*), and for staff and students to benefit from available existing and (digitally-) constructed resources. This outcome motivates each moment of our collective research-led teaching and learning, even though distance and disease threaten all.

The research produced by the *Alter*nation research groups constitute a small part of how academia attempts to both engage the conundrums and provide academic leadership amidst the effects and educational and learning opportunities of COVID-19. And for this we want to thank the lead-editors and their teams, as well as all the colleagues from across southern Africa who have responded positively, and affirmatively to our call.

And for their endeavor, and sleepless days and nights of rescuing our sick, and caring for those passing away, we want to dedicate these, the first number of volumes of our *Alter*nation African Scholarship Book Series, to our courageous medical staff, those who provide comfort, relief and succor to our sick and those passing away, as well as the singular worker, mostly unrecognized, that kept the wheels of life and optimal wellbeing turning. Thank you, colleagues. And go well. *Siyabonga, hamba kahle!*

Prof Johannes A. Smit
Editor-in-Chief: AASBS

Contents

❧❧❧❧❧❧❧❧❧

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Editorial

Technology-based Teaching and Learning in Higher Education during the Time of COVID-19

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The Covid-19 pandemic resulted in governments around the world implementing lockdown measures, a state of the emergency protocol, aimed at restricting the movement and gathering of people resulting in mass quarantine and stay-at-home across the world. It is an undebatable fact that such measures affected the normal operations of higher education institutions, among other spheres of life. However, it is important for higher education institutions to view this pandemic as an essential adaptive and transformative challenge that requires academics and institutions to be innovative and design appropriate responses, with specific contexts in mind. With the unexpected move away from the physical classroom in many parts of the globe, some were left wondering whether the implementation of online learning by different institutions globally would be maintained post-pandemic, and how such a change would impact on teaching and learning in higher education.

The first phase of the lockdown in South Africa began on March 26 until 30 April 2020 (Alert level 5). This happened as per Government Gazette No. 43096, Government Notice No. 313 of 15 March 2020. The country went on alert level 4 from 1 to 31 May 2020. This was extended by Government Notices Nos. 646 of 5 June 2020. The third phase was from 1 June to 17 August 2020 (Alert level 3). The fourth phase began on 18 August 2020 to 20 September 2020 (Alert level 2). At the time of the publication of this book, South Africa was on alert level 1 which began on 21 September 2020. The alert system was introduced in order to manage the gradual easing of lockdown in the Country as gazetted on 7 August 2020 and amended on 18 September 2020 as per Government Notices, Department of Co-operative Governance, 18 September 2020, concerning the Disaster Management Act of 2002. The importance of maintaining social distancing ensured that the virus did not spread fast and easily. Most governments in Africa followed suit immediately after South Africa declared its first phase of the lockdown in March 2020.

As the Covid-19 ran its course, most universities shifted from traditional to online teaching and learning. The use of technology ensured that year 2020 was not lost through the adoption of new ways of teaching and learning. The Webanywhere website accessed on 30 November 2020 identified 6 benefits of using technology in the classroom, namely: 1) technology improves engagement; 2) improves knowledge retention; 3) encourages individual learning; 4) encourages collaboration; 5) students can learn useful life skills through technology; and 6) benefits for teachers.

In a higher education environment, technology can encourage active participation in the learning process. This is usually a challenge to manage in traditional lecturing. Technology allows students to pace their own learning by providing them with unlimited access to content (Reed 2019). In terms of knowledge retention, different forms of technology can be used to experiment with and decide on what works best for students in terms of retaining their knowledge. Technology also provides great opportunities for making learning more effective for everyone with different needs including disabled students. There are many challenges facing students in higher education, however, students with disability face additional challenges that are linked to learning support and infrastructure (Mudau, Netshisaulu & Ncube 2019).

This volume is therefore an attempt to document experiences of University lectures and scholars on the use of technology to support teaching

and learning including assessment in Higher education during the time of COVID-19. In particular, the different chapters explore the opportunities and challenges of switching to online teaching and learning platforms. Although the central theme of this book is technology-based teaching and learning in Higher Education, the topics pursued by the authors will appeal to a wide audience interested in the role of technology for teaching and learning and how technology has led to the transformation and decolonization of curriculum at South African Higher Education Institutions (HEIs) (Nyamnjoh 2017).

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In **Chapter 1**, **Nelly Mwale** and **Joseph Chita** use the example of a public university in Zambia to investigate programme delivery and the responses of students to the adoption of e-learning. Drawing from the technology acceptance theoretical framework, the study found that while the students' responses were characterised by both reluctance and acceptance of e-learning, the students did not express misgivings about e-learning, except for barriers to accessing it – some of which were beyond institutional control, but situated in the wider context in Higher Education provision in the country. The authors conclude that the students' responses were driven by the perceived ease of the use of e-learning platforms on the one hand, and the perceived benefits of e-learning on the other.

While significant advances have been made in the use of e-learning technologies for teaching practicals, some challenges still need to be addressed. It is against this background that **Sershen, Ivan Stojšić,** and **Suveshnee Munien,** in **Chapter 2**, draw on examples from various developing and developed parts of the world, and identify the advances, challenges and recommendations associated with teaching practicals remotely. The chapter focuses on the review of current virtual platforms and digital tools. Additionally, it offers some commentary on the preparedness of lecturers and learners in the higher education sector to embrace e-learning technologies for teaching practicals. These authors provide recommendations on how these remote teaching and learning tools may assist students to acquire and practise essential manipulative and process skills, and help teachers move concepts from an abstract into a concrete setting.

In the wake of the rapid spread of the novel coronavirus (COVID-19) across the globe, the World Health Organisation (WHO) declaring this

pandemic a global disaster, and the South African government declaring the pandemic a national disaster, **Nomalungelo Ngubane, Sibonelo Blose, Pinky Mthembu,** and **Tholani Hlongwa,** in **Chapter 3**, reviewed the dynamics that academics experienced in finding effective ways of providing timeous learning for all students, irrespective of their geographical locations. Underpinned by the dialogism theory and through the use of narrative inquiry methodology, the study explored emerging academics' experiences of transitioning from face-to-face to online teaching at a higher education institution. The findings show that the COVID-19 pandemic forced the participating emerging academics to migrate from their familiar zone (on-campus face-to-face contact teaching) to an unfamiliar zone (online teaching within the confines of home), wherein they sought new innovative ways of engaging remote teaching and new skills.

      Chapter 4 introduces the concept of the fourth industrial revolution and raises concern over the inadequate preparation and lack of readiness on the part of some developing nations to participate in this revolutionary move-ment. Authors **Peter Merisi** and **Ansurie Pillay**, in this particular chapter, explore how academics understand the possible opportunities that may be harnessed in the higher education sector in the course of the present pandemic and how these may pave the way for the 4IR, while fully understanding the many challenges. Underpinned by an interpretive paradigm and qualitative research approach, this study uses a technology acceptance model to consider the responses of academics at a higher education institution. The findings reveal that while academics understand the challenges presented by the pandemic and the imperative to teach differently, they recognise various educational opportunities that have presented themselves in terms of learning new teaching methods, becoming more caring academics, working differently, and recognising the imminent approach of the 4IR.

      One of the first responses by Nelson Mandela University in the face of COVID-19 was to encourage lecturers to switch to online teaching as different approaches to teaching and learning are imperative in this environ-ment. Thus, in **chapter 5, André du Plessis** and **Sylvan Blignaut** propose a strategy that does not require the sole utilisation of e-learning platforms. They posit the off-line design of an artefact that can be shared by all students as part of their learning experiences. While they support the utilisation of e-learning platforms and social media tools, they argue for the utilisation of ICT tools that promote meaningful learning, steering away from lecturers

simply lecturing online through videos and the completion of online tests.

In **Chapter 6, Nosipho Mbatha** explores the effectiveness of social media, in particular Facebook, as an alternative teaching and learning tool in during the Covid-19 pandemic. The chapter draws from the community of inquiry framework, (Garrison 2017) to argue that Facebook already possesses the necessary features that can aid teaching and learning. The author recommends that this platform be used as a short-term response while institutions are preparing their staff and students for online teaching, learning and assessment.

In response to the COVID-19 pandemic impact on the traditional face-to-face approach to teaching and learning, and the challenge for a swift shift towards greater use of e-learning platforms, **Vitallis Chikoko** in **Chapter 7** reports on and reviews his use of WhatsApp through an examination of evidence from a study of the efficacy of using WhatsApp as the main teaching-learning approach in delivering a Master's module. Through the use of the Asset-Based Community Development (ABCD) theory and the Activated Classroom Teaching Approach (ACT), the findings showed that students were very comfortable and actively used WhatsApp for learning, and the module's learning objectives were achieved. He concludes that this platform is capable of engaging students in deep learning although information over-load and if not well-managed, can lead to chaos.

In the context of the disruption to tertiary teaching and learning, **Fortune Sibanda** and **Tenson Muyambo** in **Chapter 8** examined the nature and impact of the programme delivery and assessment interventions in the context of the COVID-19 crisis at one Higher Education Institution in Zimbabwe (HEIZ)'s Religious Studies class in an undergraduate programme at its School of Education. The study posits that the pandemic caused bewilderment regarding the nature of programme delivery and assessment at this institution, but at the same time it is set to transform the approach to teaching and learning through embracing online models such as Google classroom and video conferencing platforms. The findings revealed that the email platform was hugely utilised for student assessment and lecturer feedback, whereas WhatsApp was popular with sampled students because of convenience, accessibility, efficiency and affordability to them. In addition, it was found that while the Google Classroom application was the least utilised by students due to its novelty to most students, lecturers preferred it as the best/ potentially most effective mode of programme delivery and assessment.

Understanding the level of preparedness for unforeseen disasters at institutions of higher learning in South Africa was **Joyce M. Mdiniso focus** in **Chapter 9**. Her study aimed to find out how prepared the lecturers and students were for the changes brought about by Covid-19 to curriculum delivery within the undergraduate and postgraduate programmes. The results of the study revealed that institutions of higher learning were not prepared. She argues that 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. As a recommendation, institutions need to appoint coordinators as well as student representatives to prepare for the unknown disasters.

Finally, **Nobuhle Ndimande-Hlongwa**, **Sakhile Gumede**, and **Siphindile Hlongwa,** in **Chapter 10,** review initiatives to mitigate the disruptive impact of COVID-19, with particular focus on one of the primary festivals organised annually by the UKZN Centre for Creative Arts (CCA). Due to the social distancing and later lockdown pronounced by the President of South Africa in light of the predicament presented by the COVID-19 pandemic, the Time of the Writer festival 2020 shifted from physical to virtual contact and engagement. The central argument is that while COVID-19 is affecting both our local and global society, the people who connect us with our humanity, are our artists. Thus this chapter explores the methods used to deliver the virtual Time of the Writer festival. These methods ranged from live recordings, to live sessions on social media platforms like Instagram, Twitter, YouTube, and Facebook, as well as the use of radio stations. It is recommended that methods used to deliver the Time of the Writer virtual festival be considered in delivering emergency remote teaching and learning in Higher Education Institutions.

In addition to these very incisive chapters, we may add that one of the most useful features of the use of digital tools in teaching and learning, is that students can return to lectures, or the relevant parts of lectures and study materials that are digitally available. So, this is a very big plus, concerning the now old-fashioned, and out-dated, one-time verbal lecture delivery systems, at universities, where students have to make notes from verbal presentations only. Switching to technology-based teaching and learning, using primarily digital media innovations during the time of COVID-19, have doubtlessly fast-tracked the creative use of a wide range of information technology systems to propel teaching and learning into the future.

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Higher Education and Programme Delivery in the Context of COVID-19 and Institutional Closures: Student Responses to the Adoption of e-Learning at a Public University in Zambia

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Abstract

Using the example of a public university in Zambia, the chapter explores how students responded to new modes of programme delivery in the context of Higher Education institutional closures and COVID-19. It draws on the technology acceptance theoretical framework and an interpretative case study, which was informed by the thematic analysis of documents and interviews with selected university students as end users of e-learning. The chapter shows that while the students' responses were characterised by both reluctance and acceptance of e-learning, the students did not express misgivings about e-learning, except for barriers to accessing it (some of which were beyond institutional control, but situated in the wider context in Higher Education provision in the country). It concludes that the student responses were driven by the perceived ease of use of e-learning platforms on the one hand, and the perceived benefits of e-learning on the other, and recommends that specific contextual realties of students as end users for the effective implementation of e-learning should be taken into account. It therefore contributes to emerging global discourses on the impact of COVID-19 on Higher Education systems and provides insights for enabling institutions to evaluate their responses in programme delivery during pandemics.

Nelly Mwale & Joseph Chita

1.0   Introduction

The following research question is explored in this chapter, 'How did students as end-users of e-learning respond to the adoption of e-learning at a public university in the context of shifting programme delivery modes in response to institutional closures occasioned by the COVID-19 pandemic?'

First reported on 31 December 2019 in a wet market in Wuhan, China, the Ministry of Health (MoH) confirmed its first two cases of COVID-19 in Zambia on 18 March 2020 (MoH, Press Statement, Zambia National Broadcasting Corporation [ZNBC]). The outbreak of COVID-19 affected various sectors differently. For the field of education, the Government of the Republic of Zambia (GRZ) announced the closure of all schools, colleges, and universities to enhance the prevention of the spread of COVID-19 in the country. Consequently, all educational institutions closed on 20 March 2020 and institutions of Higher Education soon passed statements of migrating from physical face-to-face teaching and learning to digital platforms. For example, in a press statement, the University of Zambia (UNZA) announced that at its senate meeting held on 18 March 2020, the UNZA Senate resolved that the institution would close on 20 March, following the directive and guidance from the MoH and that during the closure, learning would continue through e-learning platforms such as Moodle and Astria (Wamudila 2020). Similarly, other institutions of higher learning migrated to e-learning.

Despite these shifts in programme delivery in Zambian Higher Education, there was limited scholarly attention to the learning experiences of end-users. The inquiry into how students responded to the adoption of e-learning in the context of a public university was thus ignited by lapses in discourses about the pandemic in Higher Education in the country. For example, while scholarship on the COVID-19 global pandemic and digital learning was on the increase in 2020 in places like China and Australia (Iwai 2020; Agnoletto & Queiroz 2020, among others), in the Zambian context, discourses of COVID-19 and education, and Higher Education in particular continued to attract media attention, but without scholarly engagement relating to students' responses to

programme delivery modes in the context of COVID-19. The interaction of the pandemic and education was also concentrated on the lower levels of education in which studies such as those by Sintema (2020), and Mulenga and Marbán (2020) focus on the effect of the pandemic on the performance of Grade 12 learners with reference to STEM subjects and COVID-19, respectively, as a gateway for digital learning in Mathematics education.

The inquiry also sought to complement emerging international school-arship on COVID-19 and Higher Education (Murphy 2020; Naciri *et al.* 2020; Sahu 2020; Toquero 2020; Zhang *et al.* 2020). For example, Bao (2020) explored the online teaching experiences for university instructors using a case study of Peking University in China. He advocates five principles for online education (high relevance between online instructional design and student learning; effective delivery on online instructional information; adequate support provided by faculty and teaching assistants to students; high-quality participation to improve the breadth and depth of students' learning; and a contingency plan to deal with unexpected incidents of online education platforms). Murphy (2020) focuses on COVID-19 and emergency e-learning with reference to the consequences of the securitisation of Higher Education for post-pandemic pedagogy by analysing 25 declarations of emergency e-Learning at American universities and argued that the desecuritisation of face-to-face schooling was imperative for the future possibility of emancipatory pedagogy, whether face-to-face or online. Additionally, Toquero (2020) analysed the challenges and opportunities for HEd amid the COVID-19 pandemic using the Philippine context. Toquero (2020) not only recommends studies to proliferate and document the impact of the pandemic to the education system, but also calls for strengthening practices in the curriculum, making it more responsive to the e-learning needs of the students beyond the conventional classrooms.

The chapter therefore takes the view that understanding students' responses to the adoption of e-learning programme delivery modes amid COVID-19 pandemic is essential, not only to the teaching staff, but also to institutional leadership for developing practices that are adapted to local Higher Education contexts and aligned to global best practices. The chapter unfolds by providing a brief context of Higher Education and e-learning in Zambia and the methodological and theoretical orientation, before exploring how students responded to changes in programme delivery during institutional closures in the context of the COVID-19 pandemic at a public university.

2.0   Context of Public Higher Education and e-Learning in Zambia

The provision of Higher Education has been documented ably by scholars who have addressed aspects such as: Financing (Seshamani & Shalumba 2011; Menon 2012); and current provision (Masaiti & Mwale 2017; Masaiti & Simuyaba 2018; Mwale & Simuchimba 2019). As of 2017, the country has 68 universities (of which 7 are public and 61 are private), 304 Technical Education, Vocational and Entrepreneurship Training (TEVET) Colleges (of which 25 are public and 278 are private) (Higher Education Authority 2017).

With reference to the conclusions made by scholars such as Sy Habib (2003), Damtew and Altbach (2004), and Sichone (2006), the challenges of African Higher Education institutions include: a shortage of faculty and poor faculty development; poor and unstable governance, leadership and management; problems with quality and relevance; weak research and innovation capacities and facilities; financial austerity and an incapacity to diversify funding resources; poor physical facilities and infrastructure; and low access and equity. Zambia's Higher Education is characterised by a myriad of challenges similar to those outlined above. For example, Nkanza (2019) observes that the major challenges of the sector continue to be: improving educational and learner support infrastructure; design, testing, and implementation of new curricula and academic programmes; recruitment, retention, and motivation and the development of a well-trained faculty; increasing access for disadvantaged populations; and conducting both basic and applied research. Research funding continues to remain low in ways that do not sustain basic and innovative research (Masaiti & Mwale 2017). All these challenges have implications for the changes in the programme delivery within the context of COVID-19.

2.1   e-Learning Context in Zambian Higher Education

The chapter is also situated within the e-learning and higher education landscape in Zambia. The initiatives of e-learning in higher education were not new, but closely linked to the introduction of the National Research and Education Networks (NRENs) and the Zambia Educational and Research Network (ZAMREN), which sought to provide opportunities relating to increased access to internet bandwidth, resources through e-libraries and

research collaboration. In the case of NRENs, a federated identity service was provided to member institutions through education roaming (EDUROAM) and high-performance computing, coupled with cloud computing (Chembe *et al.* 2014). This facilitated connectivity to the internet, where the service was deployed for every user registered with the member institution, both within and outside the country. Besides the availability of NRENs, three public universities (UNZA, Copperbelt University and Mulungushi University) collaborated in setting up ZAMREN, a non-profit association with the intent to provide inter-institutional connectivity and collaboration among Zambian researchers and educational institutions. It initially became operational with these three public universities in 2012, and by 2016, it had been rolled out to other 78 institutions (ZAMREN 2016).

Despite these initiatives, the uptake of e-learning was slow, owing to numerous factors. For example, Kunda, Chembe and Mukupa (2018), in their study on the factors that influence Zambian Higher Education lecturers' attitudes towards integrating ICTs in teaching and research, they conclude that lack of adequate internet bandwidth, hardware (in terms of computers for both lecturers and students), and appropriate ICT infrastructure are the major barriers to assimilating ICTs in research and teaching in Zambian Higher Education. Although not providing the basis for adopting e-learning, the findings by Kunda *et al.* (2018) are closely related to the e-learning context provided by Chitumbo and Chewe (2012) at UNZA, in their study on the potentials and challenges of adopting the Moodle e-learning software. The duo conclude that the majority of the UNZA community expressed willingness to support its adoption. The challenges identified are that the adoption of Moodle would be impeded by:

> Poor or limited connectivity; that is, slow internet connectivity due to small bandwidth; limited number of computers provided by the University for the purpose of internet access by students; students' lack of personal computers; poor and limited internet facilities in terms of infrastructure and internet access points; apathy or poor attitude towards ICT use by some people and rigidity to change (especially old staff); computer illiteracy (Poor ICT skills) among some users (students & lecturers); poor funding to enable connectivity improvements; and lack of awareness (Chitumbo & Chewe 2012:7).

Akakadelwa and Mkulama (2017) also explored students' acceptance, experiences, and satisfaction of online learning using the case of Library and Information Science students at UNZA who were taught a compulsory second-year course using Moodle at the end of their academic year. They observed that the perceptions of the students were positive, while the major challenges encountered in the use of the platform included poor and slow Internet connectivity, restricted access to Moodle, lack of timely feedback from lecturers, difficulties in uploading assignments, login problems, frequent failure of the Moodle server, inadequate training in the use of Moodle, and lack of technical support.

The foregoing studies show that challenges surrounding e-learning in the Zambian Higher Education context are constant and hence considered significant for shaping student responses to the adoption of e-learning modes of programme delivery during the COVID-19 pandemic.

2.2 E-Learning as a Higher Education Response to Institutional Closure in Zambian Higher Education

In the wake of the closure of various institutions in Zambia owing to COVID-19, institutions of higher learning responded by adopting alternative means of learning through e-learning platforms such as Moodle and Astria. UNZA, like other tertiary institutions, responded by adopting e-learning in the delivery of its programmes. This move accelerated the already existing plans for e-learning as envisioned in institutional strategic directives (UNZA Strategic Plan 2017:24). This migration came with conditions such as those relating to access of the platforms. This means that only registered students would be able to access the e-learning materials and other online services, and registration remained open to enable students to pay their fees (UNZA Press Release 19 March 2020). This went hand in hand with the creation of links for more e-resources to the already existing e-libraries in institutions.

To enhance universal access to the internet, negotiations took place with Internet service providers, and the result was the zero-rated deal with MTN as a mobile service provider. In this regard, MTN Zambia collaborated with the UNZA, Copperbelt University and Mulungushi Universities to provide free access to online learning platforms in order to enable students to study from home during the COVID-19 pandemic.

In view of the constant challenges surrounding the uptake of e-learning before the outbreak of COVID-19 in Zambian Higher Education and institutional full implementation of e-learning during the pandemic, it became imperative to understand how students responded to the adoption of e-learning.

3.0   Research Design and Methods

The chapter is informed by insights that were drawn from an interpretative case study. Barker *et al.* (2002) suggest that exploratory questions are suitable as the basis for qualitative inquiry and are used when little is known in a particular research area. Consistent with aspects typical of data collection in interpretive case studies, as provided by Miles and Huberman (1994), data collection was driven by the specific research questions centred on exploring the responses and experiences of students to the adoption of new modes of programme delivery during institutional closures in the context of COVID-19 at a public university in Zambia.

The primary method of data collection was interviews supplemented by document reviews, which included institutional reports on institutional websites and newspaper articles. Given that the inquiry was undertaken during institutional closures and lockdowns characterised by physical distancing, telephone interviews were used to collect data from the participants. Consistent with recommendations for interpretative case studies that non-probability sampling is more appropriate in interpretive case studies (Kothari 2004: 56), the selection of participants and the higher education institution was purposively done. The participants included 20 (10 females and 10 males) students drawn from one of the old public universities, using the inclusion criteria of those representative in any first-, second-, third-, and fourth-year course and falling in the age bracket between 17 and 30 years old.

Access to the participants was facilitated through telephone communication. The participants' geographical locations were not a factor, although the categorisation of students based on their residence later showed that the selected participants were largely drawn from the Copperbelt, Eastern, Lusaka, North-Western, Southern and Western Provinces. Using student associations' representatives as gatekeepers, the researchers were able to engage with 20 different students whose details were shared by the first contact. The selection of 20 participants was not for purposes of generalisation, but for providing depth into how the institutional programme delivery was experienced by the

end users. The focus was also on students, because they were considered as end users of digital learning. As observed by Ozkan and Koseler (2009), the stakeholders of e-learning include learners, faculty, administrative and technical staff and employers. Thus, it was assumed that their responses to the adoption of e-learning and experiences of e-learning during COVID-19 would provide insights enabling institutions to evaluate their responses in programme delivery during pandemics in the Zambian context.

Data were analysed inductively using the general framework for interpretive qualitative research suggested by Barker *et al.* (1994). The data were therefore thematically analysed through a search for common themes that transcended the data alongside an interpretation of the themes. This is similar to the method suggested by Braun and Clarke (2006: 77-101), which involves the generation and application of codes to the data, and the identification, analysis and report of patterns (themes). Ethical considerations stressed by scholars such as Bryman (2004) relating to confidentiality, informed consent and anonymity were kept in check. Pseudonyms are used to represent the voices of the participants.

4.0   Theoretical Framework

The chapter employs the technology acceptance model, an information technology framework for understanding users' adoption and use of emerging technologies as a theoretical framework to explore student's responses to an institution's adoption of e-learning during the COVID -19 pandemic at a public university in Zambia.

The Technology Acceptance Model (TAM) is an adaption of Theory of Reasoned Action (TRA) that is tailored for modelling user acceptance of information systems (Davis *et al.* 1989: 985). The Reasoned Action (TRA) theory advanced by Fishbein and Ajzen (1975) from social psychology is concerned with the determinants of consciously intended behaviours. Accordingly, a person's performance of a specified behaviour is determined by his or her behavioural intention to perform the behaviour. The behavioural intention is jointly determined by the person's attitude and subjective norm concerning the behaviour in question (Fishbein & Ajzen 1975).

As a framework, TAM is anchored on two fundamental constructs, namely perceived ease of use (PEOU) and perceived usefulness (PU). According to Davis (1989), perceived ease of use is the degree to which a

person believes that using a particular system would be free of effort and perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. The perceived ease of use and perceived usefulness are also driven by system design and features and effort decreasing (Moore 2012), respectively. Based on this, perceived usefulness and perceived ease of use jointly explain the attitudes towards using technology. Similarly, perceived usefulness is linked to the user's behavioural intention in using technology while intention to use also determines the actual use of technology. Accordingly, it posits that a person's intent to use (acceptance of technology) and usage behaviour (actual use) of a technology are predicted by the person's perceptions of the specific technology's usefulness (benefit from using the technology) and ease of use (Portz *et al.* 2019). Perceptions of usefulness and ease of use are mediated by external factors such as individual differences, system characteristics, social influences, and facilitating conditions.

TAM is considered one of the popular models related to technology acceptance and use and, according to Park (2009), it has shown great potential in explaining and predicting user behaviour of information technology. Notwithstanding its limitations such as those relating to the difficulty of measuring behaviour, as hidden personality traits often motivate behaviour (Ajibade 2018), the TAM has been used, because it aids the explanation of use of ICTs by end users. As observed by Ajibabe (2018), TAM is suitable or practically applicable for individual use and the adoption of technology. It was also used because of the interconnectedness of e-learning and ICTs. In this regard, while e-learning is often understood as any learning that involves using the internet or intranet (Fee 2005), this chapter approaches the concept of e-learning from the perspective that the 'e' in e-learning should not stand for electronic; but is rather an abbreviation for evolving, enhanced, everywhere, every time and everybody (Li & Masters 2009). It is acknowledged that e-learning has been driven rapidly by the increasing availability of computer hardware and the internet (Kirkpatrick 2001).

5.0 End Users' Responses and Experiences of E-Learning as an Emergency Response during COVDID-19 Pandemic

The full implementation of e-learning as facilitated by institutional closures amid the COVID-19 pandemic was experienced differently by different end

users. These experiences were clouded by the perceived challenges and future prospects for efficient delivery of programmes, which revealed the student's willingness on the one hand, and reluctance on the other hand, to embrace the new modes of programme delivery during the pandemic. This signified that experiences of the adoption of new modes of programme delivery were largely shaped by the end users' context.

5.1   Reluctance to Embrace E-Learning

The broader theme on reluctance to embrace e-learning was characterised by concerns on access to e-learning platforms; lack of ICT hardware, connectivity and power outages; and unpreparedness for e-learning.

5.1.1   Access only to Registered Students

While access to e-learning was only offered to registered students as a condition, it was a topical theme that formed part of the student responses and experiences in the initial full implementation phase. In a context where most students were able to attend lectures even without registration in the face-to-face delivery mode, the institutional safeguards of only making e-learning accessible to registered students entailed that not all students would access lessons.

The immediate reaction to the adoption of e-learning was met with resistance from the students' body, who staged a campaign against the adoption of e-learning as captured in the campaign message. In their submission to the Ministry of Higher Education, the Student Union observed that:

> e-Learning is not feasible, as many factors hinder the success of this provision because the University is a pro-poor institution ... many students are not yet registered, which defeats the purpose of the provision, as only registered students will be able to access the E-learning platform (*Lusaka Star* 2020).

Other student participants noted the following:

> It is not fair for only a small percentage of students to access the e-learning platforms, while others suffer due to circumstances beyond

their control (Mwalye & Simichimba 2019).
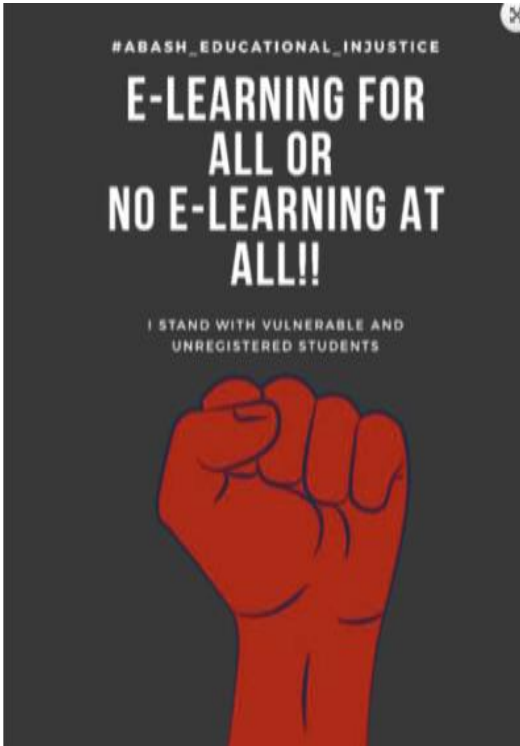
Source: *Lusaka Star*, 12 April 2020

The Counter argument was:

E-learning is good, because we are left with no option. The only thing is that it is not accessible to everyone …. For example, not all students have registered. I am one of the students who are not on a government sponsorship and I did not manage to pay. Due to COVID-19, my parents were laid off, because the company has sent some of its workers away, meaning my dad is not working now. We do not know when the lockdown will be lifted and whether he will resume work. So, I have not paid my university fees and I cannot access e-learning. How I wish it were possible that e-learning could just be as normal lectures where everyone is included (Kala).

And,

> E-learning is a useful tool in times like these, but I am not registered. If it were possible, e-learning could be just as normal as lectures [physical or face to face] where everyone is included, whether registered or not (Wizo).

It is such narratives of students who were not registered and could therefore not access e-learning that explain the student union's arguments as captured in a daily tabloid:

> e-Learning will only serve its intended purpose if it is inclusive by being readily accessible to all students and in the process leaving no one behind (*Lusaka Star* 2020).

Other sentiments surrounding reluctance to embrace e-learning were also centred on solidarity, with others as expressed in the following.

> Not everyone can access e-learning platforms, only those who have paid. So like myself, I am registered and in most times, friends who have not paid their fees often ask that I share information with them. So I am sure many others are left behind (Tasha).

> e-learning is not inclusive in our context. There are people in rural areas even in urban areas who do not have smart phones … how will such people access it (Lasa).

> It was going to be a good idea if everyone or almost everyone had registered but since others are still struggling with where to get the money to pay … I am having second thoughts about e-learning at our university. Some students are poor and cannot afford to settle their fees. By the time they will be paying their fees, they would have been left behind (Bupa).

Similarly, the national student body known as the Zambian National Students Unions (ZANAZU), after their online student survey, reported in the daily tabloid that the popular view among students was that the use of e-platforms has only been an advantage to a few students, while the majority are left behind (*Lusaka Times* 2020). While these experiences and reactions are justified and raise social justice issues, it is also true that in the wake of public financing challenges, especially of higher education in the country, student fees remained a key source of funding.

The students' reaction to the adoption of e-learning characterised by reluctance owing to the perceived limited access to the e-learning platforms, affirms the principles of the TAM in which users are perceived to accept technology based on their perceived ease of use. Given that the use of e-learning was perceived to be impeded by one's status as a registered student or

not, not all student participants expressed willingness to embrace e-learning, owing to perceived limited access to the platforms. This also agrees with TAM that one of the main mechanisms underlying perceived ease of use is system design and features (Moore 2012), in which case, the restrictions based on a student's registration status as tied to the design of the platform was closely associated with student willingness and acceptance of e-learning. This scenario agrees with the conclusion by Pituch and Lee (2006) that system characteristics have bearing on e-learning system use.

While online learning was being touted as the only and best possible solution to the problem of access to quality higher education in Sub-Saharan Africa in existing literature (Asunka 2008) and tied to offering a greater access to learning resources (Sener & Stover 2000), the insights drawn in this study point to the need to link access to Higher Education and e-learning to notions of equity and social justice. Existing literature also indicates that, depending on the context, students have different levels of access to various e-learning technologies, for example, it can be from home, workplace, university, or other places (Bates 1994; Hoven 2000).

5.1.2 *Lack of ICT Hardware, Connectivity and Power Outages*

Other responses to the adoption of e-learning aligned to reluctance to embrace e-learning were related to lack of ICT hardware, poor connectivity and power outages affecting the student's effective use of e-learning platforms. In this regard, the student participants' responses to e-learning and experiences of e-learning were firstly shaped by limited and non-availability of ICT hardware. For example, some participants expressed the following:

> Not everyone has a smart phone, worse still a laptop. This means not everyone will be able to learn. On campus, it is easy because we use institutional computers or even borrow from our friends. Now with this lockdown, it means if one has no gadget, they cannot learn (Wizo).

> For me, I do not have a laptop and when on campus, I usually use the school laptop or laptops of friends. So being home, accessing e-learning resources will be difficult because I do not have a smart phone too (Zano).

> As shown in previous studies such as by Kunda *et al*. (2018), lack of

adequate internet bandwidth, hardware (in terms of computers for both lecturers and students) remained significant in accounting for the manner in which students responded to the adoption of e-learning during the COVID-19 pandemic. These insights support the argument raised by Fisser (2001) that for successful e-learning implementation at institutions of higher education, institutions must ensure that appropriate technologies are available for all instructors and students and that there should be enough facilities and sufficient access to these facilities. While this could easily be done, the COVID-19 context which prompted institutional closures called for rethinking in the ways in which ICT hardware could be provided to students while they studied at home.

Besides ICT hardware-related factors, some students expressed reluctance to embrace e-learning, owing to limited internet connectivity. Some students also recounted:

> I live in an unelectrified area and the Internet is weak here and this makes it difficult to access e-learning platforms (Muse).

> Where I live, internet connectivity can only be accessed in the *Boma* area, so I need to find resources to enable me to travel from my village to the *Boma* for the internet. So, I only travel once in a while to connect and access learning materials. I am lucky that I am only in search of internet connectivity, I have friends who do not even have smartphones or laptops (Tina).

> Poor internet is a big challenge. Sometimes phones are off due to lack of power while lessons are being conducted or work is being posted on various online (Vika).

> Network connection for some of us is very poor, it makes learning a dream. A lot of people are missing out (Zano).

Sentiments related to power outages were expressed through the following:

> The current electricity issues we are facing as a country is making e-learning difficult (Janza).

Load shedding is an issue especially that we are used to having no power outages on campus. Power goes for a long time, sometimes for 10 to 15 hours a day, so it's really a challenge but we try to make up for the time though it's not easy (Buna).

We have load shedding for long hours each day and this means that our phones and laptops are off most times. This causes delays in writing assignments and even attending online lecturers (Tamu).

These sentiments show that the success and uptake of e-learning were shaped by the context. For example, Mubanga (2017) affirms that for developing countries like Zambia, the low application of ICT, low internet access, inadequate skills (for both learners and instructors) and poor technological infrastructure, particularly in the rural areas, remain huge challenges in the provision of e-learning for many institutions. This entails that the experiences of the end users of e-learning platforms are largely shaped by their context, especially that they did not express misgivings about e-learning except for barriers to accessing it, some of which are beyond institutional control, but situated in the wider context within which higher education is provided in the country and the realities that confront the system. As observed in existing literature, developing countries face barriers in the implementation of e-learning in infrastructure, resources and information access (Raab *et al.* 2002), including cultural, political and economic concerns (Alshare *et al.* 2003) which cannot be detached from end users' positive and negative attitudes towards e-learning.

The insights into limited access to ICT hardware, connectivity and power outages also reveal the interconnectedness of the availability of ICT and an enabling environment (connectivity and electric power) to students' perceived ease of use of e-learning and consequent acceptance of e-learning during the pandemic. Additionally, the responses and experiences centred on limited access to ICTs hardware relate to the digital divide in which access to digital platforms varies from place to place. As observed by David *et al.* (2020), the reality is that online learning will be easier for those with access [to the internet] and will exclude large groups of disadvantaged learners, is affirmed in the narratives of the students who pointed to limited access to internet, electricity and mobile phones.

5.1.3 Lack of Preparedness for e-Learning

Additionally, some students reported unpreparedness to embrace e-learning and limited skills. For example, some students remarked that:

> We needed more time to learn how to go about this e-learning. I hope we will be provided with more lessons on how to use the platform as days go by. So far, we are able to use the platform, which has the advantage of taking charge of the learning process. For example, I choose when and where to log on, it's just that I would want to be taught more on how to perform a lot of more other functions within Moodle (Lisu).

> Personally, I am not ready for e-learning and I have been unable to use the platforms. I am registered but I fail to use the platform because I do not know how to use the platform. I am not good at internet; I do not know how people like me will be helped (Mosa).

Preparedness was also tied to students' multiple roles at home and the nature of the education provision that had been characterised largely by face-to-face learning, as expressed in the following:

> For me who is a mother, wife, student, and entrepreneur, it is really hectic, especially in this time when people have to work from home. I have to attend to my school and home related chores (Busa).

> In our education system, I think we learn well interacting with our lecturer around. At home, we have so much work to do, and it becomes difficult to divide time for studies and home related chores (Kawa).

Linked to the ease of use theoretical position as a basis for accepting ICT, the sentiments (as expressed above) reveal the wider narrative of slow uptake of ICT and the need for ICT integration into the lower levels of the education system, including the socio-cultural attributes of students. The preparedness linked to ICT skills is in line with conclusions that have linked computer skills and perceived ease to use e-learning platforms such as those drawn by Siritongthaworm *et al.* (2006) that respondents with poor computer skills perceive e-learning technology use as difficult, compared to those with

comparatively good computer skills, indicating that intensive training pro-grammes for using necessary technology facilities and methods of online instruction would help ease the use of ICTs.

Similarly, the expressions of difficulty to learn as individuals because of being used to learning as a group in the traditional face-to-face programme delivery also reveal the cultural orientation that could not be detached from the student experiences of digital delivery of programmes. This closely resonates with studies that have documented that students' reported distress with online learning attributed to the general feeling of 'disconnect' due to the lack of face-to-face interaction (Stodel, Thompson & MacDonald 2006). Asunka (2008), with reference to the Ghanaian context, also established that the bulk of the students were not enthusiastic about learning independently, and this could be attributed to their being accustomed to the didactic teacher-led mode of instruction, having just come from high school.

5.2   Willingness to Embrace e-Learning

The broader theme on willingness to embrace e-learning was characterised by perceived benefits of e-learning among students, in which case e-learning was perceived as a timely response in the time of COVID-19.

5.2.1   e-Learning: A Timely Response in the Time of COVID-19

Despite the challenges associated with e-learning as expressed by the student participants, most participants in the study welcomed the new programme delivery mode as a timely response during the pandemic. The positive response to e-learning was largely driven by the perceived benefits of e-learning for the students as expressed by the following:

> e-Learning makes it possible for us to learn online through various platforms like Moodle, Zoom, WhatsApp et cetera in the comfort of our homes especially during the outbreak of COVID-19. One can learn at any time and place provided there is Internet connection (Pata).

> E-learning makes it possible to access notes and lecture slides any time anywhere … very convenient. It has helped me personally to plan the day as learning can be done anywhere (Luno).

> I may not yet be very conversant with Moodle but it's a welcome new way of learning because it will help us to maintain the school calendar and complete our studies in time. I can easily use my smart phone for learning purposes any time (Fazo).

The willingness to embrace e-learning based on the perceived benefits of e-learning and the consequent positive perception of e-learning could also be situated in the perceived long-term benefits for the students. The perceived benefits are also in line with those advanced by Bhuasiri *et al.* (2012), such as increased accessibility to information, personalised instruction, content standardisation, on-demand availability, self-pacing, confidence and increased convenience. Similarly, Smart and Cappel (2006) conclude that students feel that the flexibility and convenience of e-learning, such as the ability to access the lessons anywhere at any time, and to complete the units at one's own pace are very pleasant experiences with e-learning delivery. This shows that the students' response to e-learning is driven by the perceived usefulness that is linked to a person's belief that using a particular system would enhance his or her job performance (Davies 1989), in this case, their studies.

Most importantly, the fact that all students were in support of e-learning except for the associated challenges shows that in the absence of barriers to using e-learning such as universal access to e-learning platforms, availability of ICT hardware and sufficient skills to use different forms of e-learning, e-learning would be embraced based on both perceived ease of usefulness and perceived usefulness grounds. This further confirms the conclusions drawn by Akakadelwa and Mkuluma (2017) on the levels of satisfaction of students who had been exposed to e-learning.

The willingness to embrace e-learning, despite the challenging context, also points to COVID-19's potential to contribute to changes in attitudes towards e-learning and consequently motivates students to adapt to the new modes of programme delivery. This is because extrinsic motivation constructs had a significant effect on student learning, while both intrinsic and extrinsic motivation had a significantly positive effect on student self-efficacy (Law *et al.* 2010). Ultimately, although the responses of the students to the adoption of e-learning could be seen through TAM, it can also be stated that the overall willingness to embrace e-learning could also be understood within a context in which the end users had to abide by institutional available options on e-learning platforms. Nonetheless, TAM was considered significant in understanding the

attitudes and experiences surrounding the adoption of e-learning, which could contribute to accounting for the students' actual use of e-learning platforms.

6.0   Conclusion

This chapter explored how students as end users of e-learning respond to the adoption of e-learning at a public university in the context of shifting programme delivery modes in response to institutional closures occasioned by the COVID-19 pandemic. Based on the nature of the students' responses to the adoption of e-learning, the chapter concludes that student responses to the adoption to e-learning were characterised by both reluctance and acceptance of the e-learning mode of programme delivery. By this, students did not express misgivings about e-learning, but focused on barriers to accessing it, some of which were beyond institutional control but situated in the wider context within which Higher Education is provided in the country.

Given that the reluctance to accept e-learning during the pandemic was associated with concerns centred on access to e-learning platforms; lack of ICTs hardware, connectivity and power outages; and unpreparedness for e-learning, the chapter concludes that the students' responses were driven by the perceived ease of use of e-learning platforms, in which case the perceived difficulty of ease of use emerged as a barrier to immediately embracing e-learning during the pandemic.

It also concludes that the perceived benefits of e-learning, both in the short and long term, accounted for students' willingness to embrace e-learning during the pandemic, and that COVID-19 contributed to shifting student attitudes towards e-learning. As such, the chapter affirms that TAM remained a relevant framework that helps to explain user attitudes and acceptance of e-learning and also points to how the user's context contributes to shaping behaviour towards the use of ICTs in learning during a pandemic.

Based on students' reluctance to embrace e-learning anchored in perceived limitations on the ease of use, there was a need to take into account the specific contextual realities of students as end users for the effective implementation of e-learning especially in a context characterised by the digital divide. Similarly, given that students' willingness to embrace e-learning is based on the perceived benefits of e-learning as driven by perceived usefulness of e-learning, there was a need for integrating e-learning as a cross-cutting topic in Higher Education programmes.

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Teaching Practicals in the Time of Physical Distancing: Advances, Challenges and Recommendations for Higher Education

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Abstract

The last two decades have seen a rise in the demand for e-learning platforms for remote teaching. These technologies offer novel opportunities and tools for educators, including those in the humanities and social sciences, to develop new materials, rethink curricula, and teach more effectively and creatively, even when contact with students is limited or not possible. To salvage what is left of the 2019-2020 academic year, this will have to form part of the higher education sector's response to the coronavirus disease 2019 pandemic and lockdown challenges. While significant advances have been made in the use of e-learning technologies for teaching practicals, some challenges still need to be addressed. By drawing on examples from various developing and developed parts of the world, we identified the advances, challenges and recommend-dations associated with teaching practicals remotely. The chapter focuses on the review of current virtual platforms and digital tools. Additionally, it offers some commentary on the preparedness of lecturers and learners in the higher education sector to embrace e-learning technologies for teaching practicals. Finally, recommendations are forwarded on how these remote teaching and

learning tools can help students acquire and practise essential manipulative and process skills, and help teachers move concepts from an abstract into a concrete setting.

Keywords: COVID-19 pandemic, emergency remote teaching, higher education, online learning, teaching practicals, virtual fieldwork, virtual laboratories

1   Introduction

We are in a state of emergency/disaster worldwide in terms of the coronavirus 2019 (COVID-19) pandemic. The effective management of pandemics requires the adaptation of systems across several sectors, including higher education (Uscher-Pines, Omer, Barnett, Burke & Balicer 2006). The World Health Organization (WHO) has encouraged all countries to develop or maintain a current national influenza preparedness plan and guided the content of such strategies (WHO 2005). While these guidelines focus on a variety of issues, ranging from surveillance and communications to prioritisation of vaccines, they do not deal explicitly with issues such as teaching and learning. This may explain why despite very recent pandemic influenza events, as of 2020, very few developing countries have come up with strategies for managing educational needs during a state emergency, more specifically during a pandemic. Sinelnikov-Murylev (2020) argues that the progress of the COVID-19 pandemic cannot be predicted with any certainty at this stage; therefore, educational institutions have been forced to prepare for two possible scenarios in their attempts to adapt. The first scenario is dependent upon the pandemic ending this year, allowing the educational process or at least part of it to recommence; this refers mainly to direct contact between teachers and students. The second scenario arising as a continuation of the pandemic is far more challenging and will require remote learning methods for at least part of this school year (ibid 2020).

The figures released by the United Nations Educational, Scientific and Cultural Organization (UNESCO 2020) show that 1.5 billion students (from pre-primary to higher education) around the world were unable to attend school or university (due to quarantines, lockdowns, and school closures) as of mid-April 2020. Although this figure is declining, the education community has

been struck by COVID-19. In Africa, 9.8 million students are experiencing disruptions to their studies due to the closure of higher education institutions (Tamrat & Teferra 2020). The numbers of affected higher education students in developing countries outside Africa are also high (e.g. 250 000 in Serbia [Statistical Office of the Republic of Serbia 2019]). Governments across the world are taking drastic measures to curb the spread of infection during the current pandemic, which in most cases involved closing all schools and universities. This has brought to an end the conventional 'in-person' lecturing and learning experience. Universities have subsequently been hard-pressed to take steps to ensure that teaching and learning continue remotely via a transition to online learning. Lecturers have adopted tools and methods that have emerged over the last few decades, and have been guided by standards such as those set by the International Society for Technology in Education (Fuller 2020).

There is a wealth of literature on the relationship between technology and human capital development (Choudhury & Pattnaik 2020) that has emboldened governments and higher education institutions around the world to invest financially, infrastructurally and intellectually in developing digital citizens. The COVID-19 pandemic has fast-tracked the emergence of what we term here 4th-generation universities, i.e. online and digital universities. In parts of the developed world such as America (Marsicano, Felten, Toledo & Buitendorp 2020), this transition to emergency online learning has been very rapid (days to weeks). However, in many countries lecturers and students are neither prepared nor familiar with teaching/learning virtually, which has resulted in some unwanted effects, such as social isolation, inequity, and reduced learning and quality (Hammond, Watson, Brumbelow, Fields, Shryock, Chamberland, Barroso, De Miranda, Johnson, Alexander, Childs, Ray, White, Cherian, Dunn & Herbert 2020), particularly concerning practical components of curricula. This is mainly due to lecturers having days to take up or develop innovations in academia and higher education, which would usually have taken years to master. Administrative regulations and processes, and the lack of infrastructure and budgetary allocations have exacerbated these challenges for lecturers and students, hampering their transition to fully functional and operational online tuition.

Many university-level courses require laboratory, field or practical components of students' training (Kennepohl 2010; Potkonjak, Gardner, Callaghan, Mattila, Guetl, Petrović & Jovanović 2016). The literature offers

several software solutions and tools for teaching/learning practicals in a blended/distance education setting. These have been presented and evaluated in detail by various authors (Andújar, Mejías & Márquez 2011; Bower, Dalgarno, Kennedy, Lee & Kenney 2014; Ip, Li, Leoni, Chen, Ma, Wong & Li 2019; Madathil, Frady, Hartley, Bertrand, Alfred & Gramopadhye 2017; Potkonjak *et al.* 2016). However, as alluded to above, implementing practical activities into online courses is very challenging (Sinelnikov-Murylev 2020), especially for institutions with low-budget and digitally low-skilled teachers who in many cases have to use personal resources and equipment to teach and support students. This chapter presents the benefits and challenges associated with the use of currently available virtual platforms and digital tools for teaching practicals (crucial manipulative and process skills). We also offer some preliminary commentary on the preparedness of teachers and learners in the higher education sector to embrace e-learning technologies for practicals and forward recommendations on how to address challenges faced in emergency online learning in general.

2   Teaching Practicals Online

Online teaching has its roots in more than a century-old tradition of correspondence courses (Ghilay 2017). It is not a novelty in higher education, since tertiary institutions started offering online courses almost three decades ago and nowadays entirely online undergraduate and graduate programmes have a global presence (Palvia, Aeron, Gupta, Mahapatra, Parida, Rosner & Sindhi 2018). Also, many universities and other higher education institutions are involved in the development/offering of massive open online courses (MOOCs) (De Freitas, Morgan & Gibson 2015; Olsson 2019). Even before the COVID-19 pandemic, completely offline classes (only face-to-face teaching with printed learning materials) were rare, due to the widespread use of learning management systems (LMSs) (Daniela & Rūdolfa 2019; Fındık-Coşkunçay *et al.* 2018; Mtebe 2015), digital learning materials (learning objects) (Georgieva, Gueorguiev, Kadirova, Evstatiev & Mihailov 2018; Mei, Aas & Medgard 2019), the bring-your-own-device (BYOD) initiative (Ruxwana, Msibi & Mahlangu 2018; Vasant 2015), flipped classroom teaching strategies (Bognar, Sablić & Škugor 2019; Koh 2019; Uskoković 2018), online student (audience) response systems (Licorish, Owen, Daniel & George 2018; Lim 2017), and the use of social media as an educational tool

(Lytras, Visvizi, Daniela, Sarirete & Ordonez De Pablos 2018; Tess 2013). However, Hodges, Moore, Lockee, Trust and Bond (2020) point out the need for a clear distinction between regular online/blended education and emergency remote instructional delivery due to the COVID-19 crisis, that is otherwise delivered face to face; calling this instruction emergency remote teaching (ERT). ERT involves the use of online teaching platforms and tools, but it has emerged in a hurry with a minimum of resources and time, and cannot be evaluated with the same standards for high-quality fully online courses which were well planned and usually developed over the span of six to nine months (ibid 2020). Also, while e-learning is a common and popular mode of instructional delivery, very little has been established with regard to its effectiveness in teaching practical skills (Preston, Ada, Dean, Stanton, Waddington & Canning 2012). In many disciplines, and hence professions (e.g. healthcare), effective performance of practical skills is essential. Practical skills required in specific disciplines incorporate a wide range of manual techniques (e.g. physiotherapy, dentistry, hospitality, culinary and other arts) and knowledge of procedures/protocols (e.g. chemistry, archaeology, sociology and psychology). In the sections that follow, we describe virtual platforms and digital tools commonly used for practical teaching, focusing on two established modes of online practical teaching: (a) virtual laboratories and simulations; and (b) virtual field trips.

2.1 Online Teaching Possibilities

For some time now, digital technologies have been an indispensable element of students' way of life and a significant part of their higher education experience (Henderson, Selwyn & Aston 2017). The rapid increase in ownership of mobile devices (such as laptops, tablets and smartphones) among students provided opportunities for using those devices in both physical and online higher education learning environments (Milošević, Živković, Manasijević & Nikolić 2015; Santos 2013). The current situation has forced teachers to utilise both synchronous and asynchronous approaches (using different learning platforms and tools) in their ERT (Alvarez 2020; Bozkurt & Sharma 2020; Huang, Liu, Amelina, Yang, Zhuang, Chang & Cheng 2020).

For formal online and blended education, LMSs are the most widely used solution (Fındık-Coşkunçay *et al.* 2018; Kakasevski, Mihajlov,

Arsenovski & Chungurski 2008) that is already implemented at many higher education institutions, including those in developing countries (Mtebe 2015). According to Ghilay (2017:5), a typical 'LMS is a web-based platform designed for management, documentation, monitoring, reporting and delivery of courses in both higher education and other educational systems'. In other words, LMSs are sites that provide online learning and assessment opportunities, as well as options for tracking student progress and statistics regarding learning outcomes. They are based on the idea that teachers can create (or modify existing) learning materials to meet their students' needs (Daniela & Rūdolfa 2019). However, LMSs are often used only as an electronic repository of learning materials, since many teachers neglect advanced options of those systems and use them only to upload text files for students to download (Daniela & Rūdolfa 2019; Mtebe 2015; Vovides, Sanchez-Alonso, Mitropoulou & Nickmans 2007). Similar behaviours can be expected with ERT, given the circumstances that have led to their use, especially in instances where there was a dramatic shift to online teaching due to COVID-19 (Alvarez 2020; Bozkurt & Sharma 2020; Natwi & Boateng 2020). The most popular LMSs are Moodle, Blackboard, Canvas, Edmodo and Google Classroom (Aditya, Nurhas & Pawlowski 2019; Aldiab, Chowdhury, Kootsookos, Alam & Allhibi 2019; Daniela & Rūdolfa 2019; Huang *et al.* 2020; Kakasevski *et al.* 2008). All indicated LMSs include numerous options for presenting lectures, delivering learning materials, communication and assessment. Still, sometimes they do not cover all teaching/learning needs (such as certain aspects of practical teaching) or do not provide sufficient stability when a large number of students use them at the same time. Therefore, teachers need to be able to connect additional digital tools to LMSs and/or to use them separately. In this regard, there are a variety of options available (Ghilay 2017). Some of the most popular and free online tools currently being used are G Suite for Education (including Gmail, Drive, Calendar, Google Docs, Sheets, Slides and Forms and other apps), YouTube, Office 365 Education (including Outlook, OneDrive, Word, Excel, PowerPoint, OneNote, Teams, Sway and additional classroom tools), Skype, Zoom, Padlet and many others.

In the context of practical teaching specifically, which requires a higher level of engagement/interaction, cloud-based tools (such as Google Apps for Education, Padlet, OneNote and others) can be useful for students' remote collaboration, cooperative, and project-based learning activities.

YouTube can be particularly useful for hosting recordings of practical demonstrations by lecturers and protocols (e.g. teaching students how to make and administer an online survey) that can be easily shared (via links or QR codes). SoundCloud and Audiomack can be utilised for hosting lectures (in sound format) and podcasts. Zoom can be a good option for online synchronous teaching sessions as students can see and communicate with each other as a group. Teachers should also consider using social media (e.g. Facebook) and popular instant communication services (such as Viber, WhatsApp and Skype) for delivering learning materials and facilitating communication among students and lecturers when the practicals involve groupwork or project-based learning. However, it must be noted that some of these platforms can be bandwidth-intensive, and connectivity to stable and affordable internet access is essential. In this regard, higher education teachers should try to provide practical lectures and learning materials in different formats (e.g. text, video, audio, and multimedia) and aim to foster students' self-regulation skills (see Huang *et al.* 2020), as well as cater for students who might be experiencing hardware, software and connectivity-related challenges.

Practical sessions usually involve some preparation by the students and in most cases a post-practical assessment, typically in the form of a written report. Also, effective online education requires an ecosystem of learner supports (Hodges *et al.* 2020). Therefore, it is also vital that students have off-campus library access. A significant number of university/college libraries worldwide offer students online access to their digital resources (such as academic e-books, journals, theses and dissertations and datasets). Some university and public libraries (mainly in the USA) offer additional services for streaming films and other video content (e.g. Kanopy and Hoopla; which is important for media and film students), and taking on-demand online courses (e.g. Lynda.com/ LinkedIn Learning) for free. Several universities have also provided students with free remote access to EBSCO databases during the coronavirus lockdown as an additional resource for writing reports, seminar papers, and theses.

In most cases, learning practical skills requires observation of the skill combined with physical practice (Shea, Wright, Wulf & Whitacre 2000). Many STEM (science, technology, engineering and mathematics), social science and humanities programmes include intense laboratory (hand-on)

activities or fieldwork; therefore, we presented virtual laboratories (and simulations) and virtual field trips in dedicated sections.

2.2 *Virtual Laboratories and Simulations*

Kennepohl (2010) lists several options as substitutes for in-person laboratory activities: (a) remote access laboratories; (b) video demonstrations; (c) laboratory kits for home study; and (d) virtual computer simulations (virtual laboratories). Remote access laboratories were developed in the early 1990s to enable students and teachers to do experiments using real substances and equipment via the internet, regardless of time and location (ibid 2010; Ku, Ahfock & Yusaf 2011). The most crucial advantage of remote laboratories is that the process of preparing and performing the experiment is similar to in-person laboratory experience (Andújar *et al.* 2011). Higher education institutions widely use them as alternatives when the physical equipment is not available in the laboratory, or for distance learning courses, especially in disciplines such as physics, chemistry, biology, medicine and engineering (Zapata Rivera & Larrondo-Petrie 2016). In the last two decades, a significant number of remote laboratories have been set up by universities in the USA, Canada, Australia, and Europe (Ku *et al.* 2011). However, due to high costs for a single academic institution, universities in developing countries rarely use them. Also, open, free, and fully functional options are limited (Kennepohl 2010).

More practical solutions, in the time of social distancing and the COVID-19 pandemic, are virtual laboratories (or simulations), and video demonstrations, since the equipment in remote laboratories needs maintenance and cannot be used by multiple users simultaneously. Remote and virtual laboratories are often categorised together as 'online laboratories', but virtual laboratories can be described as simulations that mimic the behaviours of real laboratory equipment using calculations, mathematical formulas and data of experiments done in the real laboratories (Zapata Rivera & Larrondo-Petrie 2016). Virtual laboratories are especially crucial for online distance learning of STEM disciplines, since these fields require intensive hands-on laboratory experiences for effective skills acquisition (Potkonjak *et al.* 2016). There are many commercial and open-source solutions for virtual laboratories (appropriate for different academic areas) or simulations made for specific procedures, situations or skill practice. In recent years, the usage of commercial solutions such as Labster's virtual laboratory simulations (available for

anatomy and physiology, biology, ecology, chemistry, engineering, medicine and physics) and Minecraft: Education Edition platform (available lesson plans for various STEM and humanities fields) have increased significantly in formal education settings worldwide (Stojšić, Ivkov-Džigurski & Maričić 2019a).

According to Merchant, Goetz, Cifuentes, Keeney-Kennicutt & Davis (2014: 30), 'Simulations are interactive digital learning environments that imitate a real-life process or situation'. The same authors conducted a meta-analysis in which they included 29 studies in the category of simulations. The results indicated that simulations were effective in improving learning outcomes in K-12 (Kindergarten to 12th grade) and higher education and provide cost-effective practice solution for medical scenarios, animal dissections, and many situations that impose a financial burden, danger, high risk, or have ethical issues if practised physically in a laboratory (ibid 2014). Nowadays, simulations are also accessible as free/low-cost Android and iOS apps; for example, several apps (e.g. Complete Anatomy Platform 2020) are now available for learning about the human anatomy, and some of them support augmented reality (AR) as well.

Potkonjak *et al.* (2016) point out that virtual worlds (e.g. Second Life, OpenSimulator) can be used for developing virtual laboratories since those platforms can create authentic ambiences that enable realistic communication among users (through avatars). The same authors also indicate some advantages (e.g. multi-user approach, resistance to damage, highly configurable and flexible, and can make invisible visible) and disadvantages (e.g. very heavy on computer resources and can be appropriate only as an initial sep in students' training) of virtual laboratories. Also, they emphasise the utility of virtual laboratories for distance education and a head-mounted display (HMD)-based immersive virtual reality (VR) learning (ibid 2016). For example, Izard, Juanes, García Peñalvo, Gonçalvez Estella, Sánchez Ledesma and Ruisoto (2018) and Cochrane, Cook, Aiello, Christie, Sinfield, Steagall and Aguayo (2017) indicate that 360° video and interactive VR content could be useful for remote practical training of medical and paramedical students.

2.3 Virtual Field Trips and Fieldwork
Field trips and fieldwork are often a mandatory requirement in disciplines such as geography, geosciences, biology, history, archaeology, cultural heritage, architecture and tourism. Specific physical, cultural, ecological and

structural characteristics, orientation skills or gathering information (by using scientific instruments) can be fully understood and appreciated only in authentic environments outside classrooms or lecture halls (Wallgrün, Chang, Zhao, Sajjadi, Oprean, Murphy, Baka & Klippel 2019). According to Bailenson (2018:232), 'The field trip is the perfect metaphor for VR learning'. Using virtual trips as a substitution for actual field trips or fieldwork is not a novelty, since researchers have investigated these possibilities for more than two decades (Wallgrün *et al.* 2019). Due to the COVID-19 pandemic, higher education institutions worldwide cancelled or postponed all trips and field-related practical activities. Therefore, virtual trips may be the only alternatives for this mode of practical teaching for the months ahead. Recent studies on this approach have mainly used HMDs (such as Oculus Rift, HTC Vive and Google Cardboard) and shown mostly positive results regarding knowledge and/or skills transfer and students' motivation (Bailenson 2018; Ip *et al.* 2019; Markowitz, Laha, Perone, Pea & Bailenson 2018; Vert & Andone 2019; Wallgrün *et al.* 2019). However, Vert and Andone (2019) point out that VR-based learning materials should be available through various device/medium distribution channels (e.g. web, Android, iOS, VR HMDs, or a combination of these). A possible solution for this issue can be a WebVR approach (Stojšić, Maričić, Ivkov Džigurski & Višnić 2018; Stojšić, Ivkov-Džigurski & Maričić 2019b).

Virtual trips can be successfully integrated into online courses (Ip *et al.* 2019), and vast collections of pre-made VR applications and other materials (e.g. 360° panoramas and videos) are available (Daniela 2020; Stojšić, Ivkov Džigurski, Maričić, Ivanović Bibić & Đukičin Vučković 2016; Stojšić *et al.* 2018). Also, higher education teachers can use free/low-cost authoring tools to tailor the virtual trips to their students' needs. Popular authoring tools are CoSpaces Edu, Uptale Studio, InstaVR, WondaVR, Fieldscapes (Vert & Andone 2019), and Tour Creator (Stojšić *et al.* 2018; 2019a) among others.

3   Challenges and Recommendations

According to Olsson (2019), all teaching methods used in contemporary higher education have at least some IT elements, since university/college teachers are required to embrace information and communication technologies (ICTs) in their teaching practice. While this chapter and others have identified some

online tools and platforms that can be useful for practical teaching, their eventual uptake in ERT is uncertain since the level of student and lecturer e-learning preparedness and actual usage vary significantly worldwide (Baran & AlZoubi 2020; Palvia *et al.* 2018). Variations within regions and countries are also noted (Alvarez 2020; Nantwi & Boateng 2020). Mtebe (2015) notes that levels of investment in and the uptake of e-learning depend on institutional decisions and policies, and teachers' digital competence and choices. Even though conversations around higher education teaching, learning and curriculum in the time of the fourth industrial revolution started before the pandemic (Gleason 2018), regions and countries are at different stages of digital transformation, and a significant number of universities in the developing world have just started this process. However, the state of emergency demands that countries like Serbia and South Africa embrace digital technologies and fasttrack their migration to remote teaching and learning systems. Many countries may therefore need to conduct skills and infrastructure audits of each university in order to inform their online teaching/learning strategy.

While the danger of COVID-19 contamination has triggered institutions to move their courses online, transitioning to online learning is not that simple where only a small proportion of the population has access to the internet, and poor connectivity, exorbitant costs, and frequent power interruptions are serious challenges, as in South Africa (Tamrat & Teferra 2020). Many developing countries may have to follow the example of South Africa in offering students and lecturers internet connectivity at reduced prices through collaborations with private service providers.

Lack of awareness around the use of e-learning tools for practical teaching is probably one of the most significant challenges. If higher education teachers are not aware of LMSs and other digital tools' existence, they are not going to use them (Mtebe 2015); therefore, in some developing countries, lecturers will have to be upskilled. There may also be a need for higher education teachers to evaluate their digital skills and preparedness for online instruction and conduct usability evaluations of the platforms, tools and digital resources that they want to use for teaching practicals. Additionally, copyright issues, quality of pre-made applications/software for virtual trips or virtual laboratories and mechanisms to foster student's self-regulation skills (Huang *et al.* 2020) are essential considerations. Universities must also put mechanisms in place to provide students and lecturers with adequate support

for remedying issues related to the hardware, software and slow and/or limited internet connectivity.

Reports suggest that online learning providers and practitioners have not prioritised security (Chen & He 2013), but we believe that in the months ahead, prevention of network security threats (for example, 'Zoombombing') are going to become increasingly important. Administrators of online learning systems must also pay careful attention to the privacy and safety of users, which include digital footprint issues and cyberbullying.

According to Vert and Andone (2019: 2), 'A big challenge for adaption of VR in education is the skills required for educators to design and develop VR-based instruction'. Universities, therefore, need to create platforms for ICT engineers and programmers to collaborate with lecturers in adapting VR for different online learning applications. While students usually can download VR experiences, it should also be noted that they are often bandwidth-heavy (Vert & Andone 2019), which could limit their utility.

Despite the value that many of these tools and platforms could bring to ERT, the most significant barriers to uptake are likely to be financial rather than attitudinal or cultural. Current costs of up-to-date IT equipment (Sinelnikov-Murylev 2020) and licences place these out of the reach of many higher education institutions. Furthermore, many institutions in developing regions have either outdated policies or do not have regulations regarding online teaching (Mtebe 2015), making it difficult for universities/colleges to convince governments to redirect funds towards e-learning. Lecturers in many parts of the world will, therefore, have to find innovative ways of adapting current infrastructure and adopting free/low-cost tools for e-learning, while dealing with the challenges associated with fostering student's self-regulation skills and their own personal skills inadequacies.

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Transitioning from Face-to-face to Remote Teaching in the Context of COVID-19 Pandemic: Reflections of South African Emerging Academics

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Abstract

The rapid spread of the novel coronavirus (COVID-19) across the globe led to the World Health Organisation (WHO) declaring this pandemic a global disaster. Likewise, the South African government declared the pandemic a national disaster. This declaration saw an abrupt shutdown of universities among many other facilities and an immediate evacuation of students from residences. Consequently, academics immediately had to find effective ways of providing timeous learning for all students, irrespective of their geographical locations. Underpinned by the dialogism theory and through the use of the narrative inquiry methodology, this study explored emerging academics' experiences of transitioning from face-to-face to online teaching at a higher education institution. The findings show that the COVID-19 pandemic forced the participating emerging academics to migrate from their familiar

zone (on-campus face-to-face contact teaching) to an unfamiliar zone (online teaching within the confines of home), wherein they sought new ways of surviving including exposure to remote teaching and new skills. Owing to this, a conclusion is drawn that these academics will inhabit a new familiar zone post the pandemic.

Keywords: COVID-19, face-to-face pedagogies, remote online pedagogies, dialogism theory, narrative inquiry

1 Introduction

The rapid spread of the novel coronavirus across the globe led to the World Health Organisation declaring this pandemic a global disaster. Following this pronouncement, the pandemic was declared a national disaster in various countries, including South Africa. This catastrophe in South Africa saw an abrupt shutdown of universities among many other facilities and an immediate evacuation of students from residences. On 23 March 2020, the South African president, Mr. Cyril Ramaphosa, announced a national lockdown with effect from midnight of 26 March 2020, as a nation's attempt to delay the spread of the virus. The lockdown confined people to their homes to either stay or work from home. The majority of staff members at higher education institutions, especially academics were amongst the people who were expected to work from home during the national lockdown, and they relied on information communication technology (ICT) for their daily operations (Goolam 2020).

The closure of higher education institutions resulted in online teaching becoming a new routine in most countries, including South Africa. Although this is an ideal option in times like these, students who do not have internet access in many countries with societal inequalities may be excluded (United Nations Educational, Scientific and Cultural Organization, 2020). In this chapter, we direct our focus to academics who play an instrumental role in the move to online teaching. The chapter aims to bring to the fore their lived experiences of transitioning from face-to-face to remote teaching in the context of the COVID-19 pandemic. To this end, we utilised the narrative inquiry methodology to solicit and interpret the reflective narratives of three emerging academics in a South African university. The key research puzzle (question) that the chapter addresses is: What are the opportunities and challenges

experienced by emerging academics during the transition from face-to-face to remote learning in the context of the COVID-19 pandemic?

2 Emergency Remote Online Teaching

The terms 'online learning' and 'e-learning' are often used interchangeably in the literature (Khoza 2018; Rana & Lal 2014; Singh & Thurman 2019). The emergency remote online teaching refers to an abrupt transitioning of instructional delivery from face-to-face and hybrid learning to fully remote delivery mode as an alternate teaching and learning strategy due to crisis or emergency circumstances (Alexander 2020; Gurunju 2020; Govindarajan & Srivastava 2020). The primary objective of the emergency remote online teaching is to provide all students speedy access to learning during the time of crisis. While it becomes inevitable to directly link remote teaching with online learning, it is important that we highlight its distinctiveness to avoid conflating it with already established online modes of teaching and learning, for example, distance learning and other hybrid pedagogies. With the COVID-19 crisis, Gurunju (2020) and Govindarajan and Srivasta (2020) put forward 'emergency remote pedagogy' or 'pandemic pedagogy' to refer to the online teaching and learning due to abrupt separation of teachers and students due to the COVID-19 crisis.

Chinyamurindi (2020) is of the view that innovative online learning platforms such as Moodle, Zoom, Microsoft Teams, Skype, and video conferencing can provide simultaneous interactions and communication environment between students and teachers. Generally, scholars advocate these 21st-century digital learning tools as potential tools to improve teaching and learning. These scholars highlight features such as oral communication between teachers and students, exchange messages through typing onscreen, sharing PowerPoint presentations with audio, transmitting videos and internet surfing (Chinyamurindi 2020; Darby 2020; Stanford 2020). Apart from this, online learning platforms also allow teachers to track and monitor students' learning progress and monitor their performance on different learning tasks (Chinyamurindi 2020). This shows multiple possibilities that come with online teaching tools.

3 Academics and Online Teaching and Learning

During the Fees Must Fall student protest in South Africa, Czerniewicz, Trotter and Haupt (2019) examined academics' experiences of using online teaching. The experiences of academics were found to be dissimilar. On the one hand, some of the academics experienced a deterioration in terms of student engagement and performance. On the other hand, some of the participants alluded that the online teaching enhanced learning in that students were exposed to different modes of teaching, which included videos (Czerniewicz *et al.* 2019). One factor that appears to be an impediment in terms of online teaching is the relevancy of pedagogies. Scholars have made strong claims about the move to online teaching without online pedagogies (Anderson, Imdieke & Standerford 2011; Kebritchi, Lipschuetz & Santiague 2017). The application of traditional pedagogies in online teaching platforms could prove to be ineffective, as online teaching requires a pedagogy for online teaching (Anderson *et al.* 2011; Kebritchi *et al.* 2016).

In the same vein, Islam, Beer and Slack (2015) suggest that academics need to do more than just developing new ICT skills. Academics also need to develop pedagogical skills so that they can transition well to online teaching. Similarly, Goh, Leong, Kasmin, Hii, and Tan (2017) at a Malaysian university, suggest that the effective online pedagogical training for teachers is essential for successful and meaningful online interactions between students and teachers and amongst students. The online teaching is not a direct transfer of the face-to-face activities to online platforms, but it has its own dynamics, for instance, Cornelius and Macdonald (2008) in the United Kingdom (UK) found academics struggling to keep engaged with all posts in the online forums. As a result, most academics resorted to a selective approach, as they could not read all the posts (Cornelius & Macdonald 2008). Again, Mihhailova (2006), whose study also focused on academics, found that dealing with queries and preparing for online teaching took more time compared to face-to-face instruction. Online teaching demands more time to prepare and plan; sometimes, more time is spent online (Kebritchi *et al.* 2016). According to Cavanaugh (2005), preparing for online lessons can take twice as long as preparing for face-to-face lessons.

4 Students and Online Learning

There is a strong belief that access to the internet, computers and cell phones have reached levels of near saturation in undergraduate populations, especially

in developed countries such as the United States of America (Dahlstrom & Bichsel 2014; Smith, Raine & Zickuhr 2011). However, unaccounted for digital inequalities may persist even with equal ownership and use (Gonzales 2014; Hargittai 2011; Tamrat & Teferra 2020). For example, 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).

A study that was conducted in the United States of America found that even though there was a general use of mobile phones and laptop computers, nearly 20% of students experienced problems including broken hardware, data, and connectivity (Gonzales 2014). Rideout and Katz (2016), whose study found students in low and middle-income families having low or no internet access, support this. Noting that South Africa is a developing country with a majority of low-income communities, the hardships experienced by students are even worse. Tamrat and Teferra (2020) claim that in Africa, only 24% of the population has access to the internet and poor connectivity; thus, going online would pose a serious challenge to students. This challenge has been referred to as a digital divide, meaning the inequalities set aside the 'haves' from the 'have nots' (Rideout & Katz 2016:1).

5   Theoretical Framework

The dialogical imagination theory was adopted to understand the experiences of emerging academics in the context of the COVID-19 pandemic. The dialogical imagination theory or dialogism was originated by Mikhail Bakhtin (1984) to understand people's consciousness; however, many other scholars have contributed to this construct. The dialogism approach is explained by Holquist (1990) as an interesting mix of the epistemological and the axiological; he claims that a dialogue always involves truth as intertwined with our personal situation (epistemology) and with our relationship to others (axiology). The epistemology within this framework is understood as an individual's understanding from the point of view of his/her situation, while axiology involves a relationship with others and relationship with oneself (Holquist 1990). Therefore, the dialogical imagination theory views the truth as a phenomenon that embodies both axiology and epistemology (Bakhtin 1984; Holquist 1990).

In simple terms, the dialogical imagination theory holds a view that people are always in dialogue or relationships with other people, situations, values and beliefs (Sullivan 2010). These factors are deemed to influence the way they think, the depth of their thinking and also the capacity for change (Sullivan 2010). There are two dimensions of knowing as proposed by Bakhtin (1990), namely, authoritative knowing and carnivalistic knowing. On the one hand, the authoritative knowing refers to knowing that relies on the authority of an individual or institution for its truth claim, rather than on rationality (Bakhtin 1990; Sullivan 2010). The dialogue within this dimension foregrounds the stance of 'I-for-others/others-for-me' (Sullivan 2010). On the other hand, the carnivalistic knowing is generated from spaces where hierarchical structures and inequalities are suspended; these spaces are characterised as 'free from authority' (Sullivan 2010:369). The dialogue within the carnivalistic knowing calls for what Sullivan (2010:369) calls 'I-for-myself'.

The inquiry presented herein drew on these dimensions of knowing to understand emerging academics' experiences of transitioning from face-to-face to online teaching. As individuals, professionals and employees in a higher education institution, the participating emerging academics understand themselves in relation to other people as well as the employing institution; these factors contribute to their authoritative knowing (Sullivan 2010). Again, the emerging academics as individuals alive in the context of the COVID-19 pandemic make their own contemplations only about themselves, and from these contemplations they derive the carnivalistic knowing (Sullivan 2010).

6   Methodology

The authors of this chapter are emerging academics in different disciplines within a School of Education at one of the universities in South Africa. These academics had a random WhatsApp chat on the impact of the COVID-19 pandemic and the influence thereof on teaching and learning at a higher education institution. Resulting from this chat, one of them suggested that they respond to a call of book chapters on COVID-19. This suggestion received a unanimous acceptance, and from this point onwards, they scheduled zoom meetings to work on the chapter.

The study reported in this chapter engaged with the experiences of emerging academics within the interpretivist paradigm. The interpretivist

paradigm dismisses the notion of solitary reality and suggests a multiplicity of realities (ontology); from this perspective, there is a strong belief that individuals develop subjective meanings of their own personal experiences and this results to multiple truths (Cohen, Manion & Morrison 2011; Creswell 2013). In line with this positioning, special attention was paid to each emerging academic's subjective interpretation of the studied phenomenon (Creswell 2008). Apart from the research paradigm, a qualitative research design was adopted. This design afforded us an opportunity to understand and describe the emerging academics' experiences of transitioning from face-to-face to remote pedagogies, which is a social phenomenon under study (Flick 2007).

Regarding methodology, a narrative inquiry was deemed suitable for accessing the lived experiences of the participating emerging academics. Clandinin (2013) describes the narrative inquiry methodology as a way to narratively inquire into experiences intimately, over time, and in context. Engaging in narrative inquiry in the context of COVID-19 deprived us the physical intimacy with participants; however, we were able to forge the intimacy virtually. Additionally, the narrative inquiry foregrounds the establishment of good rapport between researcher and researched (Clandinin 2013; Clandinin & Caine 2008), in our case, the relationship we had established among ourselves as colleagues played a significant role in eliciting ease of storytelling. Three of the four authors of this paper participated in the study. These three emerging academics were purposefully selected as they had already experienced the transition from face-to-face to online teaching. To somewhat fade their identification, we make use of pseudonyms Sbahle, Nonhle and Nobuhle to refer to them in this chapter.

In keeping with the narrative inquiry methodology, a narrative way of generating field texts (data) was utilised, namely narrative interview. The narrative interview is a pertinent method of generating field texts in narrative studies where a participant is allowed an opportunity to freely relay his or her experiences (Adler & Clark 2008; Olive 2014; Clandinin 2013). To operationalise this method, the participating emerging academics were each allowed an opportunity to relay their stories of lived experiences. All the sessions took place on Zoom and were recorded. Following the Zoom meetings, these academics were then requested to transcribe their own stories to ensure that transcriptions capture true reflections.

Subsequent to transcription, the transcribed field texts were analysed using narrative analysis and analysis of narratives. The narrative analysis,

which we call the first level of analysis, is a process of constructing a coherent account of a person's experiences (Polkinghorne 2002). At this phase, the non-participating author engaged in developing accounts of the participants' experiences. The narrative analysis process involved studying of the transcriptions and discovery of plots that connected field texts elements; these plots were then used to construct a unified episode of each participant, hereinafter referred to as a re-storied narrative (Polkinghorne 2002). For the purposes of this chapter, the re-storied narratives are not presented herein; however, we make sensible extractions from the re-storied narratives in the presentation of findings.

Upon completing the construction of the re-storied narratives, the non-participating author shared the narratives with all co-researchers. This was done for two reasons; firstly, to allow each participant an opportunity to check if her story is a correct representation of her experience, and secondly, to share field texts with all co-researchers so that they begin to engage with the re-storied narratives with an intention to identify emerging meanings or themes. This process contributed to the verisimilitude of the study, which is a trustworthiness criterion for good literary study, in which writing seems real and alive to allow a reader to have a vicarious experience of participants' situations (Creswell 2008; Loh 2013). The verisimilitude principle puts forward a twofold member-checking, namely peer validation (each co-author reads her story) and audience validation (each co-author reads others' stories).

Following the re-storying process, Zoom meetings were scheduled for a week to work on the analysis of narratives, which we call the second level of analysis. At this phase of analysis, we closely examined each re-storied narrative and looked across the three re-storied narratives to identify themes that answer back to our research puzzle (Polkinghorne 2002). The identified themes are presented in the findings section below.

7   Findings

In this section, we present the opportunities and challenges experienced by the participating emerging academics during the transition from face-to-face to online teaching in the context of COVID-19 pandemic. The section is organised in two sub-sections; in the first sub-section, we discuss opportunities, while in the second sub-section, we present challenges.

7.1 Opportunities for Emerging Academics in the Midst of the COVID-19 Outbreak and National Lockdown

The COVID-19 predicament engendered disturbance and devastation to all human societies in the globe. Although Sbahle, Nonhle and Nobuhle were disturbed by the pandemic like all other people, they realised that the COVID-19 situation gave rise to opportunities in their professional lives. These opportunities are serendipitous exposure to remote teaching and learning possibilities as well as a learning season on remote teaching and learning. We present full discussions of these opportunities below:

7.1.1 Serendipitous Exposure to Remote Teaching and :earning Possibilities

It came out vividly from the stories of Sbahle, Nonhle and Nobuhle that the COVID-19 predicament serendipitously exposed them to alternative pedagogical practices and benefits thereof. This exposure broadened the professional landscape for these emerging academics as they got a chance to re-imagine their practice. Below, Nobuhle explains how her professional construction has been altered during the COVID-19 period:

> *Although, the pandemic had an awful impact on humanity, I, in the midst of adversity got an opportunity to re-imagine myself as an academic as I broke away from the confines of face-to-face pedagogies and explored new teaching platforms in virtual spaces.*

Sharing similar sentiments is Sbahle who also was impelled by the devastating COVID-19 lockdown to shift from face-to-face to remote teaching. She explains her experience underneath:

> *The need to shift to remote learning in the light of the COVID-19 pandemic has challenged me to step out of my comfort zone of traditional approaches to teaching. I am undergoing the process of learning to embrace new ways of teaching, to understand remote pedagogies and their benefits for quality teaching and learning. This transition has made me rethink my pedagogical practices and has opened my mind in terms of possibilities embedded in remote learning.*

The switching to remote teaching was an effortless exercise for Nonhle, as she had used numerous online platforms such as ZOOM, Skype and WhatsApp, among others for her personal affairs. However, the period of COVID-19 and national lockdown made her realise the possibilities embedded in these online tools for her teaching. She explains her experience as follows:

> *I have learnt to merry Zoom with WhatsApp in facilitating teaching and learning. For instance, I realised that my first-year students are struggling in developing the problem statement for their research proposals despite few discussions we have had on how to develop this component of their research. I then decided to provide them with an example of a problem statement through our WhatsApp group and asked them to critique it ... Following this, I scheduled a Zoom meeting with them to further deliberate on problem statement development. I found this very productive, and I have decided on adopting this strategy for my teaching.*

The reflections of Sbahle, Nobuhle and Nonhle depict the COVID-19 pandemic and national lockdown as a complex situation for academics as well as students to find themselves in. However, in the midst of the complexity, these emerging academics realised an opportunity to think and explore new ways of teaching other than the face-to-face teaching. These academics got exposure to online learning platforms which if used effectively, may stimulate learning (Chinyamurindi 2020). The face-to-face pedagogies appear to have dominated the professional practices of Sbahle, Nobuhle and Nonhle, although numerous online tools are available. Due to the COVID-19 pandemic, these emerging academics have had an opportune exposure to online teaching and learning tools and are now at a better position to explore the online learning and also to develop new pedagogies as Goh and Leong (2017) maintain that online pedagogical training is essential for successful online teaching and learning.

7.1.2 A Learning Season on Remote Teaching and Learning
The COVID-19 era is viewed by the participating emerging academics as a learning season. These academics explain that their employing university arranged several training sessions on remote learning tools to aid their

transition from face-to-face to remote teaching. Nobuhle delineates the learning opportunities she has exploited thus far:

> *The university has and is continuing to roll out training workshops to orientate staff members with online teaching and learning platforms. I have attended two workshops thus far and looking forward to attending upcoming sessions. Since this is a new avenue for some of us, including myself, I wish they can take us through step-by-step. In one of the workshops I attended, I got a feeling that we are expected to learn fast, and my fear was raised.*

Nobuhle appears to be unhappy with the pace at which they are expected to learn; however, she is hopeful that learning will materialise. Sbahle also highlights the training sessions organised by her employing university. Although she is happy with the training initiative, she foresees challenges with regards to large class sizes. She explicates:

> *The university and specifically the School of Education is very instrumental in ensuring the readiness of staff members for the transition. The School has organised numerous online training session for academics on Zoom and Moodle as platforms that could be used for remote teaching and learning. I have explored the Zoom platform, and I am finding it tortuous. Apart from this, I foresee managing a large class on Zoom meetings, like my Language and Literacy, which enrols 200 students and above to be a nightmare.*

The COVID-19 era was a learning season for Nonhle as well, but her focus was on specific aspects which she had not previously explored. She illuminates:

> *At the moment I am familiarising myself with the Moodle platform, focusing on aspects I have not used before, such as forum discussions and assessment designing and running thereof. Moving forward to this terrain of ambiguity, I have learnt a few lessons which are already helping me in preparing for the modules I will be teaching in the second semester.*

The above discussion shows that the COVID-19 era was a learning season for Sbahle, Nonhle and Nobuhle as they have undergone training on online learning platforms. These emerging academics took advantage of the training sessions offered by their employing university to learn different online tools as they were preparing to transition to remote teaching and learning. Here we see the emerging academics dialoguing with the COVID-19 situation and other people to find new ways of living (Sullivan 2010). Although the scholarship on online learning opposes the sole focus on ICT skills (Islam *et al.* 2015), the training opportunity enabled the participating emerging academics to carry out their mandate thereby ensuring that students achieve their academic goals. It is, however, important to mention that these emerging academics require further development on online pedagogies to achieve effectiveness (Anderson *et al.* 2011; Islam *et al.* 2015; Kebritch *et al.* 2016).

7.2 Challenges Experienced by Emerging Academics in Awe of the COVID-19 Pandemic and National Lockdown

The COVID-19 pandemic, as well as South Africa's inevitable national lockdown response, engendered disturbance and devastation to humanity. Sbahle, Nonhle and Nobuhle were also devastated in both their personal and professional lives. With regard to their professional lives, these emerging academics experienced the home and work paradox as well as students' challenges as impediments to remote teaching and learning. These challenges are discussed hereunder:

7.2.1 Home and Work Paradox

The national lockdown as a result of the COVID-19 pandemic compelled academics, among other professionals, to work from home. Although most academics' conditions of employment allow for working from home, Sbahle, Nonhle and Nobuhle have largely been working from on-campus office spaces. Therefore, the closing down of campuses due to the COVID-19 catastrophe bounded them to their home spaces, and they had to juggle between domestic and work activities. Sbahle explains her experience:

> *Although I am still finding this very difficult; I am learning every day to balance all activities and to embrace home as a new teaching space.*

> *Working from home has both pros and cons; on the one hand, it allows for flexibility. I decide when to work (prepare PowerPoint presentations for online lectures, recording lessons and scheduling meeting with students, among other things) and when to spend time with my family. On the other hand, the home is a family space, and there are disruptions such as noise from conversations of family members, television and movement of children in the house.*

For Nonhle, the idea of working from home compromises her productivity. She finds herself less productive at home compared to office space. She explicates:

> *… the change of workspace from office to home is a great challenge for me. I am not used to working from home, I prefer working at my workplace (university), and I believe I am more productive at my workplace than at home. The COVID-19 lockdown has forced me to develop a new routine wherein I find myself having to juggle between work and home activities, which is difficult, but I am trying.*

Likewise, Nobuhle finds the idea of working from home unfavourable as she struggles with time management. She explains:

> *I am finding the idea of working from home not conducive for me as I am not good at time management. Working from home calls for the strict management of time as both domestic chores and work responsibilities contest my attention. For now, I am struggling to balance between home and work activities. Nonetheless, I take this situation as an opportunity to learn new habits which I assume will be most beneficial and valuable to me as an academic.*

The need to work from home appears to be a predicament for all the participating academics. These academics, on the one hand, hold identities such as mother, daughter, sister and wife, among others, which are identities that play out mostly at home (Trepte 2006). On the other hand, they hold a professional identity. Therefore, the need to work from home required Sbahle, Nobuhle and Nonhle not only to accommodate their professional identity within their home space but also to move smoothly between these identities. These academics are free from authority at their homes, and they take full control of their new working routines (Sullivan 2010).

7.2.2   Students' Challenges as an Impediment to Remote Teaching and Learning

Sbahle, Nonhle and Nobuhle do acknowledge opportunities embedded in remote teaching and they are acquiring necessary skills to this end. However, these emerging academics foresee student diversity in terms of socio-economic status as an impediment to a swift switching to remote learning. Sbahle explains that all her learners would appreciate the opportunity to learn online, however, inequality is a reality to be considered in the South African context. She explicates:

> *What concerns me, though, are my students who are coming from different economic backgrounds. I believe all students would like the opportunity of learning remotely; however, resources such as laptops, smartphones and data might be an obstruction. This is a reality we cannot overlook in the South African context.*

Pondering about similar views is Nonhle and she explains the plight of her students below:

> *... my students are finding online learning challenging because they do not have access to the internet. They are not affording data expense that comes with online learning. Additionally, some of them stay in remote areas with limited access to network connectivity and electricity.*

Nobuhle further complicates the issue of students' challenges by paying attention to the demographics of students attending at her university. She expatiates:

> *The majority of students enrolled at our university come from disadvantaged communities and I foresee the new methodologies excluding some of them as they reside in areas with poor or no internet connectivity and sometime might not have DATA. Therefore, online teaching and learning tools are, of course, convenient for some of the students while they are inconvenient for some.*

The above discussion reminds us of the reciprocal nature of the work of academics. The fulfilment of their role lies in students' grasp of content. Sbahle, Nonhle and Nobuhle appear to be ready for the transition; however, they remain in the dark about their students' readiness. South Africa, as a developing country, has a majority of low-income communities. Tamrat and Teferra (2020) propound that only 24% of the population has access to the internet. This, therefore, poses a challenge on academics' transitioning endeavours. From the dialogism perspective, the impact of students' challenges on academics' transition confirms that people are always in relationships (Holquist 1990).

8   Conclusion and Implications

This chapter sought to answer one research puzzle: What are the opportunities and challenges experienced by emerging academics during the transition from face-to-face to remote teaching in the context of COVID-19? We then return to this puzzle to draw conclusions.

Regarding the opportunities, the COVID-19 pandemic will always be remembered as a critical and unprecedented period in higher education institutions. This era forced institutions and academics thereof to find new ways to carry out their mandates and accomplish their missions. The findings of this study show that the pandemic forced the academics to migrate from their familiar zone to an unfamiliar zone. The familiar zone refers to the on-campus face-to-face contact teaching, while an unfamiliar zone refers to online teaching within the confines of home. This migration saw Sbahle, Nonhle and Nobuhle engaging in dialogues with colleagues, employing institution, students, the COVID-19 predicament, family members and above all with themselves in their quest to re-imagine themselves as academics. Owing to these dialogues, these academics realised a need to learn new ways of surviving within the unfamiliar zone. This includes exposure to online teaching and the acquisition of ICT skills. We label this forced migration as an opportunity for the participating emerging academics because they are unlikely to return to their familiar zone post the pandemic, but are likely to inhabit both zones. The ICT skills acquired by these academics as well as their experiences of online teaching will influence academics' imaginations of selves as academics as well as their academic practices post the pandemic. In this way, both the familiar

and unfamiliar zones will constitute their new familiar zone. It is worth noting that online pedagogy came up as one of the shortfalls in the academics' migration. Therefore, the development of academics in this aspect is recommended for the realisation of online teaching possibilities.

In terms of the challenges, during the COVID-19 pandemic, online platforms were the only available spaces for teaching and learning. However, contextual realities of South Africa stroke and reminded everyone of the inequalities in communities. These contextual realities involve, among other things, wide-ranging geographic locations, the majority of low-income families and massification in universities. The findings imply that the online teaching discriminates against the majority of students as most of them dwell in low-income communities and this very same income was threatened during the lockdown period. Additionally, it came up that some university classes host above 200 students. Therefore, the contextual realities of South Africa presented a strong voice in the participating academics' dialogue with the situation and they influenced their thinking.

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Transitioning from Face-to-face to Remote Teaching

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Emergency Remote Teaching in Higher Education: How Academics Identify the Educational Possibilities

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Abstract

The concept of the fourth industrial revolution (4IR) has occupied a central space in research globally. However, the concern has been over the inadequate preparation and lack of readiness on the part of some developing nations to participate in this revolutionary movement. The apparent lack of readiness and inadequate preparation were expected to manifest itself in the lack of infrastructure and technological developments that characterise the 4IR. The concern was that the 4IR was going to be primarily advantageous to developed nations at the expense of developing or under-developed nations, many of whom are still struggling to cope with the provisions of the second and third industrial revolutions. Amid this concern came COVID-19. Despite the fact that COVID-19 came with many challenges such as an increased global mortality rate and a global economic, educational and social shutdown, among others, this chapter seeks to explore how academics understand the possible opportunities that may be harnessed in the higher education sector in the course of the present pandemic and how these may pave the way for the 4IR, while fully understanding the many challenges. Underpinned by an interpretive paradigm and qualitative research approach, this study uses a technology acceptance model to consider the responses of academics at a higher education institution and employs open-ended questionnaires and focus-group interviews

to generate data. The findings indicate that while academics understand the challenges presented by the pandemic and the imperative to teach differently, they recognise various educational opportunities that have presented themselves in terms of learning new teaching methods, becoming more caring academics, working differently, and recognising the imminent approach of the 4IR.

Keywords: Fourth industrial revolution, COVID-19, educational opportunities, teaching and learning, academics, higher education

1 Introduction

Globally, the world has gone through many changes. With the introduction of water and steam power, mechanisation increased in what has become known as the first industrial revolution (1IR). The second industrial revolution (2IR) was characterised by electrification, chemical engineering advances and mass assembly-line production. The third industrial revolution (3IR), which currently prevails, recognises the role of digitisation, web-based connectivity, automation and electronics in work and home lives. This is a world where higher education is massified, online learning platforms shape how learning takes place, and internet connectivity is an expected norm (Penprase 2018). Moving on from the 3IR, the catch-phrase in education circles and elsewhere today is the fourth industrial revolution or 4IR.

The 4IR focuses on, among other aspects, digital technologies, artificial intelligence, genetic design, neuroscientific advances, big data analytics, 3-D simulation, machine learning, and virtual and augmented reality. This revolution relies on high and increased connectivity and the related possibility of increased cyber-security threats. However, the 4IR also focuses on creativity, critical thinking, emotional intelligence, problem-solving, and communication skills, among others (Penprase 2018). Learning needs to be independent and personalised, and has to be foregrounded by the question, what does it mean to be human in the twenty-first century?

Much concern has been expressed about the inadequate preparation and lack of readiness on the part of some developing nations, like South Africa, to participate in this revolutionary movement in terms of a possible lack of infrastructure and technological developments that characterise the 4IR. The

concern was that the 4IR was going to be primarily advantageous to developed nations at the expense of developing or under-developed nations, many of whom are still struggling to cope with the provisions of 2IR and 3IR.

Amid this concern came the COVID-19 pandemic with an increased global mortality rate, and a global economic, educational and social shutdown. Within higher educational institutions worldwide, the move to emergency remote teaching and learning became a reality as persons heeded the call to remain distanced from others physically. While many academics around the world have worked with remote teaching in the form of online or blended teaching, and some had dabbled in it, there were academics who eschewed it completely, until the crisis.

In the light of the above, this chapter argues that, despite the crisis brought about by the pandemic and despite reservations by academics about remote teaching, there are educational opportunities that may be harnessed in the higher education sector that may help to pave the way for the 4IR. While recognising the obstacles to remote teaching and learning, especially in an unequal society like South Africa, this chapter asks the questions: What do academics at a South African higher education institution recognise as educational opportunities of moving to emergency remote teaching and learning as a result of the COVID-19 pandemic? Can the move take higher education institutions in South Africa closer to the 4IR?

2   Review of Literature

2.1   *Emergency Remote Teaching and Learning*

As a result of the COVID-19 pandemic and the need for physical distancing, universities across the world have resorted to some form of online learning. Urdan and Weggen (2000) note that online learning, a sub-set of distance learning, is used to refer to web-based training, e-learning, internet/web-based learning, cyber learning and virtual learning, among others, and these terms are sometimes used interchangeably. Well-planned online learning is carefully prepared and developed over approximately six to nine months and takes two or three iterations before academics are used to the process and have made the necessary changes (Hodges, Moore, Lockee, Trust & Bond 2020). Effective online learning considers modality, pacing, student-lecturer ratio, pedagogical choices, synchrony of learning, academic and student roles, assessment roles,

and mode of feedback, among others (Means, Bakia & Murphy 2014) and is a useful means to move towards the 4IR.

Emergency remote teaching and learning (ERTL) work in contrast to effective online teaching and learning due to the nature of its rushed shifts online under emergency conditions. Such efforts have been seen during student protests in South Africa, displacement in Syria, Hurricane Katrina in the United States of America, and earthquakes in New Zealand (Czerniewicz, Trotter & Haupt 2019).

This form of teaching is an interim change of instructional provision due to emergency conditions and its purpose is to offer temporary access to instruction (Hodges *et al.* 2020). The rigour required of online course design and development is not in place, as academics rush to put systems in place. In a study on ERTL, following student protests at a South African university, Czerniewicz *et al.* (2019) found that academics recognised ERTL as a top-down initiative imposed on academics as a stop-gap measure and was viewed as an inferior pedagogical strategy. However, ERTL is being implemented at universities, thrusting academics into confronting the realities of 4IR, while understanding its challenges.

2.2 *Challenges to Remote Teaching and Learning*

Challenges to online teaching and learning abound, and for remote teaching and learning, the challenges increase. Online learning requires that academics have pedagogical and technical support and expertise in course development and facilitation skills, and an attitude to learn such skills. If those are lacking, challenges to online teaching and learning thwart the process (Bonk & Graham 2006; Keengwe & Kidd 2010).

Of greater concern is that online learning lays bare the digital divide, identifying those who have online access to resources and digital literacy and those who do not (Boyd 2016). Researchers (Kayembe & Nel 2019; Bagarukayo & Kalema 2015) note that lack of infrastructure, inadequate hardware and software, slow internet connectivity, low bandwidth, internet costs, mobile phone subscription instability, and student preparedness, among others, determine who benefits from online teaching and learning and the move towards the 4IR. Mahlatsi (2020) notes that the 4IR could perpetuate inequalities and further marginalise or exclude the impoverished working class globally.

Emergency remote teaching and learning take the challenges further, as academics have little time to prepare, and the study by Czerniewics *et al.* (2019) have found that academics perceive ERTL as lacking in rigour, while the online tools used are seen as gimmicks. The academics felt that students learn better through personal engagement and feedback, and student accountability is lacking. The academics also noted that students did not like ERTL. Understanding such challenges, what educational opportunities are possible?

2.3   Educational Opportunities of Remote Teaching and Learning

Toffler (1984: 414) warns, that to acquire 21st century literacies persons will need '… to learn, unlearn and relearn'. The COVID-19 pandemic has thrust academics into confronting decisions about learning, unlearning and relearning ways of teaching and learning, including those involving the 4IR. Despite the many challenges outlined above, educational opportunities are possible, and the benefits of 4IR may be gained by the provision of low-cost smartphones, and widely available broadband internet by universities and/or the government (Du Preez & Sinha 2020). Online teaching and learning, including emergency remote teaching and learning (ERTL), could therefore scale down costs brought about by expensive infrastructure, large class sizes and heavy teacher workloads, erase borders and bring people together (Kalantzis & Cope 2020; Du Preez & Sinha 2020).

Implemented correctly, online teaching and learning and ERTL allow for automatic grading, student administration and feedback, and collection and analysis of historical data (Du Preez & Sinha 2020). Effective online teaching and learning and ERTL can facilitate meaningful dialogue and engagement, opportunities to gain access to information, higher-order thinking skills, lifelong and life-wide learning, multidimensional experiences for students, and exposure to different kinds of learning using rich, diverse course content (Boyd 2016; Kalantzis & Cope 2020; Czerniewicz *et al.* 2019). The use of online teaching and learning can also teach students important skills of discernment to enable critical digital literacy skills, and to engage with issues of increasing cyber bullying, hate speech, and circulation of false information (Boyd 2016; Pather 2020). In addition to all of the above, online teaching and learning in the South African and African contexts afford the prospects to create 4IR modules to find answers to African questions and challenges using technology

that recognises the characteristics, traits and languages of African people (Molele 2019). With an understanding that such educational opportunities are available to academics, it became important to explore what academics at a South African higher education institution recognise as educational opportunities of moving to emergency remote teaching and learning as a result of the COVID-19 pandemic, and whether the move can take higher education institutions in South Africa closer to the 4IR.

This study employed the technology acceptance model (TAM), based on the theory of reasoned action, and developed by Davis in 1986. The TAM is an information systems theory that models how users come to accept and use technology (Davis 1986). The TAM aids in understanding users' decisions to adopt and employ technology. While concrete system usage is what is sought, the TAM offers interpretations of users' acceptance of emerging technology. Davis (1989) advances that the use of technology as a response may be explained or predicted by user motivation, which consists of three variables: perceived usefulness (PU), perceived ease of use (PEOU), and attitude towards use.

Davis notes that perceived usefulness (PU) is driven by users' perception that technology can enhance performance. Perceived ease of use (PEOU) is driven by users' perception of how free from effort they may be through technology use. He proposes that the attitude of users towards the use of technology determines adoption or rejection of technology. Furthermore, Davis adds that users' attitudes towards technology use are also directly influenced by perceived usefulness and perceived ease of use. Thus, behavioural intention, the factors that direct users to utilise the technology, is prompted by the users' attitudes to the technology.

According to TAM, users' technology uptake may be projected from their intentions. Among the variables, PU and PEOU form the users' belief system about technology and therefore predicts their attitudes toward the technology, which in turn predicts its acceptance. The significance of this model to our study is that it helps to explain how participants understand the benefits or challenges of technology, whether they recognise ease of use in technology uptake, and may predict technology use in emergency remote teaching and learning which the Covid-19 pandemic has forced all participants to adopt.

3 Methodology

Using an interpretive paradigm and a qualitative approach, this study used open-ended questionnaires and focus-group interviews to generate data. An interpretive paradigm, which opines that knowledge about reality is socially constructed and can only be accessed through direct social interaction with people's shared meaning, language, experiences and consciousness (Myers 2009), was suitable for the study, as the purpose of the study was to explore the participants' understanding of what constitutes educational possibilities in the implementation of emergency remote teaching and learning. A qualitative approach, which is a naturalistic way of researching the 'emic' lived experiences through direct interaction with the local population, uses methods such as open-ended questionnaires and focus groups (Parkinson & Drislane 2011). This approach was appropriate for the study, because it allowed for rich reports that are necessary for interpretivists to understand contexts fully (Willis 2007).

Open-ended questionnaires, which ask open-ended questions and allow participants to answer the way they like so that it gives study participants the opportunity to be free in their responses to any particular question in the questionnaire, are not constrained to a particular way of answering questions (Cohen, Manion & Morrison 2011). In this study, questionnaires were designed to enable participants to share openly their understandings of the opportunities that could arise through the introduction of the emergency remote teaching and learning that had to be learned in response to the pandemic.

In addition to the open-ended questionnaires, participants were invited to a focus-group interview via Zoom. A focus group is an organised discussion with a selected group of individuals to gain collective views about a particular research topic (Arthur, Waring, Coe & Hedges 2012). This technique enables participants not only to share their ideas on the topic, but also allowed them to interact with one another's ideas. Both data generation instruments were administered during the lockdown of the country and participants were preparing for emergency remote teaching by attending remote workshops, reading material and adapting their teaching material. They had not started emergency remote teaching.

A purposive sample of nine participants answered the open-ended questionnaire. According to Cohen *et al.* (2011), purposive sampling is a deliberate selection of specified participants to represent a larger group. In this study, participants were chosen to represent academics at various stages of

their academic careers, resulting in an equal distribution of early-career, mid-career and established-career academics. There were seven females and two males in the study. Each participant was e-mailed to explain the study and to invite them to participate in it. Once they had agreed to participation, informed consent was obtained from them; the questionnaire was sent to them, and once completed, they e-mailed the questionnaire back. Of the nine participants, eight of them participated in the focus-group interview.

Once all questionnaires were received and the focus-group interview was transcribed, thematic analysis took place. Thematic analysis is a qualitative data analysis tool which involves identifying, describing, analysing and reporting themes and patterns within a data set in rich detail (Braun & Clarke 2006; Smith & Eatough 2007). Trustworthiness was enabled by paying attention to issues of credibility, transferability, dependability and confirmability. To ensure credibility of the research findings, we aimed for self-contained triangulation (Bharuthram & McKenna 2006) by deliberately rephrasing the focus-group questions and prompts to verify the consistency of the responses from the questionnaire data set. To ensure transferability for this study, we ensured that the study provided rich and detailed descriptions of the participants and the context of the research, thus serving as a guide for conducting similar studies, leading to its transferability. To ensure dependability, we made use of an audit trail of the study, while we relied on both the audit trail and the triangulation of research instruments to ensure the confirmability of the findings of the study (Lincoln & Guba 1985).

4 Discussion of Findings

Participants in the focus group were clear that they understood the challenges and uncertainties involved with emergency remote teaching. They noted that they were *not ready*, *not fully prepared* and *inexperienced in this way of teaching*. Their emotional responses indicated that they were *confused*, *anxious*, and *in a panic*, and a participant noted that *the idea of managing the technicalities of technology freaks me out*. The latter comment revealed that the participant was *not convinced that emergency remote teaching was best for all students* and noted that he was *not fully on board*. Another indicated that she found herself *rushing to upload* and was *looking for a quick fix*. Yet another pointed out that *I will miss the contact and seeing real faces,* but two participants noted that *I am learning every day* and *it's good to know I am not*

alone. These, and other sentiments, reflect participants' feelings of being ill-equipped for the task at hand, and their fears about their abilities to manage their classes. Such responses reflect the findings of studies by Czerniewicz *et al.* (2019) and Keengwe and Kidd (2010).

While understanding these sentiments, this study sought to identify what participants, academics at a South African higher education institution, recognise as educational opportunities of moving to emergency remote teaching and learning because of the COVID-19 pandemic. The findings from the open-ended questionnaire and the focus-group interview were thematically analysed into the following themes: Opportunities to learn different teaching methods; Opportunities to become more caring academics; Opportunities to work differently; Opportunities to recognise the imminent approach of 4IR.

4.1 Opportunities to Learn Different Teaching Methods

The focus-group participants were clear that the move to emergency remote teaching had necessitated that they *stepped out of their comfort zone*, stopped being *traditional teachers* who were *comfortable standing in front* and needed to be *open-minded about the opportunities and possibilities* to *improve our practices*. One participant noted that she had taught *the same way for a long time*. A participant shared that she has realised that she can now *use a multiplicity of teaching methods*. The recognition by participants that they were teaching in the same way for a long time and needed to change is important. The acceptance that change was necessary is an important first step to potential growth. The fact that many methods were recognised echoes the finding by Czerniewicz *et al.* (2019) that online teaching methods could add richness and diversity to course content. The use of technology was therefore recognised as useful (Davis 1989).

Having just received training on many remote teaching tools and preparing to attend others, participants in the focus group and in questionnaires could identify teaching methods that had caught their attention. They identified using *Moodle, Moodle Cloud, Zoom, Zoom Cloud, Zoom Proctor, Facebook for modules, Video-conferencing, Microsoft Teams, Loom, Google Classroom, Google Drive, TED Talks, YouTube videos, WhatsApp,* and *scripted lectures,* among others. All participants stated that, except for Moodle, which was used to *upload material,* and *some YouTube videos,* other applications were new to them, especially for teaching. In fact, many agreed with the participant who spoke about learning about the *many fantastic features of Moodle that I hadn't*

a clue about. Boyd (2016) notes that applications such as Moodle can become a repository to bank materials and could result in students being fed information without any real engagement with the material. The fact that participants could recognise that Moodle had the potential for more, bodes well for teaching and learning going forward.

Responses also indicated an awareness of using teaching methods to enhance students' learning. In a questionnaire, a participant noted that it was possible to *use different methods for different learning styles* to *capture students' interests*, a finding in line with the study by Czerniewicz *et al.* (2019). Another recognised that remote teaching allowed students to *learn whenever and wherever they wanted to* and yet another stated that it allowed students to learn *at their own pace* and can *repeat lectures when material was not fully grasped.* Such realisations reveal the participants' understandings of the freedom of time and pace afforded by online teaching and learning. It also points to the need for discipline and independence required of students.

However, a participant, in the focus group cautioned that we need to be *constantly reflexive*, to *check to see if students grasped the material* and if it was *useful*. She noted, *we don't have them in front of us, so we need to ask if it fulfilled the purpose*. Similarly, a questionnaire respondent realised the need to *make teaching absolutely comprehensible* to students. Such insights point to the need for academics to be reflexive in their teaching endeavours, and to ensure well-thought out lectures and materials are presented to students to enable effective engagement. Bagarukayo and Kalema (2015) note that academics need to be aware of varying levels of student preparedness for online teaching and thus lectures have to be designed to accommodate such. They also point out that lecturer efforts and attitudes go a long way towards enabling success in online teaching and learning.

Finally, a participant noted that remote teaching can actually give a *sense of one-on-one teaching with a student* which *doesn't happen in large face-to-face classes where we are physically present.* She noted that even when the lockdown is over, *remote teaching should complement our lectures.* It is clear that the participant has given the process some thought in terms of how her teaching is going to proceed, she understands the engagement process, and she has recognised the educational opportunities that this form of teaching provides, not just in the emergency, but beyond.

4.2   Opportunities to Become More Caring Academics

An unexpected finding was the number of participants who pointed out the need to be caring academics to their peers and to students. This finding relates to the concept of the caring teaching approach (Gholami & Tirri 2012: 2), which recognises that 'teachers' pedagogical orientations are more 'moral and emotional' than technical and methodological'. In the focus-group interview, a participant noted that she had learned that she needed to *reach out to my colleagues on WhatsApp and email* and another shared that *we need to think about how others are coping or not coping during this lockdown*. A third focus-group participant recognised that she needed to be *more patient, more forgiving, more flexible* with her colleagues. In terms of learning to work differently, a questionnaire respondent noted that it was appreciated that there was *ongoing support* from colleagues. The respondent shared that there was an atmosphere of *sharing* and *encouragement to try when I felt discouraged, lost and alone on this journey*. A further respondent noted valuing the *presence and availability of my colleagues* and *their contribution to my creativity*. Yet another noted in the questionnaire that the lockdown had made the person *re-think and re-examine what I stand for* as an *academic and friend*. The person continued, *I see I have to become more compassionate, loving, caring, attentive, empathetic – more humane. This has awakened my humanity.* The respondent ended with *I hope, after this ordeal, we will have better human relations among people.* The foregoing reinforces Fenstermacher's (1990) and Gholani and Tirri's (2012) description of a caring teacher as someone who is characterised by traits such as honesty, compassion, truthfulness, fairness, courage, moderation, and generosity in his/her pedagogical practices.

Such findings are important and revealing. Academia with its ethos of teaching, researching and publishing is often understood as lonely and possibly self-centred. Collaboration is not necessarily rewarded, with collaborative efforts resulting in lower productivity rewards. The understanding that there is a need to reach out to and assist colleagues in their times of crisis, and equally the realisation that it is in order to reach out to others for help, is a step in shaping participants' identities as academics and as human beings in connection with other human beings. The note of hope expressed by the participant for what will follow the pandemic serves as a beacon of promise for a better way of being in academia and beyond.

There was also a recognition that there was a need to be caring towards students. In the focus-group interview, a participant noted that *students need*

compassion and that she learned that she needed to *reach out to them, even just to say hi*. Another added that *we need to listen to what they are going through*, and another cautioned that *we don't know what is going on in their homes*. A participant shared that a postgraduate student would not join a remote supervision cohort via Zoom because the student noted that *I can't have you in my home*. In a questionnaire, a respondent noted that *I have to be flexible with due dates and requirements because I don't know what homes are like in the COVID scenario*.

In the questionnaires, respondents used the term *humanising pedagogy*, and in the focus-group interview, this term was used by three participants. In the questionnaires, the respondents noted the need to use a *humanising pedagogy* without explaining what was meant by it. In the focus group, participants noted that we need to be aware that *not all have the same resources*, that some students would be *privileged over others*, and that we need to *care for* and *respect* them and *understand their realities*. In a questionnaire, a respondent noted that the pandemic emphasised *the need for an adaptive pedagogy* that *forced me to exploit technology which I have been reluctant to use in the classroom*. In the focus-group interview, one participant used the term *culturally responsive pedagogy* when considering how academics should work with students. The participant explained the term as *valuing what students bring with them* and *valuing their experiences*. While academics are usually aware of some of the challenges students face on a daily basis, this pandemic has enabled the participating academics to understand a little more. The understanding that academics need to reach out to students and listen to their concerns, and the reminder that home environments are not always conducive to study have made the academics realise that usual perceptions of who students are might be wrong or inadequate. Knowing who students are and the experiences with which they come to teaching and learning might need to be re-thought.

4.3   Opportunities to Work Differently

There was an awareness that participants realised that remote teaching and learning provide opportunities to work differently for both academics and students. In questionnaires, respondents noted that they were *forced to research remote teaching and learning approaches* and admitted that they did not know that *marking can be done online*. A respondent stated that there was

no need to worry about the *availability of venues,* whether there was an *adequate number of lecturers* for large classes, or *disruptions* that may occur because of *student protests*. A respondent realised the possibility of *experimenting* with large class teaching and *mass delivery of content* in ways that will *free up space and time for other activities*. The participants' responses reveal that they are learning and have been forced to learn new ways of working. Their responses also reinforce those of Du Preez and Sinha (2020) who identify the benefits of remote learning in terms of marking, feedback and teaching workload. The fact that participants are considering *experimenting* with the teaching of large classes is positive as an effort to solve a problem faced by many higher education institutions that have enabled access to large numbers of students without optimal infrastructure to engage with them effectively. When the respondent noted that remote teaching could *free up space and time for other activities*, the scope of such activities had not been identified, and should, perhaps, have been probed during the focus-group interview.

However, it must be acknowledged that the need to work differently emanated from a pandemic that forced academics, and others, to remain at home with families. This arrangement forced academics to learn how to *prioritise tasks*, *plan ahead*, *avoid home-work conflicts*, and *manage time more effectively*. One academic, a parent of a young child, noted in the focus-group interview that she has to *work when everyone is asleep*, but added that *I find that so productive*. Another noted, in a questionnaire, the realisation that there was a need to *balance* the home as an *office, lecture-room, and research space* and to balance the roles of *mother/wife/daughter-in-law*. It is clear that the need to work differently has also changed how academics see themselves and how they recognise their identities. Their responses indicate that it is not always possible to separate identities and that identities need to sometimes fuse to create something new. However, their sentiments reinforce those of Hodges *et al.* (2020) who point out the flexibility that is built into online teaching and learning. Of importance is their attitudes to online teaching and learning shaped by their recognition of its perceived usefulness and ease of use (Davis 1989).

For students, too, academics recognised the opportunities for students to work differently. In questionnaires, respondents noted that students would have opportunities to *chat and discuss in different forums* and will be able to *talk with each other and with the lecturer*. One respondent pointed out that students would have *one on one access to lecturers*. The focus-group

interviews revealed that participants believed the new way of working would foster *independence* in students who would need to *take ownership* of their studies. A participant also noted that while most students were comfortable with *WhatsApp, Facebook, Instagram and Twitter*, they would need to go on this *new educational journey* to make this process work. However, like the academics, students will enjoy the flexibility associated with working when and where they want (Hodges *et al.* 2020).

4.4   Opportunities to Recognise the Imminent Approach of 4IR

The process of embracing emergency remote teaching and learning made participants recognise the imminent approach of 4IR. In the focus-group interview, participants noted that ERTL *has drawn us closer to 4IR*, *has challenged us to rise and meet the learning needs of the 21st century*, has provided a rare opportunity to sharpen our digital skills, and made us realise that *technology is here to stay*. With this understanding, participants noted the importance to *upskill,* to *learn for the 4IR* and *teach for the 4IR*, and to debunk the idea that *technology can't replace me, when actually it can*. One participant shared her realisation that *I can't say that I will leave 4IR to the youngsters,* and another noted that while she *wanted to research 4IR,* she *hadn't gotten down to doing it.* She added, *I am now forced to think about it.* Finally, a questionnaire respondent realised that *there's a whole world of technology that we are not utilising.* The fact that participants are thinking and reading about 4IR is positive. They appear to be trying to improve their digital skills, no matter their age or understandings of what it means to be an academic. This has occurred within the devastating context of a global pandemic. The implication from the foregoing is that the study participants' attitudes towards technology and the perceived usefulness of the emergency remote teaching and learning reinforces Davis' (1989) technology acceptance model which influences users' decisions to accept an emerging technology in teaching and learning.

5   Conclusion

The COVID-19 pandemic resulted in various sectors shutting down, livelihoods being affected, and many lives being lost. It also resulted in education institutions, including universities, resorting to emergency remote

teaching and learning (ERTL), often with little or no initial understandings or preparation. The challenges of ERTL are overt and difficult to navigate. However, this chapter aimed to understand what academics at a South African higher education recognise as educational opportunities of moving to emergency remote teaching and learning as a result of the COVID-19 pandemic. By working with Davis' (1989) technology model, the chapter was able to take the issue a little further by considering whether this move is able to take higher education institutions in South Africa closer to the 4IR.

The findings suggest that while academics understand the difficulties and hardships emanating from the pandemic and the requirements to teach differently, they acknowledge many educational opportunities that have presented themselves in terms of learning new teaching methods, becoming more caring academics, working differently, and recognising the approach of the 4IR.

While much is known about online teaching in all its various forms, emergency remote teaching and learning, in its responses to crises in all their various forms, reflect a form of teaching embedded in risk and disaster. When physical environments and human life are threatened, people resort to thinking creatively and critically to find solutions to their immediate and long-term problems. They communicate with one another and make the effort to recognise the emotional impact of the crisis on themselves and on others. In other words, they learn what it means to be human. Together with digital literacies and technologies in all its forms, the human attributes of resourcefulness, analytical thinking, sensitivity to others and to oneself, problem-solving, and communication can take academics successfully into the fourth industrial revolution, even in, and despite, a pandemic.

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Offline - Online Information and Communication Technology (ICT) Teaching and Learning Strategy in the Age of COVID-19 and Beyond

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Abstract

The #FeesMustFall Movement in 2016 and the 2017-2019 closure of campuses by South African university students have had an adverse impact on teaching and learning. The recent COVID-19 outbreak is another timely reminder of how global pandemics can fundamentally affect schooling and higher education institutions. One of the first responses by Nelson Mandela University in the face of COVID-19 was to encourage lecturers to switch to online teaching as different approaches to teaching and learning are imperative in this environment. In the South African context, access to Information and Communication Technology (ICT), which includes devices and continuous online internet connectivity, is problematic due to unequal access. Thus, in this chapter, we propose a strategy that does not require the sole utilisation of e-learning platforms. Therefore, we also posit the off-line design of an artefact that can be shared by all students as part of their learning experiences. We do not necessarily disagree with utilising e-learning platforms or social media tools. However, we argue for the utilisation of ICT tools that promote meaningful learning, steering away from lecturers simply lecturing online through videos and the completion of online tests. We propose a more constructivist-constructionist student-centred approach. In addition, we

believe that the zero-rated data cost for access to institutional online platforms during COVID-19 assists to make our proposed project-based strategy a viable alternative to supplement existing online learning strategies. Our proposal requires a mind-shift, i.e. a shift in learning 'from' ICT tools and 'from' the lecturer, to learning 'with' and 'through' ICT tools (Jonassen, Myers & McKillop 1996). This is embedded in a 'learning-as-design' or 'knowledge-as-design' paradigm, where students simultaneously become the learners, creators and directors of content as knowledge. We posit, that when students become the designers of ICT artefacts, they gain various cognitive and design skills, which resonate with the critical outcomes as envisaged by the national curriculum policies, as well as the 4C model – collaboration, communication, critical thinking and creativity (American Association of Colleges of Teacher Education, 2010) and the 21st-Century Skills related to the Fourth Industrial Revolution (Butler-Adam 2018; Reaves 2019). The purpose of this chapter is to demonstrate how PowerPoint (in traditional and alternative modes) and Moodle could be used synchronously (online by more than one student) and asynchronously (offline by students) utilising a learning-as-design approach. This brings the students and lecturer(s) together, to enable epistemological access which could provide meaningful and deeper learning. Project-Based Learning (PBL) is central in our proposed framework. However, the loops are not identical.

Keywords: Constructionism, constructivism, deep learning, higher-order thinking, ICT, knowledge as design, meaningful learning, project-based learning.

1 Introduction
The sudden arrival of COVID-19 has had a devastating effect on societies worldwide on a scale seldom seen before. This disease has brought the wheels of the world economy to a virtual standstill. It has disrupted millions of lives across the planet and left a trail of death in its wake. As a result, the short- and long-term consequences will affect every facet of our lives long after it has gone. It is against this background that higher education institutions and schools worldwide have to rethink how teaching and learning will be conducted in future. This is a moment to pause, think, reflect and assess our options and act in the light of this historic event. If we could respond to

COVID-19 with foresight and innovation, we would be well placed for other disruptive events in the future, as well as issues such as climate change.

What should our curricular response be to this pandemic, visited upon us with such rapidity? Perhaps this is the trigger that was needed to rethink and reimagine our curriculum, traditional methods of teaching and learning as historically practised for centuries and reflected on by curriculum theorists and philosophers.

How can we reach the other side of this crisis better prepared, with responsive and well-thought through curricular plans and innovative modes of delivery? COVID-19 has exposed the limitations of the traditional teaching and learning model utilised by universities globally, that rely on face-to-face interaction. The physical and social distancing required during this period to slow down the infection rate has rendered traditional lecturing obsolete. Many universities are making contingency plans to manage the effects of this pandemic and how best to rescue the academic year. It appears that in many instances, Zooming has become the new face or 'pedazoom' of the traditional lecturing model. While many universities state that they have moved to online learning, it appears that what has happened is emergency remote teaching (Hodges, Moore, Lockee, Trust & Bond 2020). One has to distinguish between the two, as designing a real online learning module cannot happen overnight and requires detailed planning months before an online learning module is ready for implementation (Hodges *et al.* 2020). Emergency remote teaching refers to changing the on-campus face-to-face approach, as a result of a crisis such as the COVID-19 pandemic, to an online approach, by teaching remotely through utilising ICT tools to deliver instruction as before. Once the crisis has subsided, there will most probably be a switch to the original format (Hodges *et al.* 2020).

It is against this background that we propose a delivery mode that requires some form of online access, but not online in its totality, as we are aware of all the pitfalls and dangers in an unequal society such as South Africa. Our version of an online teaching approach is one that takes the notion of peda-gogical rigour seriously and one whose objective is to bring about meaningful learning encounters and not simply exchanging face-to-face teaching with online teaching. At the same time, the aim of our strategy is not to be a substitute for online learning, but one that can be an integral part of it. We also suggest that this strategy as an activity, could also be utilised post-COVID-19 in traditional offline settings. As such, the purpose of this chapter is:

- To present an alternative learning strategy to the traditional lecturer-centred, PowerPoint slide-based strategy. This is one of the possible solutions to promote meaningful learning within an online-offline space during and beyond the COVID-19 pandemic;

- To present the conceptual and theoretical principles associated with this strategy;

- To present the possible advantages that this strategy could promote; and

- To show how the proposed strategy links to the types of knowledge and cognitive processes.

2 Information and Communication Technology in Education

Data from the DoBE (Department of Basic Education 2019) reveal that 63.5% of schools are without a computer centre and approximately 80% of ordinary operational schools have no internet access for teaching and learning. This highlights that there is a huge disparity related to access to ICT resources and internet connectivity. Nonetheless, once these learners enrol at university, there appears to be an emphasis on using technology such as a desktop, laptop or tablet as a tool to search for information, print or upload an assignment typed in Ms Word or to design a PowerPoint presentation. At university level there seems to be a tendency for 'death by PowerPoint' (Garber 2001), i.e. replacing the chalkboard or whiteboard for its digital family member. Such teaching results in a 'learning from' PowerPoint denoting an instructivist-behaviouristic lecturer-centred philosophy (see Figure 1) using technology as a presentational or representational tool (Du Plessis 2016).

The educational philosophy pendulum has swung in the South African educational landscape from the instructivist-behaviouristic position to the constructivist locus. The constructivist position in simplistic form promotes student-centeredness, active involvement in the learning process, collaboration among peers and the lecturer, and self-reflection. Internationally, there has been a constant call for meaningful learning through active participation and product creation (Ashburn 2006; Ferris & Wilder 2017; Kennewell 2017) to enable students' 'abilities to understand complex ideas and learn challenging content using technology' (Ashburn 2006: 2), promoting deep knowledge in conjunction with utilising ICTs.

LEARNER COGNITIVE ACTIVITY

LOW   HIGH

Movement

COMPUTER LITERACY

LEARNING ABOUT
ICTS IN ICT ROOM
PRODUCTIVITY TOOL

NOT INTEGRATED WITH WHAT IS
HAPPENING IN CLASSROOM

**SOCIO-CONSTRUCTIVIST
GENERATIVE COGNITIVE TOOL**

GENERATIVE COGNITIVE TOOL
LEARNING AROUND ICT

LEARNING-AS-DESIGN, E-LEARNING,
MOOCS, & INTERNATIONAL
COMMUNITY CONNECTIVIST MODE

IMPLEMENT PEDAGOGIES &
STRATEGIES OF OTHERS

**INSTRUCT-COGNITIVE
ECLECTIC
CONSTRUCTIVIST TOOL**

COMBINATION OF
LEARNING FROM &
LEARNING WITH:
INSTRUCTIVIST-SOCIO-
CONSTRUCTIVIST APPROACH

Movement

TEACHER CENTRED   LEARNER CENTRED

INSTRUCTIVIST

LEARNING FROM
REPRESENTATIONAL TOOL

TRADITIONAL USAGE

**UNINTENDED
SOCIO-CONSTRUCTIVIST
COGNITIVE TOOL**

TRANSFORMATIONAL COGNITIVE TOOL
OWN DEVELOPED NEW-INNOVATIVE-
REDEFINED STRATEGIES

Movement

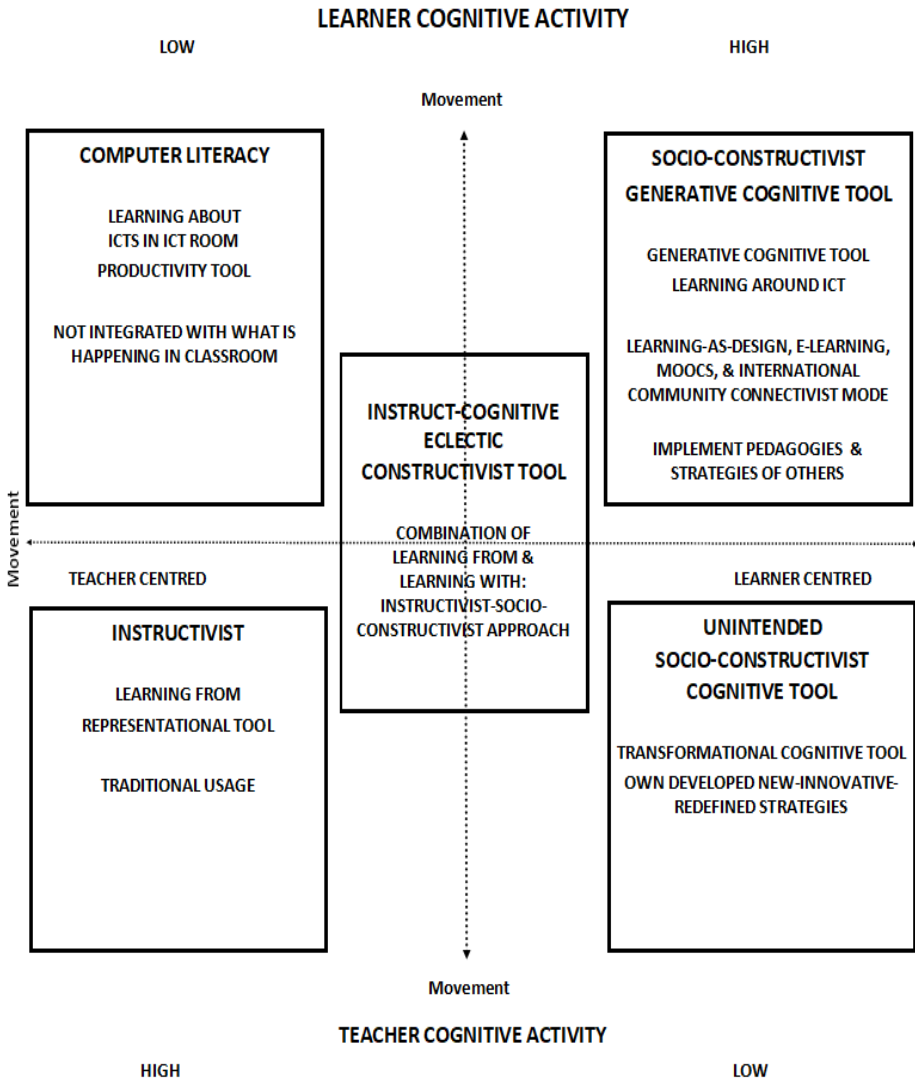**TEACHER COGNITIVE ACTIVITY**

HIGH   LOW

Figure 1: ICT implementation matrix (Du Plessis 2016: 143)

Meaningful learning refers to making meaning through active and wilful engagement embedded by the five attributes, namely being active, construc-

tive, intentional, authentic, and cooperative (Jonassen, Howland, Moore, Marra & Crismond 2008) student-centred learning. We concur with this view.

In the USA, several 21st-century skills have been articulated in need of development among the young, to meet the envisioned challenges that this century will pose. These include Information, Media and Technology Skills with extensive focus on creativity and innovation, critical thinking, collaboration and communication (American Association of Colleges of Teacher Education 2010) which link to the critical outcomes of the South African Department of Basic Education (Department of Basic Education, 2011: 5). One of the main challenges locally is student access to ICT resources and internet access, since the majority of students do not have the financial means to afford devices. Consequently, the proposed strategy presented towards the end of this chapter, subscribes to utilising technology resources in an authentic and meaningful manner, to create an artefact while the student does not have to be constantly online. This depends on how the learning is structured.

3   Types of Knowledge for Learning and Higher-order Thinking

The learning that should be encouraged at tertiary level should promote higher cognitive processing and knowledge on various domains and could utilise Bloom's taxonomy (Bloom, Engelhart, Furst, Hill & Kratwohl 1956) or the revised taxonomy of Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths and Wittrock (2001). Space does not allow us to elaborate on this.

This is the reason, the proposed strategy makes explicit provision for engaging with this taxonomy when posing questions and presenting the project brief by the designer, to the students. There are also four knowledge dimensions in the taxonomy, namely factual knowledge, conceptual knowledge, procedural knowledge, and metacognitive knowledge (Anderson *et al.* 2001). These four knowledge dimensions can be utilised on any of the six cognitive process dimensions. These cognitive and knowledge dimensions in the taxonomy (see Anderson *et al.* 2001) are central to the 'project-based learning strategy in a combination of a predominantly lecturer-centred space' and the 'project-based learning strategy in a predominantly student-centeredness space'. These two learning strategies will be presented later in the chapter.

In addition to these four types of knowledge, engaging with knowledge and learning can also be on several planes or levels, e.g. a surface level, and deep level. Surface knowledge or learning focus on rote learning and memorisation (Czerkawski 2014) which results in breadth with little depth and consequently it is in many instances not knowledge, but rather fragments of information (Bennet & Bennet 2008) devoid of meaningful learning (Islamoglu & Branch 2013). Deep learning should be the focus. This does not imply that surface knowledge should be avoided, as one does require such knowledge before one can engage at a higher or deeper level. However, the danger is when surface knowledge or learning dominates. Deep learning then refers to meaningful learning coupled with understanding (Islamoglu & Branch 2013; Bennet & Bennet 2008); hence, making connections (Bennet & Bennet 2008) which can be promoted through authentic and collaborative dialogical interaction through employing a distinctive product or artefact creation (Ruhalahti, Aarnio & Ruokamo 2018).

Accordingly, our strategy promotes deep learning as the focus and is not on memorisation, but on engaging with the material in a meaningful manner. This requires making connections and the construction of an authentic product or artefact that can be used by peers (or anyone else) to promote deep learning and understanding.

4   Theoretical Perspectives for ICT-based Created Products Embedded in Constructionism

The theoretical perspectives that underpin the proposed 'ICT assisted project-questions-based learning strategy in a combination of a predominantly lecturer-centred space' and 'ICT assisted project-questions-based learning strategy in a predominantly student-centeredness space' are presented as follows:

- Knowledge-as-design;
- Cognitive constructivism (if an individual is solely involved);
- Social constructivism (if peers or groups are involved); and
- Constructionism

'Knowing-as-designing' or 'knowledge-as-design' is attributed to Perkins (1986) and refers to the attainment of knowledge as a result of designing rather

than mere interpretation. Alternatively one can refer to this as *'designing to learn'* or learning through creating a product or artefact. We are not going to engage in-depth with what constitutes knowledge within a knowledge-as-design learning space, but within the context of this chapter we conceptualise it as follows:

> Knowledge-as-design requires that an individual, pair or group of students engage in an authentic, meaningful and (or) content exploration related to a topic(s), theme(s), chapter(s), questions or problems posed which then have to be answered and repackaged through the creation of a product or artefact. The artefact is designed and created through utilising ICT related technology tools to package their product in such a manner that another student(s) could benefit when engaging with this designed product. This process requires formal reflection based on their construction experiences.

The individual who learns the most when product creation is involved is the designer of the product and not the user (Jonassen, Myers & McKillop, 1996) due to critical skills that the designer has to engage with, the designer's reflection and the problems encountered by the designer which has to be solved by the designer. Learning-as-design emphasises that both process and the product are of importance for learning (Jonassen *et al.* 1996; see also Rob & Rob 2018), as students are exposed to various critical thinking skills during the design process such as project management skills, research skills, organisation skills, representation skills, presentation skills and reflection skills (Carver *et al.* 1992; Lehrer 1993). During the design process there are analysis, synthesis, investigation, composing, constructing, re-writing, re-composing, etc. which require mental effort. Hence the student becomes a producer instead of a consumer (Kafai, Ching & Marshall 1997) while the final product enables the student as the designer to *'externalise'* their knowledge (Jonassen *et al.* 2008).

Cognitive constructivism refers to learning as a process which requires that the individual actively constructs knowledge in the mind utilising past experiences as the initial foundation (Piaget 1968, cited by Rob & Rob 2018) through a process of accommodation and assimilation which requires the adjustment of mental schemes (Bodner 1986; Carpendala, Müller & Bibok 2008; Kohler 2008). The learning process thus involves the active knowledge

construction by the individual student and as such opposes the mere transmission of knowledge (Rob & Rob 2018). Rob and Rob (2018: 274) further posit that 'people learn more effectively when they are engaged in constructing personally meaningful artefacts' thus linking to the premise of knowledge-as-design of Perkins (1986) and accordingly supporting the proposal presented in this chapter.

Social constructivism is attributed to Vygotsky, who posits that knowledge construction occurs on two levels, namely on the social plane due to interaction and then inside the self on an individual plane (Ackerman 2004 citing Vygotsky 1978 in Lock 1989), taking into consideration, knowledge construction or learning and the social context and culture: which includes language, systems and the interaction with individuals from the community (Ackerman 2004).

Constructionism is ascribed to Papert (Ackerman 2001; Kynigos 2015) and refers to 'the art of learning, or 'learning to learn', and on the significance of making things in learning', with emphasis on the interaction through dialogue or conversation with their own and their peer's designed products or artefact to promote the construction of new knowledge (Ackerman, 2001, p. 438; see also Rob & Rob, 2018). Tools, media and context play a significant role according to Papert (Ackerman 2001, concerning Seymour Papert) in knowledge construction, aspects which Piaget seemed to overlook (Ackerman, 2001). Papert's (Rob & Rob 2018) constructionism denotes nine learning dimensions, namely (1) past experience; (2) new experience; (3) meaningful artefact (linked to a specific goal); (4) real-world product; (5) collaboration; (6) sharing with others; (7) tools (including ICTs); (8) media; and (9) context (Rob & Rob 2018: 277). As such, Papert (Papert & Harel 1991) is thus a proponent of meaningful product creation, or as Ackerman (2001) states *'making things [emphasized in italics] in learning'* by utilising technology as a cognitive tool to as Jonassen *et al.* (1996; 1999; 2008) state to 'learn with' and not to 'learn from'.

Literature and research-based evidence portray a positive picture of project-based learning coupled with product creation. Zancul, Sousa-Zomer and Cauchick-Miguel (2015) as well as other authors point to the potential benefits of project-based learning. This includes enhancement of motivation, satisfaction, long-term learning skills, collaboration, problem-solving, accountability, independent learning, integrate learning from other subjects or modules, and self-taught knowledge (for more detail see Bell 2010; Kokotsaki,

Menzies & Wiggins 2016; Frank, Lavi & Elata 2003; Amissah, 2019).

5 Project-based Learning

Project-based learning or project work is not a new development, but it seems that it is under-utilised (Tan & Chapman 2017). It refers to the engagement of students in the form of a project to 'find ways to verify a phenomenon or solve a problem' which involves various thinking skills (Tan & Chapman 2017). Kraus and Boss (2013) distinguish between project-based learning and thematic learning by stating that thematic learning does not imply a project for example. They continue by stating that project-based learning contains certain essential aspects such as 'gain[ing] important knowledge, skills, and dispositions by investigating open-ended questions to "make meaning" that they transmit in purposeful ways' (Kraus & Boss 2013: 5). Larmer and Mergendoller (2010) posit that there are a few key principles that can assist with making a project meaningful, namely (1) a need to know; (2) a driving question; (3) student voice and choice; (4) 21st-century skills embedded; (5) inquiry and innovation are required; (6) feedback and revision; and (7) a publicly presented product.

The planning for project-based learning consists of a series of steps to be followed, namely (Stix & Hrbek 2006: 167):

- Step 1: Setting the stage for students with real-life samples;
- Step 2: Taking on the role of project designers;
- Step 3: Discussing and accumulating the necessary background information;
- Step 4: Negotiating the criteria for evaluation;
- Step 5: Accumulating the materials;
- Step 6: Creating the project;
- Step 7: Preparing to present the project;
- Step 8: Presenting the project; and
- Step 9: Reflecting on the process and evaluating the process.

From the literature, it is observable that there is not a one-size-fits-all framework, as the steps to follow are different, yet share similar nuances (see, for example, Sherman & Sherman 2004; Krauss & Boss 2013). Our proposed

strategy as activity contains these project-based learning elements. However, it does not follow it strictly while at the same time it is more comprehensive. As such, the intention is to provide substance by showing through the version presented in this chapter, how it can be done when students create a product based on a topic, theme or problem presented. Equally important, the rationale is that the completed product should require that peers engage with the product. This can be done by uploading it online to a learning platform, disseminated via email or shared through social media tools such as WhatsApp.

6 Creation and Technology Options

Our strategy could be implemented in four possible ways. The first one offers three options and is lecturer centred. The second is individually student centred. The third is pair-based student centred and the fourth and last option is group-based student centred:

- Lecturer created and all students answer individually, or in pairs or groups larger than two;
- Individual-student created: Product or artefact is created and shared with lecturer and student class group (peers);
- Pair-student created: Product or artefact is created and shared with lecturer and student class group (peers); and
- Group-collaborative student created: Product or artefact is created and shared with lecturer and student class group (peers).

The product as a response can range from utilising very low-tech to moderate tech completed individually, in pairs or groups larger than two members and will depend on the type of access the student has to technology devices, software or applications and internet connectivity. Some of the possibilities are as follows:

- Paper-based product or portfolio;
- PowerPoint slides designed on paper (low-tech), but not on Power-Point if the student does not have access to the software and an ICT device. However, slides can still be designed on paper (storyboarding) and handed in as product;

- PowerPoint slides using PowerPoint or equivalent (freeware such as Libre Office or Open Office) with no narration (simple tech);
- PowerPoint slides with narration using PowerPoint or equivalent saved as a ppt file (simple tech);
- PowerPoint slides with narration using PowerPoint or equivalent saved as mpeg4 video (simple tech);
- Cellphone cellphilm creation (simple tech); and
- Wiki (moderate tech), which requires online connectivity.

The creation and tech options should become clearer after engaging with the following two sections.

7 ICT-assisted Project-questions-based Learning Strategy in a Combination of a Predominantly Lecturer-centred Space

In the following subsections, we present the different phases of the strategy that a lecturer could follow. The detailed overview as presented on the following pages resonates with Ferris and Wilder (2017) who show what is required from the lecturer and student, i.e. the 'how to' dimension, as strategies should be shared with a view to learning becoming active and meaningful. This three-phase strategy presented in this section is lecturer-centred for most of these three phases. The lecturer is actively involved in most of the activities as it is evident from Phase 1. It is only in Phases 2 and 3 that the students are active when they engage with the creation of their artefact in Phase 2. In Phase 3, depending on the availability of internet access, students could also be involved in the online discussions and feedback activities. The role of the student during this strategy is to design a product based on the sources, provided questions, and a prescribed technology-related tool which derives from the lecturer (see Phase 1).

The focus of the proposed learning strategy requires the utilisation of technology on either a low, simple or moderate level. It is important to think about which technology-related tools (applications or software) could be utilised by students while being offline most of the time as well as how data consumption could be minimised when online. The outline of the phases must be presented in writing (electronic format) to students to guide them. The

various phase headings and the first bullet below each phase heading, can be used. The lecturer, as a designer of this project can then select the aspects alluded to. These aspects will be included in the requirements to be sent to the student in greater detail, i.e. shaping, moulding or adapting it to serve the purpose required. The proposed framework is not cast in stone. Hence the lecturer as the designer, is encouraged to experiment and to move aspects indicated under Phase 1 in a different sequence as needed. Figure 2 visually depicts the proposed framework.

7.1 Phase 1: Lecturer Preparation
- Decision making
  - Select topic, theme or problem to investigate related to academic content.
    - Articulate the above into a paragraph that sets the scene in three to ten lines through writing or typing it. Provide an overview of what has to be done and what is expected.
    - Present clearly that the intention is that peers should benefit from the product creation, as they will or could be exploring the created product to assist them with their learning and understanding of the topic, problem or theme.
  - Indicate to the students that they will be designing their project for an audience, i.e. their peers and lecturer who could also act as possible reviewers (see Phase 3).
  - Phrase the initial outcomes and refer to Bloom's (1956) taxonomy or the revised taxonomy of Anderson *et al.* (2001)
  - Type of student involvement in the project
    - Lecturer created and the students respond individually,
    - Lecturer created and the students respond in pairs (students agree upon pairs or lecturer assigns pairs) or
    - Lecturer created and students respond in groups of three to five (students agree upon group or lecturer assigns groups).
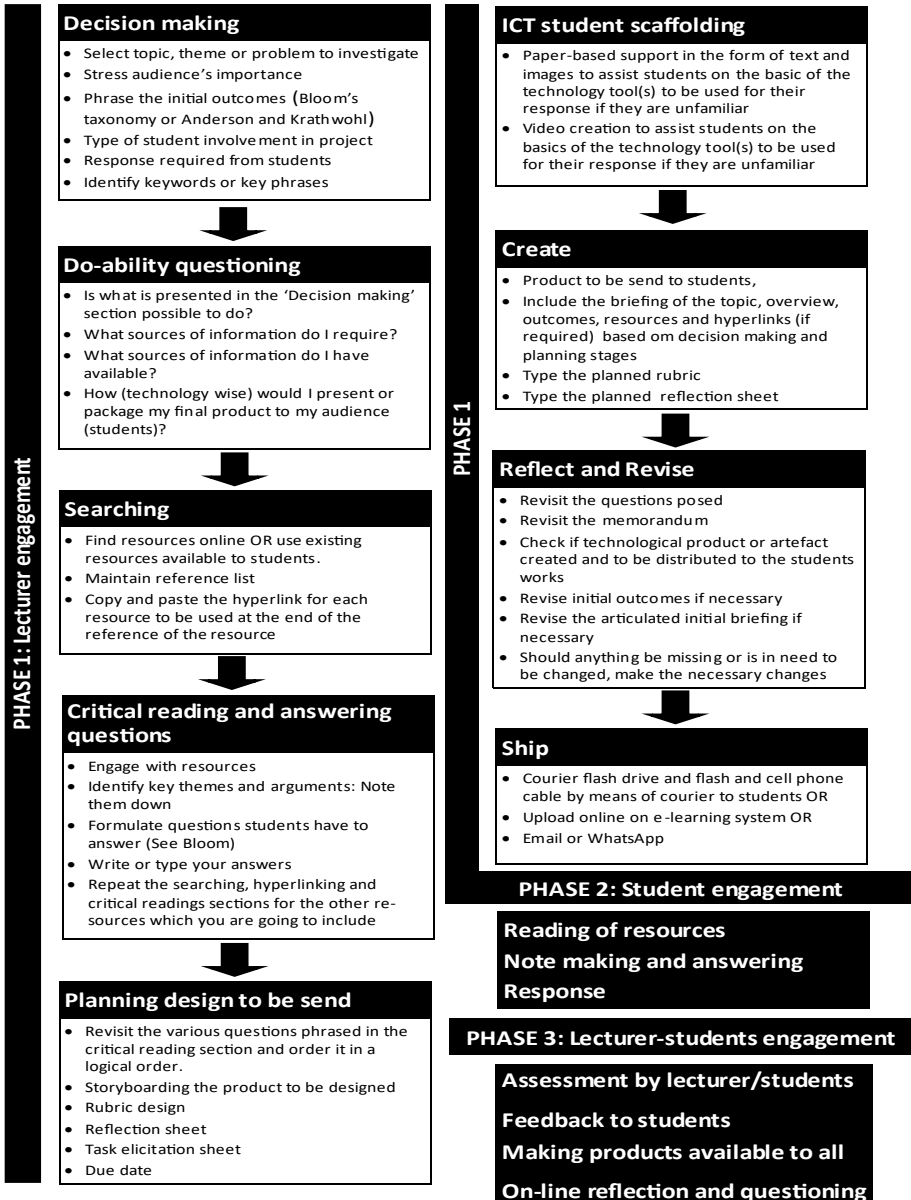
PHASE 1: Lecturer engagement

Decision making
- Select topic, theme or problem to investigate
- Stress audience's importance
- Phrase the initial outcomes (Bloom's taxonomy or Anderson and Krathwohl)
- Type of student involvement in project
- Response required from students
- Identify keywords or key phrases

Do-ability questioning
- Is what is presented in the 'Decision making' section possible to do?
- What sources of information do I require?
- What sources of information do I have available?
- How (technology wise) would I present or package my final product to my audience (students)?

Searching
- Find resources online OR use existing resources available to students.
- Maintain reference list
- Copy and paste the hyperlink for each resource to be used at the end of the reference of the resource

Critical reading and answering questions
- Engage with resources
- Identify key themes and arguments: Note them down
- Formulate questions students have to answer (See Bloom)
- Write or type your answers
- Repeat the searching, hyperlinking and critical readings sections for the other re-sources which you are going to include

Planning design to be send
- Revisit the various questions phrased in the critical reading section and order it in a logical order.
- Storyboarding the product to be designed
- Rubric design
- Reflection sheet
- Task elicitation sheet
- Due date

PHASE 1

ICT student scaffolding
- Paper-based support in the form of text and images to assist students on the basic of the technology tool(s) to be used for their response if they are unfamiliar
- Video creation to assist students on the basics of the technology tool(s) to be used for their response if they are unfamiliar

Create
- Product to be send to students,
- Include the briefing of the topic, overview, outcomes, resources and hyperlinks (if required) based om decision making and planning stages
- Type the planned rubric
- Type the planned reflection sheet

Reflect and Revise
- Revisit the questions posed
- Revisit the memorandum
- Check if technological product or artefact created and to be distributed to the students works
- Revise initial outcomes if necessary
- Revise the articulated initial briefing if necessary
- Should anything be missing or is in need to be changed, make the necessary changes

Ship
- Courier flash drive and flash and cell phone cable by means of courier to students OR
- Upload online on e-learning system OR
- Email or WhatsApp

PHASE 2: Student engagement

Reading of resources
Note making and answering
Response

PHASE 3: Lecturer-students engagement

Assessment by lecturer/students
Feedback to students
Making products available to all
On-line reflection and questioning

Figure 2: Visual presentation of the proposed framework

- o Response required from students
  - ▪ Paper-based artefact as a response project to be emailed, WhatsApp-ed or uploaded to an online e-learning system.
  - ▪ ICT-based artefact created offline in e.g. Ms Word, PowerPoint, Ms Publisher, Ms Excel, etc. to be emailed, WhatsApp-ed or uploaded to an online e-learning system.
  - ▪ ICT video created artefact utilising cellphone offline to create a cellphilm as a response (topic will determine the appropriateness of such a response).
  - ▪ ICT based fully online tools utilised such as the creation of an online website such as Wix, a Wiki, etc. Any content, links, files, images, text, etc. are presented as an artefact in the cloud.
  - o Keywords or key phrases to be written down or type these through using brainstorming with yourself if online searching is required [if not, skip this].

- Do-ability questioning
  - o Is this what has been articulated above do-able? If not, revisit the *'Decision making'* process and revise.
  - o What sources of information do I require?
  - o What sources of information do I have available?
  - o How would I present or package my final product to my audience (students), i.e. which applications or software are required that they should have access to?

- Searching [if online searching is required, or else skip this].
  - o Find resources online OR use existing resources available to students, e.g. textbook(s), handouts, etc.
  - o Write, type or copy and paste the references of the sources
  - o Copy and paste the hyperlink for each resource to be used at the end of the reference of the resource.

- Critical reading and answering questions

- o Read the resource that you have searched for or watch the videos that you have found and make notes for your reference.
- o Identify key themes and arguments and note them down.
- o Formulate any questions which you would want your students to answer based on the resources that you are reading.
  - ▪ Indicate Bloom *et al.* (1956) or Anderson *et al.*'s (2001) taxonomy level within brackets at the end of each question.
  - ▪ Ensure that questions on most of the cognitive levels as indicated by Bloom *et al.*'s (1956) or Anderson *et al.*'s (2001) taxonomy have been phrased. If not, revise and ensure that there are questions on the higher levels and not only on the first three lower levels.
- o Write or type your answers to the posed (created) questions to serve as a memorandum.
- o Repeat searching for and inserting hyperlinks related to the required media to be included, e.g. articles, videos (online, downloaded or self-created), textbooks, etc. until you have all the resources that you deemed necessary for your students to engage with.

- Planning design of artefact or product to be sent to students
  - o Revisit the various questions phrased in the critical reading section and arrange it in a logical order.
  - o Storyboarding the product to be designed (if required).
  - o Rubric design.
  - o Reflection sheet [This can be sent electronically or in printed form as part of the project briefing. This can be completed on a daily, twice daily, weekly and/or at the end of the project].
    - ▪ What goals have you set for your project?
    - ▪ Which of these goals have you achieved and which not? Provide reasons.
    - ▪ How did you plan to complete your project on time?
    - ▪ What did you think about while you were busy with your project? Why?

- ▪ Have you experienced any problem or struggled with anything? Explain.
- ▪ Were these problems solved? If 'yes', by whom and how?
- ▪ What have you learnt during this project? (NOT about the content, but skills-wise).
- ▪ Which aspects of the project made you feel proud?
- ▪ What will you do differently next time? Why?
    - o Task elicitation sheet reflecting on aspects that the student should engage with during the project. Think about all the different things, tasks and thinking that you had to do, which were important for you to be successful in this project (not the things that you should have done). Write down each of these things and below each one, how this aspect helped you or hindered you. [This can be sent electronically or in printed form as part of the project briefing]
    - o Due date of submission.

- • ICT student scaffolding [if required]
    - o Paper-based support in the form of text and images to assist students on the basics of the technology tool(s) to be used for their response if they are unfamiliar with any of the required tools AND/OR
    - o Video creation or links to videos to assist students on the basics of the technology tool(s) to be used for their response if they are unfamiliar with any of them. The videos thus provide the *'how to'* use the tool(s).

- • Create the product
    - o Create the product to be sent to the students.
    - o Include the briefing of the topic, overview, outcomes, resources and hyperlinks (if required) created, utilising the application(s) or software selected, as well as utilising the ideas planned on the storyboard.
    - o Type the planned rubric.
    - o Type the lecturer planned reflection sheet.
    - o Type task-elicitation sheet.

- Reflect and revise
  - o Revisit the questions posed.
  - o Revisit the memorandum.
  - o Test and check if the created electronic product or artefact works, before it is distributed to the students if you create an electronic product. Else, check and revise electronic 'paper-based' material if required [if an electronic product is not going to be sent].
  - o Revise initial outcomes, if necessary.
  - o Revise the articulated initial briefing, if necessary.
  - o Should anything be missing or needs to be changed, make the necessary modifications.

- Ship
  - o Courier the flash drive and cellphone data transfer cable (cellphone connector on one side of cable and USB connector on the other side of the cable for access from USB drive to a cellphone, if necessary) through employing a courier to students OR
  - o Upload online on e-learning system OR
  - o Email or WhatsApp or use similar technology.

7.2 Phase 2: Student Engagement
- Reading of resources
- Note making or typing of the answers
- Response required
  - o Create a response based on the requirements of the project.
  - o Complete reflection sheet and task-elicitation sheet.
  - o Email or WhatsApp completed project to the lecturer or upload onto the online system, depending on the requirements stipulated in the project briefing.

7.3 Phase 3: Lecturer-students Engagement
- Assessment by lecturer or students.
- Feedback to students via email, WhatsApp, online e-learning or in a manner decided upon.

- Making products available to all students for their perusal (if connectivity allows it).
- On-line reflection and questioning (if connectivity allows it)
  - Students engage utilising WhatsApp, discussion group created by the lecturer on online e-learning system or equivalent, etc. on questions that the lecturer provided. This will only occur if connectivity is available to students.
  - Students pose questions on the group with which peers can engage and respond to related to their engagement with the products.

This approach requires good planning skills and ICT skills from the lecturer pursuing this learning approach. It is also vital that whenever possible, students should be reminded about their project in a manner that conveys excitement from the lecturer's side to act as motivation. Furthermore, it is important to make them aware that should the Phase 3 part '*Making products available to all students for their perusal'* and *'Reflection and questioning'* be considered by the lecturer, then the students should also be reminded that they are designing for an audience. This is important, as the greater awareness of an audience could result in taking their prospective viewers' needs into account, through anticipating what they think their needs are (see Hung 2019). It might also require students to think carefully about their planning and presentation (Liu 2003).

8 ICT Assisted Project-questions-based Learning Strategy in a Predominantly Student-centred Space

In the previous section we presented an *'ICT assisted project-questions-based learning strategy'*. This was a predominantly lecturer-centred space, i.e. it was the lecturer that was mostly active. However, the *'ICT assisted project-questions-based learning strategy in a predominantly student-centred space'* presented in this section, relinquishes most of the lecturer control and decision-making to the student, student pairs or a collaborative student group to be actively involved in everything that the lecturer previously controlled, except the provision of the topic, theme or problem to be investigated. Alternatively, the lecturer could provide the topic and overview section and students

thereafter have an option to agree with what has been provided or adapt the proposals that could be then considered by the lecturer. This could result in some students engaging with the original brief, while others could pursue the adapted or altered preference.

The role of the student during this strategy is not only to design a product, but also to locate the sources and to phrase questions on the different levels of Bloom *et al.* (1956) or Anderson *et al.*'s (2001) taxonomy. The student is thus in control while the lecturer merely provides the topic whereas everything else stipulated in Phase 1 requires full engagement from the student.

As stated in the *'ICT assisted project-questions-based learning strategy in a combination of a predominantly lecturer-centred space'* section, it is important to reiterate that students have to be provided with a detailed product brief, as well as the steps that they should follow to develop their product as students-as-designers so that there is the least possible ambiguity. When students are engaged within the *'ICT assisted project-questions-based learning strategy in a predominantly student-centred space'*, they are taking over most of the roles of the lecturer in a student-as-designer approach. Hence, it is imperative that students submit a detailed, yet brief, reflection as an overview of how they approached Phase 1, i.e. what they have done concerning each heading including any problems experienced and how these problems were solved. The might also require to submit a task-elicitation.

9 Linking the Cognitive and Knowledge Process Dimensions to the Proposed Strategy

The presentation in Table 1 depicts the extent to which the integration of cognitive and knowledge process dimensions is present in the proposed learning project-based strategy, utilising the matrix of Anderson *et al.* (2001).

Table 1 Overleaf:

Knowledge and cognitive dimensions of student-created cyber-local artefacts embedded in critical self-reflection utilising the revised taxonomy of Anderson *et al.* (2001)

Cognitive process	Types of knowledge			
	Factual (Basic information)	Conceptual (How basic information connects)	Procedural (Ways on how to do something as well as knowledge of the criteria used)	Metacognitive (Thinking about one's own thinking or progress)
Remembering (Recall)	Students pose questions at this level Student or peers answers questions posed on the lower level (knowledge)		Recall technology skills when utilising applications or software	
Understanding (Providing a summary, comparing or classifying something)		Students pose questions at this level Student or peers answers questions posed on the understanding or application level	Searching for information and evaluating the quality of the information found	
Applying (Applying or carrying out a procedure)	Student engage with peer's designed projects		Students pose questions at this level Student answers questions posed on the understanding or application level Apply technology skills when utilising applications or software	
Analyzing (Investigate something)	Student engage with peer's designed projects	Students pose questions at this level Student or peers answers questions posed on the analysis level		Reflection on own part using journal reflection writing based on questions related to experiencing the project: Skills, knowledge and procedures
Evaluating (Assessing a product, process or something else based on criteria)	Student engage with peer's designed projects (forming assessment meaning) OR Formally assess a peer's project	Student engage with peer's designed projects (forming assessment meaning) OR Formally assess a peer's project	Student engage with peer's designed projects (forming assessment meaning) OR Formally assess a peer's project	Student critically reflect on peer's designed projects Reflection on own part using journal reflection writing based on questions related to experiencing the project: Skills, knowledge and procedures
Creating (Producing a product, planning or designing a product or procedure)		Students design and create their project individually, pairs or as a group	Students design and create their project individually, pairs or as a group	Reflection on own part related to their design, possible changes to be made in future and why these changes

112

It is evident from the table that mapping the proposed strategy seems to address cognitive processes and knowledge types on all sides of the spectrum. Accordingly, it thus appears that the presented project approach does not merely focus on one cognitive dimension, namely knowledge acquisition. However, it has as its focus, where students are actively involved in a 'knowledge-as-design' approach as proposed by Perkins (1986). We posit that this strategy as an activity has the potential to contribute to the development of knowledge, cognitive skills, technology skills, planning skills, as well as questioning and answering skills.

10. Conclusion

We find ourselves in unchartered waters where higher education institutions are faced with difficult decisions between rescuing the academic year on the one hand, and on the other, risking students' lives with further infection and death. The COVID-19 pandemic has further exposed the historical fault-lines of the South African society. The epistemological exclusion of students from poorer backgrounds that has characterised higher education for decades could now be exacerbated by the automatic switch to online teaching, thereby advantaging once more, the middle and the affluent classes. The promotion of e-learning (or emergency remote learning) during this trying time is an emergency response where face-to-face teaching of the traditional classroom, is simply replaced with online teaching without deeper pedagogical and practical considerations, which thus could result in dissonance.

The bigger question that our chapter raises is: How can we create equitable digital or online platforms that enhance meaningful learning? Our chapter envisages offline-online learning and teaching that do not simply replace face-to-face traditional teaching with digital platforms, but is a rethink of pedagogy itself. This strategy builds on blended learning which our Faculty of Education adopted a few years ago. This strategy is also based on our understanding that learning is not only cognitive by nature, but is also social in character. If there is one lesson that the lockdown and social distancing has taught us, it is the fact that as humans we need social interaction. The chapter also makes suggestions as to how to get students involved in their own learning, which is an age-old question in education. We are of the view that a dual strategy of offline-online teaching presents a better alternative than a pure online option which is also better aligned with equity goals. It is by no means

perfect and has many weaknesses in the unequal social, economic, and educational contexts of South Africa. As such, those interested in implementing the proposed strategy are encouraged to adapt it to not only best serving their contexts and their students' needs, but to assisting with achieving their module outcomes, as well as addressing the digital 21st-century skills (American Association of Colleges of Teacher Education, 2010; 21st-Century Skills related to the Fourth Industrial Revolution, Reaves, 2019). As Blignaut (2020) aptly points out, we cannot continue teaching students of the 21st century with the same old approaches of yesteryear.

Covid-19 marks, we think, an important turning point for higher education to innovate and rethink the curriculum, pedagogy, and delivery modes. We are at the crossroads in higher education from a curriculum, pedagogic, and delivery-mode perspective. How we respond to these challenges could determine the very nature and survival of higher education in the future. The proposed strategy presented in this chapter might be useful and produce positive outcomes during and post COVID-19.

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Crossing the Bridge: Transitioning to Facebook as a Short-term Response amidst the COVID-19 Pandemic

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Abstract

COVID19, a global pandemic that has destabilized various sectors and has forced many to begin conversations and plans alternative to the regular everyday routine of going to places of work or school. Educational institutions have also found themselves thinking of ways to continue with its core business, teaching and learning, amidst the pandemic. Looking at some of the possibilities to continue with teaching and learning during this time, this paper responds with an alternative way of teaching in the era of the COVID19 pandemic, which has forced staff and students into isolation. Drawing from the community of inquiry framework, the paper supports the effectiveness of Facebook in teaching, as it already possesses the necessary features that aid learning. This platform can be used as a short-term response while institutions are preparing their staff and students for online teaching, learning and assessment. Facebook already has the virtual infrastructure in place favourable for teaching. It has millions of staff and students as registered users of the platform, and the challenge of data is mitigated as multiple network providers allow access to this platform on 'free mode' – without the use of mobile data. In this paper, a proposition is made to explore Facebook as a teaching medium during this time of global crisis. It is suggested as a short-term solution to assist in the continuation of teaching and learning within higher education institutions.

Keywords: COVID19, Facebook, teaching and learning, Community of Inquiry, HEI

1 Introduction

Facebook is a free online social media platform with a massive capacity to host millions of users at the same time. In South Africa, in November 2020, Facebook had a total of 24 310 000 users of which 6,077,500 (25.5%) are between the ages of 18-24 years (NapoleonCat 2020). This age bracket also comprises many of the 2,5million students enrolled at higher education institutions (HEIs) in South Africa (Nzimande 2020). Various studies (Bumgarner 2007; Menzies, Petrie & Zarb 2017) assert that the 18–24-year age group has been the core user demographic since the inception of Facebook internationally. The social media community, in general, already holds a view of seeing the social media space as a learning site (Prescott, Stodart, Becket & Wilson 2013). This is seen through the opportunities for sharing information among users, media, government and professional institutions using the medium to communicate with the masses. Such uses of the medium have developed a credibility for social media, and many users have become reliant on it for various kinds of information (ibid). There have been numerous South African studies (Cloete, De Villiers & Roodt 2009; Rambe & Ng'ambi 2014; Reid 2011; Shambare & Mvula 2011) conducted that have indicated positively how Facebook can be integrated into teaching. What these studies suggest, is that Facebook can be used as an alternative tool for learning as it is also cost effective, provides flexible access, and requires no training to navigate the platform and has the capacity to accommodate masses without crashing down (Govender & Govender 2012; Kanuka & Brooks 2010). Taking a cue from these studies, therefore, Facebook can be an effective learning platform as HEIs are in the conversation for a better solution appropriate during the pandemic of the Coronavirus disease (hereafter COVID19). In this paper, the community of inquiry (CoI) framework is used as a guide to illustrate how Facebook has the necessary features and has the potential to be a learning medium. A recommendation to use Facebook is made, to be integrated into teaching as a short-term solution for HEIs as universities prepare their Learning Management System (LMS) to cater for the new conditions of remote learning under social distancing regulations.

2   What is the Current Situation with South African HEI?

South African universities are working towards fully transitioning their teaching and learning core service to students onto LMS such as Moodle, Blackboard and Sakai (Ssekakubo, Suleman & Marsden 2012), without the option of contact teaching. This transition is brought on by the global COVID19 pandemic that has led to South Africa declaring a national state of disaster, consequentially leading to a lockdown of the country as the COVID19 confirmed cases increase daily. The lockdown has forced many sectors to shut down abruptly and its employees to remain in their homes, leaving only essential sectors such as health and pharmaceuticals, food stores and limited transport services open for the public. While these restrictions have brought strain to the South African economy, education also remains one of the severely challenged sectors due to this pandemic.

Prior to the COVID19 pandemic, in South African HEIs, synchronous or contact teaching was the primary method of teaching, with LMS providing support for academics and students, with the aim to support and improve the learning experience of the students (Ssekakubo *et al.* 2012). Online platforms for learning have been used as a support structure for contact teaching. Other South African universities prior to COVID19 had begun with the integration of blending learning in response to the ongoing student protests (Czerniewicz, Trotter & Haupt 2019) However, many academics had not fully tapped into the greater possibilities and benefits of online teaching and learning. Nor has online platforms been ever used for undergraduate teaching as the primary mode of teaching at South African universities (ibid) – with the exception of UNISA. LMS as support systems for contact teaching were used willingly by academics and students. An academic could choose not to integrate LMS into their courses and still be able to teach and communicate effectively with students. A student, on the other hand, could also disregard LMS and manage to access teaching material in other ways, unless forced to access LMS by assessment tasks uploaded to be completed only via LMS. This is one indication that LMS are online platforms that may or may not be used by academics and students, though available at their disposal, with the additional support of ICS staff to assist with technical challenges on-site.

With issues of massification, there are a significant number of academics who have sought to LMS to support their teaching and assessing in order to alleviate the challenges of teaching large classrooms (Moonsamy & Govender 2018). Contrarily, there are also academics who have resisted or

dropped out from using the LMS offered by their university due to various recorded issues. Some of these issues include poor or low technological skills leading to the intimidation of technology; generally, among the older generation of academics, complaints that the use of LMS increases administrative work for academics; poor activity response from students; repeated crashing of LMS due to the inability to manage high traffic from its users (Bennett & Lockyer 2004). Students have also shared their frustration in using university licensed LMS, recording the unfriendliness of the LMS and its difficulty to navigate (Terry Anderson & Dron 2017). Though available to academics and students, there are mixed feelings about the LMS and their effectiveness in teaching and learning. Nonetheless, contact teaching has been continuing with or without its integration into teaching and learning.

Currently, with all HEIs unable to offer contact teaching, it has become increasingly challenging for academics and students to continue with the current LMS licensed at different universities. Although LMS remain open and operational, there are various challenges that require attention to make them better suited to remote online teaching and learning of students and academics during this time. These challenges are two-fold; one set of challenges is created through the abrupt ending of contact teaching and the second set is created by the inability of the current LMS design that was not tailored for remote distance teaching and learning. The challenge posed by the ending of contact teaching has forced teaching and learning to LMS. However, the commencement of online teaching requires that all registered students be in possession of stable internet connection and a personal computer (PC) or laptop. With many students having been reliant on campus-based computer laboratories, there are students who currently do not possess a personal laptop at home (Czerniewicz *et al.* 2019).

Connectivity of all students has also proven to be a challenge, as the South African network providers do not provide network coverage in all South African areas of residence (Czerniewicz *et al.* 2019). Those affected greatly with poor or no connectivity are rural places of residence. University LMS also are currently not fully equipped to provide a platform for remote teaching and learning, as the current design was mainly to support contact teaching. Terry Anderson and Dron (2017) assert that LMS is more of a management system than a learning system, as the name suggests, implying that it benefits more the manager of the system – the academic and the institution, rather than the student. In upgrading LMS for suitability for remote learning, developers

in conversation with institution or academics need to include student-friendly features that would give students a sense of shared control and ownership of the platform as is the case with social media platforms like Facebook (ibid). Therefore, developers will need time to develop new, or restructure existing LMS to respond to the current method of teaching and learning.

2.1 The Community of Inquiry Framework (CoI)

In order to guide and assist in bringing the focus onto Facebook as a learning medium, the community of inquiry (CoI) framework provides a simple guide that aims to improve the learning experience using online tools. Developed just about two decades ago by Garrison, Anderson and Archer (1999), the community of inquiry framework is a model that supports online learning environments and its activities. As a teaching and learning theory used commonly in higher education, CoI draws on John Dewey's extensive work on community and inquiry, premising inquiry as a social activity essential to quality educational experience (Dewey 1938; Garrison *et al.* 1999). Conceptualized on the phenomenon of 'presences', the community of inquiry notes three distinct elements, *cognitive*, *social* and *teaching* presences (Garrison, Anderson & Archer 2001; Picciano 2017).

Cognitive presence can be understood as 'the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication' (Garrison *et al.* 2001: 12). *Social presence* can be described as the ability to project one's self and establish personal and purposeful relationships (ibid). Lastly, the *teaching presence* is a significant determinant for student satisfaction, interaction and discourse facilitation (Garrison 2007).

Understanding the CoI framework, the three presences of *cognitive*, *social* and *teaching* remain the core elements that are necessary for establishing and continuing with online learning in massive numbers. With the CoI framework, it is possible to integrate Facebook into learning as South African academics (Cloete, De Villiers & Roodt 2009; Rambe & Ng'ambi 2014; Reid 2011; Shambare & Mvula 2011) have done. Online learning is currently a viable solution that may assist in saving teaching and learning activities within HEIs. Though there are challenges of connectivity, hardware for students and online platforms – Facebooks remains constant and readily available to be used for learning. *Cognitive presence*, paramount in the CoI

framework, requires of the student to have the intellectual capacity to assimilate higher-order epistemic discourse (Garrison 2007). This epistemic discourse is shared on the platform by the academic who initiates engagement with the content and students about the discursive content. Being registered university students is already an indication of *cognitive presence* which may be extended through further intellectual rigour (Rourke & Kanuka 2009).
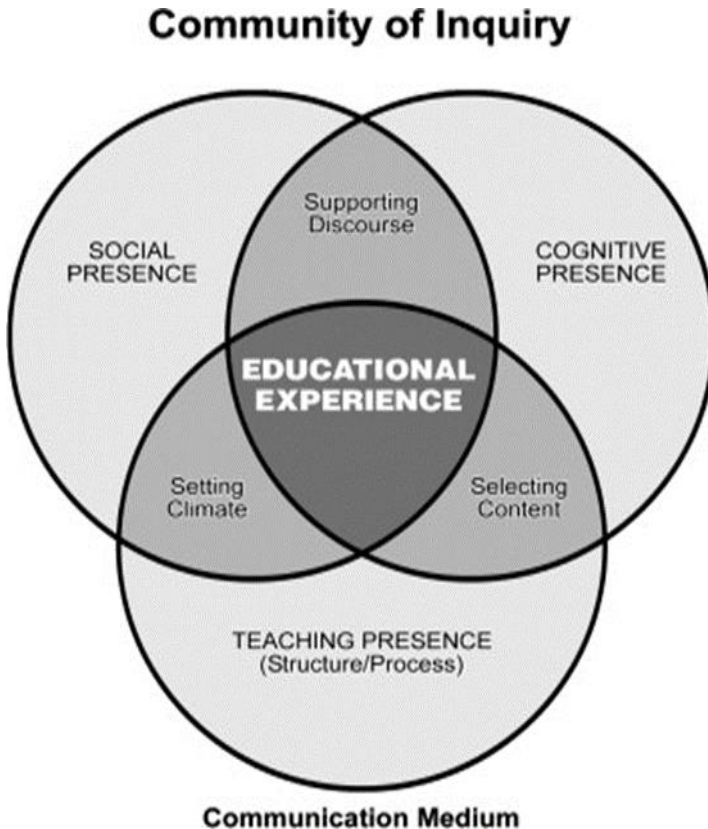
Figure 1: Community of inquiry model
(Garrison *et al.* 2001)

Facebook, as an existing social platform, advantageously aligns with the *social presence* and offers a social environment that also encourages learning, communication and for its users to openly display their identities and being 'real people' (Rourke & Kanuka 2009: 21). With the conducive climate and an alert mind, the *teaching presence* solidifies and completes the framework. In *teaching presence*, the instructional design, discourse facilitation, and direct instruction are responsibilities of the academic which contribute to the environment created on the platform (Anderson, Rourke, Garrison & Archer 2001; Garrison *et al.* 2001).

The idea of *teaching presence* does not only leave the academic with the sole responsibility of teaching. However, in extending the notion of *teaching presence*, students, through their engagement with one another and in sharing their understanding of the learning material may be teaching other students through passive teaching. I use the term 'passive teaching' to refer to ways how a student unintentionally teaches another through sharing his/her understanding of a concept, consequentially resulting in the learning of another student. *Teaching presence* is important, as online learning does not take away the need for a teacher to present, disseminate and assist the student to make sense of the complex subject matter presented to them (Wallace 2003).

2.1.1 *Benefits of Facebook in Remote Learning*

According to Minister Nzimande (2020), at least 14 universities out of 27 are not ready to commence with an online teaching and learning program, due to a number of reasons, including the ones that have been mentioned in this chapter. In the plea to salvage academic activity, despite the various predicaments currently faced by HEIs, Facebook may be used for teaching and learning. Resorting to Facebook may allow LMS software developers to have more time to develop university LMS efficiently to respond to remote learning. Though students may have a positive reception of using Facebook for formal learning purposes, there are academics who have resisted to its use and have chosen to keep their conventional methods of teaching (Bahati 2015). Nonetheless, the current state of HEIs warrants alternative ways of teaching that open the idea of social media to be explored for educational purposes (Shambare & Mvula 2011). There are studies (Bahati 2015; Chugh & Ruhi 2018; Menzies, Petrie & Zarb 2017) that have shown how academics

have successfully integrated Facebook into their course, and documented the benefits and students' experiences. Academics who have integrated Facebook into their teaching have found multiple benefits that enhance learning for students, as mentioned below.

Chugh and Ruhi (2018) assert that social media may be useful in sharing educational content and increasing engagement between students and with their teacher. Through a study of content analysis of Facebook, Harran and Olamijulo (2014) have found that there was freedom of expression and learning and online mobility, encouraging engagement even among the shy students in contact teaching (Reid2011). Prescott *et al.* (2013) conducted a study and discovered that academics found Facebook useful in their modules as it encouraged communication and kept a discussion going for longer than the discussion page on the LMS that the university was using. Other academics (Rambe & Ng'ambi 2014) found Facebook better for sending announcements to students than emails, as students logged onto Facebook much more regularly than onto their emails. Mazman and Usluel (2010) also advocate the integration of social media as a tool to enhance learning as it already promotes the soft skills required for students. These soft skills include active engagement, boldness to share an opinion and to defend it, as well as to engage critically with other active users participating in the relevant active post (Gordon, Petocz & Reid 2007). It also promotes collaboration and sharing of information among users. Students have also expressed positive insight into the use of Facebook integration into their learning experience. Students found the use of Facebook for educational purposes convenient, as they already spend a lot of their time on the site (Irwin *et al.* 2012). Madge *et al.* (2009) also found that students favoured and tended to respond much quicker to announcements made through Facebook.

Balcikanli (2015) records that through the use of Facebook for educational purposes, there is a noticeable increase in teacher-student and student-student interaction. Facebook has also proven to be useful as an engagement tool in comparison to LMS discussion platforms, as Facebook shows a high number of students frequently participating in content-relevant discussion, rather than the LMS-based forum discussion pages (Miller & Garrety 2013). This is an important finding in Miller and Garrety's study, which could be a recommendation in the reshaping of LMS, as many currently lack social connectivity tools (Mazman & Usluel 2010). Mazer *et al.* (2007) have discovered that Facebook also give their students more courage to

approach or respond to academics with regard to posted learning content, which is not always easy via face-to-face consultation, as some students may be intimidated, or via email, as some are weary and do not feel confident with their understanding of email etiquette. The findings of student and academic opinions, and essential elements – the 'presences' of the CoI framework – further highlight the possibility of Facebook as a viable teaching tool during this time.

3   Learning as a Social Act

Bahati (2015) submits that social media is a powerful tool that is currently used for social interaction; however, it may also be used for academic purposes and successfully attain social and educational results. Other scholars (Admiraal, Huisman & Pilli 2015; Zygouris-Coe 2012) advocate educational learning to be premised as a social act, which will promote learning. This premise allows academics to be more open to social forms of learning which is what HEIs that offer distance learning are currently doing (Admiraal *et al.* 2015). Social learning promotes engagement, which is a dominant feature in contact teaching (ibid). Premising learning as a social act also encourages students to work together even on online platforms, being open to sharing knowledge and collaborate in their learning activities (Zygouris-Coe 2012) as the *social presence* encourages. This also allows for spontaneity of discussion as traditional conventions are not imposed on students with the aim of learning together. Alluding to Vygotsky's (1962) social constructivism, collaboration addresses the sharing of knowledge, skills and completing of assessment tasks. It promotes ongoing communication and interaction among students as they normally are active on social media platforms. I acknowledge that social media can and should never replace human interaction (Moonsamy & Govender 2018); however, these challenging times demand of people to maintain a social distance; consequently, interfering with physical, social interaction and the possibility for students to make acquaintances and establish friendships. Nevertheless, social media such as Facebook with its yielding capacity for *social presence* may make a good attempt in mitigating such challenges as the platform also encourages virtual acquaintance (Prescott *et al.* 2013).

4   Conclusion

The Minister of Higher education and Training, Science and Innovation, in his public briefing of the level four lockdown regulations on 30 April, made a call for HEIs to consider all tools that may be used for teaching during this time, while preparations for online learning were underway. He continued to submit that academics would need multiple and flexible teaching methods when universities commence teaching again (Nzimande 2020). I submit that Facebook can be one of those mediums that should be explored during this time, as it can assist academia to continue with the teaching and learning. The COVID19 pandemic might also bring significant change to South African HEIs as it pushes universities to establish new or improve the existing LMS that allows for remote learning under social distancing. Hill (2020) asserts that HEIs globally cannot go back to their 'old normal' post-COVID19. This experience should yield teachable moments that will assist in learning more about teaching and learning and improving HEIs in their core business. Extending this thought, I believe that the COVID19 pandemic, although challenging in various ways, will be a teachable experience that will push resisting academics to explore social media platforms for learning or to explore other functions of LMS that they can use to enrich the learning experience of their students, and for HEIs to fully integrate blended learning.

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This Technology we all Wash With:
The Efficacy of Leveraging WhatsApp in Delivering a Master's Module

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Abstract
The COVID-19 pandemic has struck a significant blow to the traditional face-to-face approach to teaching and learning. The crisis demands an immediate shift towards greater use of e-learning platforms. Among such platforms is the social medium WhatsApp, a Facebook-owned messaging, voice and video application available on all smart phones. This platform is comparatively cheap and readily available. Research evidence shows that some university lecturers have used WhatsApp as a teaching-learning platform. However, in most such cases, it has been used as a supplementary teaching-learning approach with undergraduate students. In this paper, I examine the evidence from a study of the efficacy of using WhatsApp as the main teaching-learning approach in delivering a Master's module at a South African university. The study involved an analysis of the WhatsApp messages the students and lecturer exchanged during class sessions. This data were scrutinised through two theoretical lenses, namely the Asset-Based Community Development (ABCD) theory and the Activated Classroom Teaching Approach (ACT). Findings show that students were very comfortable and active using WhatsApp for learning. The module's learning objectives were achieved. I conclude that this platform is capable of engaging students in deep learning. Therefore, it is an asset. However, there can be information over-load and if not well-managed, this can lead to chaos.

Keywords: WhatsApp messages, efficacy, assets, activated classroom teaching, affordances, pedagogical approach

1   Introduction

The advent of the COVID-19 pandemic has caused an abrupt suspension of the traditional face-to-face method of teaching and learning in many countries. However, education cannot wait. Today's challenges in general, and the current crisis in particular, demand the use of e-learning platforms (Barak 2018; Collins & Halverson 2018). Digital platforms such as social media applications are changing the communication landscape quite rapidly (Sayan 2016). In this digital era, learning is no longer an individual journey, but a process that allows students to interact and flourish (Siemens 2005). In this paper I draw from a study of my own experience of delivering a postgraduate (Master's) module to discuss the efficacy of using WhatsApp as a pedagogical approach. WhatsApp is a cross-platform messaging and voice-over service (Sayan 2016). It allows users to send and receive text and voice messages, make voice and video calls, and share images, documents, user locations, and so on. The word 'pedagogy' literally means 'to lead a child' (Blewett 2016). In modern times it has come to mean the way in which we teach and assist people in learning, whether children or adults. In this paper it refers to the way my students and I engaged in seeking to assist them to learn.

The paper unfolds through seven sections. First, I give a brief background to the study. Next, I specify the research problem. This is followed by a short literature section about teaching with technology. From there I move on to the theoretical framework. After this, I describe the research methodology. Next, I present and discuss the findings. I end the paper with concluding remarks.

2   Background

Before the advent of COVID-19, I would never have contemplated using WhatsApp as a pedagogical approach. When a crisis invades and disrupts our hitherto comfortable, or at least manageable lives, we often feel helpless and in the process lose sight of the assets in our midst that we can leverage to address the challenge. COVID-19 arrived after I had just started teaching the module. Students received a detailed course outline including reference sources and topics to research and present on. The two main modes of delivery were originally to be face-to-face lectures, followed by students' seminar presentations. I had delivered the first three lectures as per schedule, but not

without trouble, thanks to on-and-off students strikes. The first seminar presentation had also been done. Enter lockdown, after conducting one Zoom session it became abundantly clear that a sizeable number of my 22 students would be left out because some could not access that facility, and others reported that it would be too costly to them. Apart from the disruptions, students had had what I thought was a very good grounding to the module and they had 'warmed up' quite well. The immediate challenge was to find a way to maintain the momentum as much as possible. In that connection, I decided to try Whatsapp as a teaching-learning approach, a platform which both of us (the students and myself) use daily in our social lives, hence metaphorically wash with. It was in my case and that of the students, a journey hitherto untraveled. Initially, we had formed a WhatsApp group largely for purposes of alerting one another about trends in the students' strikes, and of course for other logistical purposes.

As I commenced the journey of delivering this module through WhatsApp, I asked myself the hard question: What is the efficacy of adopting the WhatsApp platform as a pedagogical approach? This question became the driver of the study I report on in this paper, a research journey whose central problem I articulate in the next section.

3 The Problem

As enshrined in the module course outline, by the end of the module students should have achieved the following:

- A sound knowledge base and understanding of Educational Leadership, Management and Policy issues.
- Ability to search for, critically analyse and evaluate knowledge in that field of study.
- Ability to engage in disciplined and systematic thinking about educational issues in South Africa.

I did not know whether or not the WhatsApp approach would be a strong and vibrant enough approach to enable the achievement of these outcomes, hence the focus on its efficacy as a pedagogical approach.

But what has literature out there to say about learning through digital

platforms in general, and WhatsApp in particular? I turn to this matter in the next section.

4 Learning with Technology

What can technology do for us in teaching and learning? In a model they called the Actant-Activity Affordance model, where the actant is the participant, which, in this case, is the student, Blewett and Hugo (2016) have identified five key affordances. They define affordances as what technology can do for teachers or lecturers in teaching. Affordances are the intentional, or unintentional things we can do with technology. They help us as teachers, not simply to substitute, but to re-define the possibilities regarding how we teach with technology.

Accessibility affordance: According to Blewett and Hugo (2016), this refers to the ability to gain access to the learning space. They call this the central affordance. It is crucial to realising the other four affordances. The WhatsApp platform was the most accessible technology to all my students in the circumstances we found ourselves in. It was equally accessible to me as facilitator. In that regard, it was the central affordance.

Connection affordance: This refers to solidifying the connections between participants. In the case of the present study, we exploited the opportunity that WhatsApp was the cheapest means of communication. Even where connectivity is generally weak, WhatsApp tends to remain available. Therefore we could easily connect.

Communication affordance: This, the authors say is about allowing the participants to express themselves within the learning space. Through the WhatsApp affordance, within time-framed sessions, students and I would exchange messages in response to a topic at hand.

Control affordance: This relates to opportunities to control activities in the learning space by providing or negotiating conformity. In each of our sessions, a group of three or four students would lead. Within the group, each student led a sub-section of the main topic. I would come in with some guidance as appropriate. Any other student would also request the group to focus on some

issue of their interest. Where the conversation digressed, every one of us shouldered the responsibility to write and call for a return to the issue under focus.

Construction affordance: This relates to activities that open up the learning space by constructing other learning spaces or content. In our case, each session acted as a challenge to those that would lead the next ones. It was expected that discussions should deliberately link previous, current and future topics. In response to conversations in one of our sessions, for example, one student sourced and shared with the group the organogram of a large organization as a way of addressing topical organization-structure-related questions raised.

From this rich model, it is clear that technology enables both person-to-content and person-to-person connections. The reciprocity involved increases the density of the conversation and solidifies the connections created therefrom. It also adds density to the content itself (Blewett 2016) as one issue leads to another. These negotiated connections are the basis of learning in online spaces.

Technology enables a shift from a pedagogy of consumption towards one of creation. In the former, the student simply consumes ready-made content. In the latter, content is the negotiated result of many contributing individuals, as learning is no longer about 'the content being correct but rather being in a state of correcting' (Blewett 2016:6).

Studies show that many face-to-face institutions of higher learning in Africa have now adopted formal e-learning platforms. Ngubane-Mokiwa and Khoza (2016) cite Ghana's University of Education, Nigeria's Open University, Kenya's University of Nairobi, and Mozambique's Catholic University as examples of such. Similarly, Mpungose (2018) cites South Africa's UNISA, University of Cape Town and University of KwaZulu-Natal.

Mpungose (2019) studied first-year university students' experiences regarding whether Moodle or WhatsApp was the preferred e-learning platform. Findings reveal that while Moodle was the official teaching-learning platform, students struggled to use it. They preferred the informal platform-WhatsApp which they were very familiar with. Students were much more responsive to informal WhatsApp groups they created than to Moodle.

In a study on university lecturers' use of Moodle as a teaching platform, Khoza and Mpungose (2018a) report that students did not find the discussion forums user-friendly. Instead, they opted to create WhatsApp groups among themselves, for more convenient discussions and sharing of ideas.

Benson and Morgan (2018) studied the efficacy of WhatsApp as a supportive teaching-learning platform. They found that the application served as a useful student networking space for collaboration. Similarly, Basitere and Mapatagane (2018) have also found that WhatsApp has the potential to promote student-lecturer engagement.

After scrutinising these previous studies, two main issues emerged which became of great interest to my study. Firstly, the researchers studied the role of WhatsApp as a supplementary teaching-learning mode of delivery. In the present study, I position WhatsApp as the main teaching-learning approach. Secondly, all studies have found WhatsApp to be very useful for both student-student and lecturer-student engagement at undergraduate level. In the present study, I explored this matter further at postgraduate level, including how students fared in seeking to grasp subject content.

This research journey required theoretical lenses or analytical tools through which to understand the pedagogical efficacy of the WhatsApp platform. I turn to this in the next section.

5   Theoretical Lenses

I adopted a two-pronged theoretical framework, namely Kretzmann and McKnight's (1993) Asset-Based Community Development (ABCD) theory and Blewett's (2016) Activated Classroom Teaching approach (ACT). Below I briefly describe and contextualise each of these theories.

5.1   The ABCD Theory

Kretzmann and McKnight (1993) crafted this ABCD (Asset-Based Community Development) theory in the context of community development. In seeking solutions to community problems, the theory advocates a focus on that community's strengths, assets and on its capacities rather than its deficiencies or deficits. By focusing on its assets, the community will leverage development therefrom. A community's small triumphs or potential are ideal

starting points to trigger development therein. Kretzmann and McKnight (1993) explain that the ABCD approach entails a systematic process of identifying and detailing resources (both individual skills and organizational resources) and strengths in a community. They emphasise that the ABCD fosters the building of interdependence by way of identifying ways that people can use their talents positively and use them to empower others. Mathie and Cunningham (2003:474) have the following to say about the ABCD:

> … [it] lies within the premise that people in the community can organize to drive the development process themselves, by identifying and mobilizing existing but often unrecognized assets thereby responding to and creating local opportunities.

The ABCD approach builds on the assumption that people have strengths and capacities in one form or another. They also have around them, resources, however meagre, trivial or otherwise, they can leverage. Therefore, as Ammerman and Parks (1998) put it, recognition of these strengths and capacities is a key motivator for people to take proactive action about their own situation. According to Eloff and Ebersohn (2001), the ABCD is a bottom-up approach that shifts the focus and emphasis from a service perspective to an empowerment trajectory by way of mobilising various assets to bring about desired change. It places the focus on the inside as opposed to the outside, thus putting community members in control. Consequently, development in the community is understood as dependent upon, and a direct result of the power of the individuals and the collective that make up the community (Aigner, Raymond & Schmidt 2002).

In the context of this study, the module made students and lecturer a community. We were faced with the problem of COVID-19, which obliged us to first adhere to the national state of disaster, and a short while later, to contend with a fully-fledged lockdown. These sudden but highly impactful developments took us out of our comfort zone of face-to-face lectures. However, teaching and learning had to go on. Collectively we had to find an alternative. The one potential asset we had in common was the WhatsApp platform. Thus, I use the ABCD theory to determine whether this platform was an appropriate asset in delivering the module. However, to determine this, a second theoretical prong about how deep learning can be achieved through e-learning, was necessary. I turn to this next.

5.2 The Activated Classroom Teaching Approach (ACT)

This approach, developed by Blewett (2016), is a framework or set of digital age pedagogies that enable teachers to teach successfully and effectively with technology. The framework consists of 5 layers set atop the traditional teaching approach, namely consumption. Each layer is a pedagogy – a way of approaching teaching and learning in today's classrooms. The model is set from lower to higher levels in terms of the increasing cognitive investment and related activities required of student engagement. In reality, the pedagogies are interconnected and to often used together.

Consumption layer: This is where students merely consume and reproduce content**.** This is the lowest layer. Technically this layer is not part of the ACT pedagogies. It is just a point of reference. Granted, there will always be a place for consumption in teaching and learning. However, the ACT pedagogies are enacted through increased activity from one layer to the other, thus they sit above the consumption layer.

Curation pedagogy: According to Blewett (2016), this pedagogy seeks to shift learning from pre-packaged content to engaging students in the process of content curation. This entails the development of such skills as finding, active reading, filtering, and categorising knowledge. It is about adding value to information. Students are active learners in the process.

Conversation pedagogy: Blewett argues that not only does this pedagogy entail an active process with multiple parties involved; it also produces an artefact, the conversation transcript. As a result, it encourages participation, providing multiple learning opportunities both during and after the conversation.

Correction pedagogy: This pedagogy shifts from traditional approaches that espouse *correct* content towards an approach that encourages learning through *correction.* This means content is incrementally improved. It encourages the development of important skills such as determination, motivation, and belief. Once more, active participation is the mainstay of the process.

Creation pedagogy: This pedagogy encourages the creation of content rather than the mere consumption thereof. It involves a blank-to-artefact process. For example, instead of learning through watching a video, students learn through

creating videos. This pedagogy is highly engaging and cognitively challenging.

Chaos pedagogy: This is the pinnacle of the layers. It requires the most cognitive investment. It is about connections and meaning making. It is about not trying to control the mess but learning in it. It is the most challenging as students are presented with the most choices, the least order; the most information, the least control. The central tenet is meaning making.

In addition to overlapping, these pedagogies have important features in common. They are all about connecting, networking, communicating, posting, creating, sharing, etc. These *-ing* words are all about activity and producing. The WhatsApp platform serves to achieve all the said common features. To illustrate, it connects people. It is a means of networking. We communicate through it. We send and receive messages through it, and so on.

In this study, I use the ACT approach in seeking to understand the nature of the WhatsApp interactions we have had in the module. I am aware that some amount of consumption is evident, but as the approach advocates, I look for any evidence of curation, conversation, correction, creation and chaos. I do so with full awareness, as the theory suggests, that the pedagogies are not neatly pinned into separate boxes; instead, they are interconnected and therefore often happen together. Blewett (2016) reports of 21st-century skills. These are higher order skills, competences, and learning dispositions that have been identified as being necessary for success in society. The skills are to do with encouraging deeper learning, where learning shifts from being simply about content consumption and reproduction, to reasoning and complex problem solving. Blewett further reports that an analysis of the key 21st-century skills for the modern student reveals the following as critical: Collaboration, Communication, Creativity, and Critical thinking. These all align perfectly with the ACT pedagogies. Thus, in the study I examine the evidence in search for such skills.

The research journey followed a certain route, which I report on in the next section.

6 Method

As I report in the Background section, the module in question was originally to be taught in the face-to-face mode. The WhatsApp model was therefore Plan

B. The present study is only about the work we did to replace the face-to-face mode of delivery. The study did not include the assessment component. Again, as I reported earlier, a foundation regarding the character of this module had already been built before the lockdown, therefore the methodology I describe here is to do with how students went about presenting their seminar topics and the subsequent discussions the class engaged in.

Students had been allocated module themes to research and present on. A minimum of two and a maximum of three students were allocated a theme, depending on its breadth. Within the theme, each student handled a specific sub-topic. On the presentation day, each student was allocated their own time to present. The themes were arranged in the order in which they were to be presented, so each group knew in advance when they were to present. The course outline issued to every student clarified the expectations of a seminar presentation as follows:

- Presentation of a clear, coherent and comprehensive coverage of the topic.
- Ability to relate the topic to other sub-topics within the same theme, and to other themes in the module.
- Evidence of wide reading and clear understanding of the content and issues of the theme.
- Critical-mindedness in the treatment of knowledge and its application.
- Informed responses to fellow students' and lecturer's questions during the discussion session.
- Demonstration of sound presentation skills.

The requirements for the class were stipulated as follows:

- The student that is not presenting on a given day is REQUIRED to have read around the topic at hand and to contribute meaningfully to subsequent discussions (Chikoko 2020:8).

During the WhatsApp phase of the module, these expectations were maintained. Presenters emailed their PowerPoint presentations to the class and to the lecturer, including a summary in each case, of the key issues emerging, two days before the presentation day. On the latter day, at a specified time, the lecturer sent a welcome WhatsApp message to the class and invited the first

presenter to post their introductory message. Thereafter, the class engaged with the presenter through either voice or text WhatsApp messages. The engagement entailed asking questions, making additions, querying some things, disagreeing, explaining, etc. There was no particular order, so everyone needed to be on their cell phone, either reading a sent message or texting their own as well as working on their computer referring to the PowerPoint presentation. Each presentation was allocated approximately one hour after which the lecturer sent a message to close and to introduce the next presenter. At the end of the day's sessions the lecturer sent a tutorial letter to the class commenting on the quality of the presentations, posing a question or two to each presenter and to the class respectively, for discussion in a follow-up session that would take place three days later, so everyone was required to do some reading in preparation thereof. In the latter session, a similar process as described above was followed. After that session, the lecturer wrote and sent a second and final tutorial for that theme. Among other things, this tutorial crystalised the content, highlighted implications and posed some challenges for the attention of the next team of presenters.

At the end of each session day, every member of the class had a record of all the messages exchanged during the virtual class, including comments by the lecturer, on their cell phones. In the module course outline and during the introductory session, it was emphasised that any communication during classes was strictly for learning purposes and for the consumption of members of that class only.

For purposes of this study, the WhatsApp messages exchanged in class constituted the data. This places the study squarely within the qualitative research realm. It was a case study of one postgraduate class.

To study the messages, I adopted a content analysis approach. Content analysis is a study of documents and communication artefacts such as text, picture, audio and video to examine patterns. Content analysis is a tool used to determine the presence of words, themes or concepts within some given qualitative text. Sources of data could be interviews, fieldwork notes, conversations, etc. To analyse such data, the text must be coded or broken down into manageable categories (Columbia University-Population Health Methods).

In analysing the data, I adopted Braun and Clarke's (2006) thematic model. The model is also supported by Miles and Huberman (1994). The model unfolds from familiarising oneself with the data all the way to writing the re-

search report as follows:

Familiarising self with data: I listened to the audio recordings and transcribed them, and read and re-read transcriptions. I read and re-read the WhatsApp text messages. This is a process of data reduction (Miles & Huberman 1994).

Generating initial themes: Having familiarised with the data, I developed preliminary codes drawing excerpts from the messages.

Searching for themes: Thirdly, I collated the codes and organised the data into more stable themes.

Reviewing themes: Fourthly, I re-examined the data seeking to decide whether to combine, refine, separate or discard initial themes. I ensured data coherence within themes and identifiable distinctions between them. This was a process of evaluating the themes (Miles & Huberman 1994).

Defining and naming themes: At this stage, I named the themes and gave them clear definitions. This is a process of data display (Miles & Huberman 1994).

Producing the report: Finally, I adopted the themes to present and discuss the data in response to the research question.

With regard to ethical considerations, I was granted permission to conduct the study by the University. I obtained ethical clearance from the University's Human and Social Sciences Research Ethics Committee. I obtained informed consent from the students concerned, for using their WhatsApp messages.

In the next section I present and discuss the findings.

7   Findings and Discussion

In this section, I present the findings according to themes that emerged from the data analysis process. I attempt to examine these themes with a view to seeking to understand the quality of learning as described in the theoretical framework section. The data unfold through eight themes, namely: Class attendance, Production of an artefact, Chaos, Adding to the discussion,

Clarifying one's position, Seeking clarity, Expressing own understanding, and Analysing issues, in that order. Where names appear in the conversations, these are pseudonyms.

7.1 Class Attendance

While attending class is a basic expectation in all face-to-face learning contexts, it cannot be taken for granted in virtual classes such as the ones we had in this module. I found it quite encouraging that in almost all the sessions, there was 100% attendance. I can therefore safely say that from the outset, that accessibility affordance (Blewett & Hugo 2016) was provided for. Also, learning in this context was certainly no longer an individual journey (Siemens 2005). In a few cases where some students could not attend, they informed me in advance. I did not mark any formal register, instead, attendance showed through a participant's initial WhatsApp text or voice message. So, in addition to registering attendance that way, one was already contributing to the discussion at hand. Because the class had 22 students, the minimum number of texts and voice messages per session was usually 22. While I cannot rule out the possibility that a student's first text or voice message could have been simply about registering one's presence more than anything, there was also evidence that many students were already engaging the content at hand.

7.2 Production of an Artefact

The digital conversation pedagogy, unlike the traditional face-to-face one, is a highly activity-filled process with many 'players' involved. Out of the process, an artefact is produced – the conversation transcript. In the case of this study, the conversation transcript is the full package of WhatsApp text and voice messages exchanged in class sessions. This package provides multiple opportunities for learning during and after the conversation. To illustrate, the following is what I wrote to the class at the end of one session:

> *In this session alone, there were 320 WhatsApp messages exchanged. This is massive. Well done to all of you.*

The preceding quote is an indication of a highly participative teaching-learning process that occurred on that day. There was abundant student-lecturer

engagement (Basitere & Mapatagane 2018). Given the 22 students in the class in question, it means that in that particular session, each of the students on average contributed close to 15 texts. In a typical face-to-face class, it is highly unlikely that a student would speak, let alone write that much. If a student were not in the 320-message class, they would obviously have lost out on the vibe of the live virtual session, but they would still have received all the messages as long as their cell phone was accessible. These messages would be assets (Kretzmann & McKnight 1993) in each student's subsequent learning going forward. Therefore, I can safely argue that I see elements of Conversation pedagogy in the engagements we had with this class.

7.3   Chaos

The sessions were not always smooth sailing. We all had to contend with a plethora of messages. We needed to keep on referring to the PowerPoint slides. We needed to think on our feet as it were. We had to compose and send texts. To some degree, we all suffered the absence of Blewett and Hugo's (2016) control affordance. We were overwhelmed. The following were some of the teething problems as expressed by the students.

> *My comrades, aren't we supposed to be discussing based on Shu's example of Education policy?*
> *Colleagues, today's session is confusing I think I did not quite understand the brief.*
> *Am I correct that we are discussing the analysis of policy formulation? It looks like we have deviated from the focus of the day, are we still on Policy analysis?*

These messages show that there was need to have things clarified. Without the necessary clarity, construction affordance (Blewett 2016), where learning activities open up the learning space by constructing other learning spaces or content, would not be possible. In this regard, I allowed students to arrive at some clarity among themselves and in most cases, this was achieved. In such cases my job was to give assurance that we were going in the right direction. In other cases, I had to provide the needed clarity. All in all, deep learning entails navigating through these uncertainties (Blewett 2016). Thus, to some degree, such processes are characteristic of all the five pedagogies.

7.4 Adding to the Discussion

One characteristic of the WhatsApp messages was to do with students weighing in to add on to the discussion at hand. The following are examples.

Adding and supporting with an example:

> *Dear Colleagues, just to add on to what Mw has just said: a norm (in the context of the school) could also mean a principle to regulate a specific kind of behaviour that may not be desirable in some instances. For example: a school may choose to make a policy by forbidding the usage of cell phone devices by learners in the school.*
> *Just to add on what my colleagues have said; policies simplify decision making. Policies ensure that decisions made for schools are in line with school goals. If we look at the policy for Teacher development, for example, the managers, namely principals and HOD, plan ahead for necessary training that should be available to teachers as they are being guided by policies.*
> *Just to add, colleagues, organisational structure defines how activities such as task allocation, coordination and supervision are directed towards the achievement of the organisational aims. For example, an effective school organisational structure involves better work distribution and efficient management control.*

Contributing to defining a term:

> *Just to add on your definition. Policy analysis is a technique used in public administration to enable civil servants, activists, and other to examine and evaluate the available options to implement the goals of laws and elected officials. The process is also used in the administration of complex policies.*

Adding by way of interpreting:

> *I also need to add that in the case of Policy analysis with regard to PPN, the policy model that seems prevalent is the elite model, because the elite model is a top down model that is used by those in power and who are more advantaged to determine how those in the bottom end of*

> *the ladder can function. In the case of PPN therefore, learners, including those with special needs, aren't represented but instead their needs are presented in the voices of the teacher unions who in turn represent the teachers.*

Through giving examples, attempting to add value to a colleague's definition of a term, and through adding by way of interpreting, there seems to be evidence of the exercising of skills beyond consumption pedagogy. These texts show some amount of ownership of the content and what it meant. Going back to the ACT approach, I see elements of curation pedagogy here. This seemed to have been made possible because students found the WhatsApp learning platform user-friendly (Khoza & Mpungose 2018a).

7.5 Clarifying One's Position

There were times when students corrected what one thought was a misinterpretation of their point(s).

Indicating to a colleague that the original question was not what they interpreted it to be but going ahead to address the new issue:

> *The question for Mw was not that, but to answer your question, Noho, in the absence of policies in school or in the education system at large there would be a lack of structure and functioning which is necessary to provide the education needs in an institution order must be maintained and the needs of stakeholders must be adhered to. I hope you have been answered.*

Signalling a loss of focus in the discussion:

> *I get u my comrade, but I think our main focus here should be the question of: what do we understand about policies being Managerial, financial, political and administrative mechanisms in ensuring that the desired goals are being achieved.*

Signalling a misunderstanding:

> *No, Comrade Nsa. I don't think that you heard me correctly. What I*

> *meant was that the execution of the Finance policy, I did not say it is the SMT that either validates or adopts the finance policy. I repeat: My focus is on the execution.*

The three preceding texts seem to suggest that the authors had confidence in what they had contributed, and were determined to ensure that their colleagues understood the messages in the original sense without undue defensiveness. This is consistent with the presence of communication affordance (Blewett & Hugo 2016) where the student is allowed to express themselves within the learning space. In the Correction pedagogy, important skills such as determination, motivation and belief are developed. There seems to be such elements in the texts in question.

7.6 Seeking Clarity

There were many instances when students sought clarity from fellow students' presentations or texts. The clarification sought was largely to do with concepts, models, and policies. What follows are typical examples thereof.

> *Lan, may u please give us clarity on concepts of school as an organisation?*
> *Using Ale's definition, Is it correct then to say a school has many structures which are formal and informal?*
> *Lo, can you brief us more on the Instructional model and how it would work, also citing an example?*
> *Zan, please will you consider my example here? I think it can assist clarify your question.*
> *Good afternoon, Lin and colleagues I understand these models are like approaches to analyse the policy content, policy making processes checking each policy stage would you simplify this process by showing one example.*
> *So, will it be correct to say from this discussion that PPN as a policy after an analysis is not without its faults and it needs review?*
> *Do you think it is possible to have a bottom-up approach to influencing culture?*
> *But colleagues, when we say the way 'we do things around here',*

> *whose voices are included and whose voices are excluded in this phrase???*
> *Could you elaborate more on the subject of PPN ... in the context of policy implementation?*

The search for clarification suggests that students were not merely consuming content by accepting the status quo. They saw gaps and actively sought to fill them through obtaining greater clarity. They actively participated in the clarification-seeking process. They sought examples in order to make more meaning to the content. They sought to achieve content curation (Blewett 2016) where they would be able to own the knowledge. In such activities, I see elements of both Curation and Conversation pedagogies.

7.7   Expressing Own Understanding

Amidst the WhatsApp conversations are texts that show attempts by students to express their own understanding of the issues under discussion. Here are some examples.

> *According to my understanding, policy analysis also checks strengths and weaknesses of the policy.*
> *In my understanding, policy analysis isn't only used when there is a problem. Policy analysis can also be used to determine what makes a policy succeed. By analysing this, it is almost like a referencing tool to policy makers to see what works, in which context.*
> *Giddens (1989) states that culture is like glue that binds society through common understanding of an accepted way of life by certain groups of people which differs from other groups. I subscribe to this view.*

By putting across their understanding of issues, these students suggested that they were ready for their views to be put to test through the lenses of their colleagues' understanding of the same. They were thinking. They were engaging with content. They were processing knowledge, and in some cases, providing literature sources to back up their views. This is by no means teacher-centric, a characteristic of Consumption pedagogy. There is

evidence of finding, active reading and filtering. These are characteristics of Curation pedagogy.

7.8 Analysing Issues
Some texts show evidence of students engaged in analysing issues. The following are some examples.

Explaining the ideal process of change:

> *Yes, you cannot want to change everything in one go but slow, consistent changes are likely to last. If a leader wants to change the organisational culture, with just good ideas he/she will not go far, you need the buy-in of all stakeholders therefore people must be assisted to see value in the new ways and therefore adopt them whole-heartedly. Change will always come with resistance; a leader needs to be persistent in his/her efforts.*

Explaining the need for school-community cooperation:

> *According to a recent policy brief from the National Education Association (NEA). When schools, parents, families, and communities work together to support learning, students tend to earn higher grades, attend school more regularly, stay in school longer, and enrol in higher level programmes.*

Analysing a concept with illustrative examples:

> *There may be two ways of viewing the location issue. On the one hand we can say location does have an impact because of beliefs of people generally and their attitude towards education in rural areas. What if it is one of the areas where girls go up to Grade 10 and then are shipped off to be married, what if it is those areas where learners are just aiming to get to Grade 12 and have no further ambitions thereafter. That would affect their attitude towards learning. On the other hand, I would also agree with you that there are schools in areas that are despondent and yet they perform well. However, I would still ask whether those schools are the norm or the exception?*

Identifying the root cause of school failure:

> *I mentioned this point above, colleagues. Most township schools do not take time to deliberate and CREATE the school culture. They continue with their business depending on individual educators and SMT members. If you ask the entire school population the values of the school, no-one knows them. Take school assembly in Secondary schools educators don't even attend. There is no common purpose of what will be achieved by it.*

Explaining the building of culture:

> *Your classroom already has a culture. The kids are very aware how Meneer acts in certain situations and what Meneer will say if this or that happens. You need to evaluate those things that you want to be a norm, believe in your classroom and condition your kids through your own actions, talking and careful planning to make them realise how things are done in your classroom, what is acceptable and not acceptable and be persistent about it. It will eventually become a norm and therefore a culture.*

In all the pedagogy levels, it is crucial for a student to develop analytical skills. It is a characteristic of higher order learning. Such learning is characterised by one's ability to explain, relate, analyse, theorise, illustrate, and so on.

8 Conclusion

This paper sought to examine the efficacy of leveraging WhatsApp as a teaching learning platform. The previous studies I reported on involved studying the use of WhatsApp as a supplementary teaching-learning approach. In the present study, I involved this platform as the main approach. As I reported, some groundwork for delivering this module had occurred before lockdown. I believe that this played some part in the successes achieved during the WhatsApp era.

The WhatsApp platform was evidently accessible and user-friendly for all students. This is consistent with findings in previous studies (Basitere & Mapatagane 2018; Benson & Morgan 2018; Khoza & Mpungose 2018a;

Mpungose 2019). Therefore, it was an asset to their learning (Kretzmann & McKnight 1993). In my judgment, the platform substantially provided for all the learning affordances as constructed by Blewett and Hugo (2016), namely accessibility, connection, communication, control and construction. Through it, students were able to multi-task: read, think, compose and send and receive text/ voice messages. It enabled students to communicate, collaborate, act creatively to address challenges and think critically. Evidence suggests that class engagements involved more than consuming content. Students asked one another questions in search of clarity and they invested in being party to the provision of answers. These are skills associated with both Curation and Correction pedagogies. Evidence also shows that a lot of student interaction occurred. The more they interacted, the bigger and more nuanced the artefact – the text package – became. These are engagements associated with Conversational pedagogy and to some extent Creation pedagogy. The study therefore suggests that the WhatsApp platform is capable of involving students in deep learning.

The approach was not without its constraints. There was evidence of information over-load by way of many WhatsApp messages coming through within a short space of time. It was difficult for both the lecturer and students to timeously process such information. Some students were faster than others in both processing information and making their contributions. However, because the information was immediately captured, students had the opportunity to come back to it later. Overall, I felt that to use this platform for teaching and learning, there is need for more preparation and management than I initially had envisaged.

Acknowledgement:

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Vitallis Chikoko

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Programme Delivery and Assessment in the Context of the COVID-19 Crisis at one Higher Education Institution in Zimbabwe

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Abstract

Today, as the world is facing the global pandemic of COVID-19, declared as a health emergency by the World Health Organisation, teaching, learning and research in schools and institutions of higher learning have been disrupted due to the extended closures and national lockdowns. In Zimbabwe, the uncertainties of the COVID-19 crisis convinced the government to declare it a national disaster. This chapter seeks to examine the nature and impact of the programme delivery and assessment interventions in the context of the COVID-19 crisis at one Higher Education Institution in Zimbabwe (HEIZ)'s Religious Studies class in an undergraduate programme at its School of Education. The study posits that the pandemic caused bewilderment regarding the nature of programme delivery and assessment at this institution, but at the same time it is set to transform the approach to teaching and learning through embracing online models such as Google classroom and video conference platforms. Poignant questions that arise include: How far can online education change the education paradigm at this one HEIZ? How prepared is the institution to implement online educational transformation at this juncture? Is online teaching and learning qualitatively different from the traditional campus-based talk-and-chalk/face-to-face teaching in Zimbabwe? How has the institution responded to the challenge of closure and the desire to protect the integrity of what is being taught, learnt and assessed across programmes

in the institution? This qualitative research gathered data through Key Informant Interviews, observation and documentary analysis of print and electronic media such as circulars from the institution and the Ministry of Health on COVID-19. The findings revealed that the email platform was hugely utilised for student assessment and lecturer feedback, whereas WhatsApp was popular with sampled students because of convenience, accessibility, efficiency and affordability to them. In addition, it was found that while the Google Classroom application was the least utilised by students due to its novelty to most students, lecturers preferred it as the best/most potentially effective mode of programme delivery and assessment.

Keywords: COVID-19, e-learning, Higher Education Institutions, ICT, Zimbabwe

Introduction

Today, as the world is facing the global pandemic of COVID-19, declared a health emergency by the World Health Organisation, teaching, learning and research in schools and at institutions of higher learning have been disrupted due to the extended closures and national lockdowns. As the novel coronavirus, COVID-19, took its toll the world over, some nations, businesses, religious organisations, schools and institutions of higher learning were forced to close their operations for the first time in history. This sudden turn of events caused some of them to remain in limbo due to the enforced lockdowns. This was a befitting measure to address what Wray (2009) in the book: *Communities and Crisis*, calls a crisis in society under stress in the face of disease. In Zimbabwe, the uncertainties of the COVID-19 crisis convinced the government to declare it a national disaster, to which schools, colleges and universities adhered. On this basis, there was a massive shift to online learning. This posed a great challenge for administrators, teachers/instructors, students, and parents alike, since nearly every school or college closed its physical locations due to the COVID-19 pandemic (IGI Global, 23 April 2020). Despite the challenges, potential and new opportunities have been offered by the COVID-19 crisis, which makes it timely to provide a scholarly introspection into the responses and impact of this disease in society.

This chapter seeks to examine the nature and impact of the programme delivery and assessment interventions in the context of the COVID-19 crisis at

one Higher Education Institution in Zimbabwe (HEIZ)'s undergraduate programmes in the School of Education, with specific reference to a Religious Studies class. This HEIZ is a relatively new institution whose establishment coincided with the onset of the new millennium. In the Zimbabwean context, this situates the institution at a time when the country was confronted by an economic and political downturn, 'the Zimbabwe crisis' (Mhlahlo & Smith 2020). Given that the HEIZ under study was established during the Zimbabwean crisis, the researchers assumed that it was relatively under-resourced, particularly in the area of online teaching and learning, when COVID-19 struck. The study therefore sought to establish how prepared was this HEIZ and its lecturers and students to adopt online teaching and learning. The study posits that the pandemic caused bewilderment in the nature of programme delivery and assessment at this HEIZ, but at the same time transformed their approach to teaching and learning through embracing online models such as Google classroom and video conference platforms. Poignant questions that arise include: How far can online education change the education paradigm at this HEIZ? How prepared is the institution to implement online educational transformation at this juncture? Is online teaching and learning qualitatively different from the traditional campus-based face-to-face teaching in Zimbabwe? How has the institution responded to the challenge of closure and the desire to protect the integrity of what is taught, learnt and assessed across programmes in the institution? The findings show that this HEIZ will have to grapple with issues of general unreliable power supply, Internet speed and robustness of software alongside reviewing its curriculum in the immediate and longer term, within undergraduate and postgraduate programmes, in the post-COVID-19 pandemic era.

Theoretical Framework: The Crisis Approach Theory

Most researchers use insights freely borrowed from all angles of vision (Enarson, Fothergrill & Peek 2007). As a novel pandemic, COVID-19 is a crisis that threatens humanity, causes uncertainties and calls for urgent responses. In this manner, the theoretical lens used in the study is the crisis approach theory in order to understand how this HEIZ responded to the COVID-19 pandemic. This study borrows the crisis-approach theoretical lens from Arjen Boin and Paul 'T Hart (2007). According to these scholars, the major tenets of the crisis approach theory are threat, uncertainty and urgency.

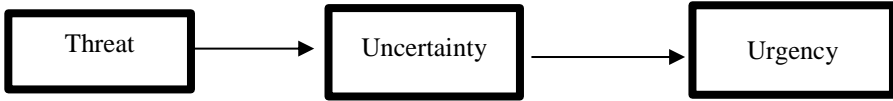This can be presented diagrammatically as follows:

Fig. 1: The Crisis Approach Theory

In Fig. 1, threat is a foundational component of crisis. Crises occur when core or life-sustaining systems of a community come under threat. This is applicable to the education sector in Zimbabwe, which was threatened by the advent of COVID-19. There was a breakdown of normal educational operations. Another component as illustrated in Fig.1 is uncertainty. In a crisis, the perception of threat is accompanied by a high degree of uncertainty. This uncertainty pertains both to the nature and potential consequences of the threat. It focuses on these questions: What is happening and how did it happen? What is next? How bad will it be? More importantly, uncertainty clouds the search for solutions: What can we do? What happens if we select this option? What will others do? (Boin & 'T Hart 2007:44). This is critical in a traditional face-to-face mode of teaching and learning which, in the context of COVID-19, brought a 'new normal' characterised by 'shock, horror, and upheaval' (Wray 2009:3). The last component is urgency. A crisis induces a sense of urgency where time compression is a defining element. This acknowledges that the threat of COVID-19 is here; it is real, and it must be dealt with as soon as possible. Crisis situations are paradoxical inasmuch as they create opportunities to try out immediate and long-term solutions. Guy (1983, cited by Boin and 'T Hart 2007) asserts that what is a crisis for some may be an opportunity for others. In the same vein, Zhang (2020) considers the COVID-19 crisis as an opportunity to try out online higher education in China. On the basis of these arguments, the crisis approach theory is helpful to examine the responses to COVID-19 by one HEIZ to its programme delivery and assessment.

Research Methodology
The study adopted a Mixed Methods Research (MMR) design. Leavy (2017:164) states that MMR 'involves collecting and integrating quantitative and qualitative data in a single project and therefore may result in a more

comprehensive understanding of the phenomenon under investigation'. She further asserts that methodologically MMR approaches rely on,

> (a) combining deductive and inductive designs to generate both quantitative and qualitative data; and
> (b) integrating the datasets in some way.

In other words, MMR approaches are integrative approaches where the researcher relates the quantitative and qualitative datasets in a continuum of integration (Leavy 2017). It is suitable when the purpose of the study is to describe, explain, or evaluate complex problems or issues such as the implications of COVID-19 on higher education in Zimbabwe. In this study we used a nested design where quantitative data were nested into a qualitative research design using a qualitative method. From the four types of integration that Creswell (2015:83) identifies, namely merging the data, explaining the data, building and embedding the data, we opted for the fourth one where quantitative data were used to augment the qualitative set of data. Quantitatively, the study sought to establish the frequency in the use of online platforms such as WhatsApp, Google Classroom and Email. On this basis we collected data using questionnaires in order to establish the most used online programme delivery and assessment platforms by students.

Qualitatively, we used the phenomenological and historical approaches to describe and analyse the experiences, views and feelings of both students and lecturers at one HEIZ's School of Education's online education. The phenomenological approach was significant in tapping into the insider perspectives of research participants through the principles of *epoche* (bracketing), empathy, and descriptive accuracy (Cox 1996). The historical approach was equally useful in providing qualitative data to understand social life (Wray 2009:9). Because the study was carried out under lockdown conditions, data were qualitatively gathered through, *inter alia*, social media, Key Informant Interviews with 20 lecturers (10 males and 10 females). WhatsApp interviews were held with 30 (16 males and 14 females) purposively sampled final semester Religious Studies class in an undergraduate programme. In addition, participant observation of lockdown educational challenges such as 'home schooling' took place (Greenwalt 2016). Documentary analysis of print and electronic media such as institutional circulars and those from the Ministry of Health on COVID-19 was also utilised.

A case study of one HEIZ's School of Education was adopted. Though the meaning of case study is slippery and cannot be universalised, it is justifiably understood as a qualitative research method. A case study refers to research that investigates one case or a few cases, in considerable depth. Qualitative research, specifically the case study method, has been criticised in that its results cannot be replicated or generalized and universalised as in physical sciences. Indeed, it is impossible to produce 'Newton-like' generalisations from a complex social process of human action that is constructed and not caused as what is obtained in a case study method, which is also context dependent. Essentially, the aim of case studies 'is to explain patterns that exist, not to discover general laws of human behaviour' (Schofield 1995:70). In the current research, the case study approach is helpful in capturing unique dynamics of how the selected HEIZ operates under the shadow and challenges of COVID-19 in Zimbabwe. Through MMR, data were both qualitatively and quantitatively presented and analysed.

COVID-19 Crisis: A Historical Overview

First identified in Wuhan, China in December 2019, COVID-19 was declared a public health concern by the World Health Organization on 11 March 2020, because this viral disease had reached alarming levels in terms of its spread and severity, given that many people were infected, whilst others died. Due to an alarming spread of the pandemic, nations responded by putting prevention and control measures in place to reduce the spreading of the disease. These include physical distancing, quarantine, and personal hygiene, which also affected schools and HEIs' closures. Some nations, including Zimbabwe, came up with different positions during the lockdown period as intervention measures for teaching and learning. The interventions in HEIs call for a closer look into their implications for African countries whose levels of investment in Information and Communication Technology (ICT) are diametrically different.

COVID-19 Crisis and its Impact on Higher Education

Msila (2015:1973) cogently asserts that 'throughout the world, there have been efforts to transform the 21st century classrooms by introducing digital technology'. With the advent of the COVID-19 crisis, teaching, learning and

research in schools and at institutions of higher learning have been affected, but at the same time they are set to be transformed through online models such as Google Classroom, WhatsApp, Email, and video conference platforms, among other modes of e-learning. While each level of education faces its unique challenges, it is the higher education segment that may end up, by necessity, triggering a learning revolution (Kandri 2020). Writing from a Chinese context, Zhang (2020:n.p.) observes that the 'recent unique online education shock provides a great opportunity for every member of faculty and every student to experience online teaching and learning in their formal courses'. Along the same lines, Van Breda and Van Wyk (2018:45) concur by asserting that if the higher education sector is to be relevant and compatible in the context of the Fourth Industrial Revolution, universities must commit to the process of continuous change, or become redundant. This is relevant for the Zimbabwean higher education context. The questions that arise include: How far can online education change the education paradigm in Africa? How prepared are African governments and institutions to implement online educational transformation at this juncture? Is online teaching and learning qualitatively different from the traditional campus-based face-to-face teaching in Africa? Notably, although, at the turn of the new millennium, nations were plunged into the Age of Information Society and expected to go 'Beyond Y2K compliance' (Sibanda & Maposa 2010), there was a high degree of misplaced priorities by most postcolonial African states that failed to invest aggressively in healthcare facilities and in Information Communication Technology useful for developing a fully-fledged, new online educational paradigm. Notably, there is general agreement that the use of technology in education is here to stay (Sela 2018). Nevertheless, institutions of higher learning must grapple with issues of unreliable power supply, internet speed and robustness of software, and students with learning difficulties. This requires scholarly interrogation. Essentially, what is the role of Higher Education in mitigating the impact of COVID-19 in Africa? These are some of the puzzling questions this study grapples with.

Literature has it that technology use increases student motivation (Friedman & Friedman 2013) and assists in raising the institution's prestige as modern, innovative and promoting 21st-century skills (Pundak 2014). Nevertheless, for this to work out, lecturers must be available online as much as possible via Emails, phone calls, WhatsApp, Google Classroom, and video conferencing to provide students with a 'safety net' of advice and support,

making sure they do not feel lost in this 'brave new world' of online learning, which can be perceived as 'strange, isolating, alienating and frightening' (Sela 2018:74). Further complicating the issue is the observation which states that 'Today's new generation of tech-savvy students deserves teachers who can competently integrate technology into all content areas' (Lacina, Mathews & Nutt 2011:149; Sela 2018:77). This is a critical observation, considering that the techno-phobic old generation, to which most lecturers belong, has a condescending attitude towards online teaching and learning. Unlike in some of the African countries, the majority of academic leaders in the Global North feel that online learning is critical for their institutions' long-term strategies, and that learning outcomes in online education are the same or superior to those of face-to-face instruction (Sela 2018). While this is true, Russell (1999) and Sela (2018:73) posit that there is no significant difference in quality between face-to-face and online courses, popularly known as the 'no significant difference phenomenon'.

Programme Delivery and Assessment Interventions: The Case of One University in Zimbabwe

Since COVID-19 has hit the world, it is no longer business as usual. The pandemic is a gamechanger in all spheres of human life. HE in Zimbabwe was not spared either. On 24 March 2020, all institutions of learning in Zimbabwe were closed to observe the restrictions such as social distancing, a recommended intervention measure for the prevention and control of COVID-19. The closure of learning institutions was followed by a three-week national lockdown starting on 30 March 2020. This came barely few weeks after institutions of HE in Zimbabwe had opened for their first semester of the year. University administrations nationwide had to ensure that teaching and learning continued off-campus. What this entailed was that universities had to come up with measures that simultaneously ensured that teaching and learning are minimally disturbed and the social distancing, isolation and stay-at-home mantra are religiously and judiciously followed to the spirit and letter. The advent of the coronavirus (COVID-19) in the country constitutes an increasing institutional contextual pressure for change in programme delivery and assessment in HE. The real challenge lies in that higher education institutions in Zimbabwe had started their academic year and students were on campus. The over-reliance on the traditional face-to-face (Wiesenberg & Stacey 2005)

modes of programme delivery and assessment has been challenged and will soon disappear or operate side by side with online teaching through blended teaching and learning. This calls for universities to adapt by choosing the right technologies and approaches for educating and engaging the learners (Kandri 2020). It has to be asked: Are the HE institutions ready for the blended mode or the full throttle, online teaching and learning system in Zimbabwe? This is the herculean task that institutions of HE in Zimbabwe must contend with. It is against this backdrop that this section of the chapter discusses the findings of the study at one institution of higher education in Zimbabwe.

Results and Discussion

At this campus-based institution of HE under study, the following platforms were made available to both lecturers and students to continue the teaching and learning off-campus. In Table 1, we present the frequency use of each platform by students and lecturers, and in Table 2, the best/most effective platform, according to the lecturers, as the institution is shifting to online teaching and learning. Table 1 pertains to information gathered through documentary analysis provided by lecturers in the HEIZ's School of Education undergraduate programme. The findings were broadly analysed under the frequency of the selected teaching and learning platform and the lecturers' ratings of the platforms are indicated below.

Table 1: The frequency use of the platform by students as provided by lecturers

Selected teaching and learning platform	Number of students using it	Number of students not using it	Total
Google Classroom	56 (28%)	144 (72%)	200 (100%)
WhatsApp	150 (75%)	50 (25%)	200 (100%)
Email	170 (85%)	30 (15%)	200 (100%)

As shown on Table 1, the email platform (85%) was frequently used

by students, followed by WhatsApp (75%), with Google Classroom (28%) being the least. The implication is that the email platform was widely used not as a platform to have lectures but as a mode of submitting assignments to the respective lecturers. This illustrates that the email platform was used for both programme delivery and assessment. Through this the lecturers sent the respective module content in a variety of forms such as Word and portable document format (pdf). The lecturers received student assignments by email and gave feedback to the learners in terms of content and raw marks obtained by learners. Most students 20 (66.7%) indicated that the email platform was not only reliable, but efficient to deal with large volumes of material being transmitted between lecturers and students. The remaining students 10 (33.3%), especially rural students, cited a lack of Internet services as a major setback to this model. They stated that although they relied on urban friends to send assignments and receive reading material and feedback from lecturers through the student-student WhatsApp platforms, at times it involved delays in either sending the assignments or receiving the reading material and the lecturer feedback. Some lecturer interviewees confirmed this arrangement when they received a student's assignment through another student's email address. This explains why the email platform handled the largest volume of student assignments. There are challenges associated with this. It is difficult to ascertain whether a student's assignment submitted through a friend's email is the student's original work or if it is plagiarised and fabricated work. In other words, it is open to abuse, as someone can write the assignment and submit it as another student's assignment. This does not only raise eyebrows on the practice, but also compromises the quality of the graduate at the end of the process. Leary (2007) is instructive when he argues that new technologies often bring new problems and complications to an already challenging working environment. The COVID-19 pandemic has forced lecturers and students alike to adopt new ways of teaching and learning, but notwithstanding, that the new ways are problematic as well. There is a need, therefore, for lecturers to quickly find a solution to avoid a dip into the quality of education they provide (Kandri 2020).

Some of the lecturers involved in the teaching of the undergraduate programme at the HEIZ under study indicated the difficulties of using the email platform for lecture delivery and student work assessment. One major impediment was that not all students were reachable. They also indicated that the large classes they had made it extremely difficult to use the platform. Using

an email platform for a class of 300 students in the undergraduate programme was not only ambitious, but also difficult to implement. Nyamupangedengu's (2017) findings, from a South African context, were that large classes and heavy loads impacted negatively on the use of certain teaching methods. The lecturers also cited the difficulties encountered with Internet access due to lockdown. They could not access their workplaces for Internet services. Using their mobile phones was again expensive, with no adequate assistance from the University through a subsidy of data bundles. While in this study the email was possible for assignment submission for assessment, lecturers found it difficult to access by assignments, let alone use it for teaching purposes.

Second on the frequency radar was the WhatsApp platform that accounted for 75%. On the part of students, the platform was comparably accessible with 25 (83.3%) of the student participants indicating that the WhatsApp platform was not only efficient but convenient, accessible and comparably affordable for both rural and urban students. The platform was largely utilised for Word, portable document format (pdf) voice notes, voice explanations and short message services (SMS), just to mention a few by both learners and lecturers in the said undergraduate programme. The students were on the created WhatsApp groups, but had challenges with buying data bundles to utilise the platform. Some had mobile network connectivity challenges as they had to be on top of a mountain to get connectivity, especially those who reside in the remote areas of the countryside. While the lecturers indicated high WhatsApp students presence percentages, the platform could not be wholly depended upon, as students had challenges to connect, buy data bundles and keep their phones charged in the rural areas. These shortcomings indicate that although technology-enhanced teaching, and learning methodologies are becoming common in a university learning environment (Govender 2015), COVID-19 induced off-campus teaching and learning in this pilot one university case was a herculean undertaking. The interviewed lecturers indicated that some lecturers struggled to maintain the same depth of engagement with students they could have in a classroom setting.

Least on the frequency continuum was the Google Classroom (28%). Notably, the Google Classroom was selected administratively, as noted through the HEIZ's circulars distributed to members of staff and students during COVID-19-induced shutdowns. The HEIZ made hurried attempts to train the academic staff and learners to navigate through the Google Classroom, as it was shutting its on-campus teaching and learning doors.

Ordinarily the Google Classroom enables a lecturer to communicate with his or her class through creating, sending, receiving, marking, returning, recording assignments, conferencing with students, and creating videos, among other advantages (Machingura 2020). Few students 9 (30%) indicated that using the Google Classroom platform was not only motivating, but also enabled them to be technologically savvy enough to navigate new platforms. The lecturer participants also indicated that, despite the short time for training, the platform was an eye-opener and 'first-aid' solution for switching from in-person to remote instruction, a move that has been forced upon them by the sudden mandatory campus closure. Kandri (2020) concurs by stating that in a painful and stressful time like this a rebirth of the education systems is experienced.

The challenges cited under the WhatsApp and Email platform were equally overwhelmingly mentioned here as well. The students' challenges were summarised by one student who stated as follows:

> This was a nightmare for most of us. Apart from the common challenges experienced with other platforms, this one is a big challenge. Few students are unable not only to access it but to navigate through it. We are not even sure whether our lecturers are competent enough on this as well.

There are two aspects that are important to note from the student's utterance above. The first one is that the students were not adequately trained and did not know how to utilise the platform. This was confirmed by the lecturers who indicated that despite inviting students to join the class on Google Classroom, few, and in some instances none, did so. The second aspect that also transpires is that lecturers were not forthcoming in assisting students to access and utilise the platform. This could be either that the lecturers were also not conversant with the platform, or they simply did not want to use it. The lack of interest in the use of the platform by the lecturers could be explained by Govender's (2015) observation that lecturers who have been in the academic environment for a long time and have achieved great success in traditional classroom-based teaching are not keen to change. While the use of video-conferencing platforms like Zoom and Webex offer universities a lifeline worldwide, more so in the context of the COVID-19 crisis, this comes as a huge challenge to nations and institutions of higher learning in the Global South where the said apps are not only inaccessible but the lecturers, who are supposed to be in the forefront of

utilising them, are not 'technologically savvy' (Kandri 2020). The new ways of doing things could be threatening to them. This resonates with Msila's (2015:1973) study on teacher readiness about the use of ICT in South African classrooms where he observes that the 'younger teachers were more tolerant of the changes than their older counterparts who found the introduction of ICT daunting'.

Table 2: The best/ most effective platform according to the lecturers

Selected teaching and learning platform	← Best/Most effective Worst/Least effective					Total
	1 No. (%)	2 No. (%)	3 No. (%)	4 No. (%)	5 No. (%)	No. (%)
1.Google Classroom	15 (75)	3 (15)	2 (10)			20 (100)
2.WhatsApp	10 (50)	4 (20)	3 (15)	2 (10)	1 (5)	20 (100)
3. Email	8 (40)	7 (35)	3 (15)	2 (10)		20 (100)

From Table 2, the Google Classroom was believed to be the best/ most effective model for teaching and learning, followed by the WhatsApp and the Email platforms, respectively. This is illustrated by 15 (75%) of the lecturer participants rating Google Classroom the best/most effective, followed by 10 (50%) rating WhatsApp, and with 8 (40%) rating Email (1), respectively. These findings imply that the lecturers preferred the use of the Google Classroom over other e-learning platforms. Even if that was the case, the percentage (75%) is relatively low, given the fact that this platform was meant to make off-campus teaching and learning effective and efficient. While some lecturers indicated that they had received prior training before usage, others complained that the training was rushed and not adequate. One anonymous lecturer stated:

Yes, the platform could ease the teaching and learning off-campus but

> is confronted by a number of challenges like any other online platform. While we appreciate the quick and timeous intervention offered by the University, we still feel more still needs to be done. There is still a need to train staff on its usage for programme delivery and assessment. As it stands those who can use the platform are only able to teach using it but when it comes to assessment more needs to be done. This is why you could see a few students on Google Classroom but more traffic on email when students submit assignments. This blended approach is fine but like observed earlier on we have more challenges than opportunities as it stands. There is need for further consultations and deliberations.

It is evident from the excerpt above that the university under study did what was possible, given the circumstances COVID-19 ushered in. While the lecturer was not pessimistic, she was very clear that more efforts had to be made. The success of the platform requires lecturers, students and the university authorities' holistic approach. For example, one lecturer indicated that although he was willing to use the platform, no provision was made for the necessary requirements such as access to the Internet on the part of the lecturers, as they worked away from their workplace. Lecturers did not have access to their offices for Internet connectivity. He proposed that the university could have planned to have few lecturers per day, one in an office, to interact with students. Since he was at home, he had no means to access the Internet, even when students were ready on their side. The literature is clear that institutional commitment and the ability to provide the necessary administrative resources to support online programmes are absolutely critical to programmes' quality and subsequent success (Brown 2002; Caffarella & Zinn 1999; Carliner 2002; Gallant 2000; Pajo & Wallace 2001; Stacey & Wiesenberg 2002; 2004). The lecturers preferred the platform, but wanted the necessary supporting mechanisms to be put in place such as provision of data bundles and the acquisition of laptop models with efficient processors.

The second-most preferred platform was WhatsApp. Lecturers indicated that since most students were not on Google Classroom, they could use the WhatsApp platform for providing students, in one group, with reading material and tasks to do. They argued that this was an easier platform to interact with students, where social presence, the ability to perceive the presence of others in an online milieu, was achieved alonside its impact on the motivation

and participation of the learners (Gorsky & Blau 2009). However, like the challenges encountered with other platforms, receiving large volumes of assignments was time consuming and needed more data bundles for lecturers who did not have Internet access at home. On email, the lecturers were willing, but students had no capacity to utilise the platform due to the factors already cited above. This leaves the Google Classroom the most/best preferred platform whose usage is friendly to lecturers, but inaccessible to most students.

At the Deep End of Online Education? Critical Reflections

Indications from the findings of the study were that several students and staff were thrown in at the deep end of online education due to the inaccessibility of e-learning platforms. Some of the students were reluctant to accept change readily. They were stuck with their old face-to-face instruction and old comfort zones, despite the fact that the world is geared towards embracing ICT-based learning platforms. This resonates with Ferrante's (2020) observation that 'whether students, teachers, or professors are ready or not, online education is here. Many students do not consider themselves 'online learners' and are being forced to deal with this new reality of remote classes'. Along the same lines, the study established that some lecturers at the specific HEIZ also had challenges with shifting to online teaching. This is further confirmed by Ferrante (2020) who states:

> Many universities were not prepared to be teaching thousands of professors how to completely shift their material to remote access. Universities were also not prepared for the lack of knowledge that many professors have about navigating remote learning resources such as Blackboard, Moodle, Zoom, and Google Meet. Some professors still have trouble sending a mass email to their students, so students are rightfully skeptical of their professors' ability to successfully navigate an online lecture. This is not all professors, but many professors are struggling with some aspect of this alternative way of teaching.

In this manner, universities, lecturers and students are not ready and fully capacitated for e-learning. The sudden inevitable demands for online teaching and learning has caused panic amongst both students and lecturers. The

sentiments of students were expressed through student bodies and captured in the study through Documentary Analysis. For instance, the Zimbabwe National Students Union (ZINASU) criticised the move by some universities to introduce e-learning during the lockdown as unaffordable, impractical and elitist, realising that Zimbabwe has some of the continent's most expensive mobile data tariffs. In addition, the president of the student command of the Economic Freedom Fighters-Zimbabwe, has 'berated Great Zimbabwe University for using 'Google class' and the Midlands State University for adopting WhatsApp to conduct lessons, describing the new methods as elitist' (Mukeredzi, Kokutse & Dell 2020). This shows that inasmuch as the COVID-19 crisis is an opportunity to try out online higher education in most countries (Zhang 2020), it was attacked as widening the gap between rich and poor, the rural and the urban, the technologically savvy and the techno-phobic, the able-bodied and those with disabilities.

The lecturer participants' views, where they bemoaned lack of support, indicated that administrators at the one HEIZ under study were equally in a quandary. The study has shown that although the specific HEIZ's administration had to respond quickly to the COVID-19 crisis in the best possible way, findings were that the university's administration had not adequately invested in e-learning platforms, as it had not been in tandem with global trends where, even before the pandemic, many universities saw a decline in enrolment for campus-based programmes and parallel increases in the uptake of their online courses (Kadri 2020). Traditionally, the administrators dismissed e-learning as expensive and time-consuming to implement, contrary to Friedman and Friedman's (2013) submission that online education enables academic institutions to economise. At this one HEIZ, most staff were not technologically savvy because they did not prioritise e-learning, e-commerce and e-business. In fact, some of the meetings that administrators travelled to attend could have been done online, with resulting savings for developing ICT facilities. They are now beginning to realise when the rains began to beat them at a time when resources are depleted. Just as what obtained at this one HEI, many Zimbabwean universities have consistently underfunded online education, which exposed the ugly side of this current crisis. In the past, administrators were lackadaisical about moving class content online, claiming that the transition would be too expensive, take too much time, and require too much extra training for educators (Ferrante 2020).

In terms of curriculum, the HEIs in Zimbabwe were tasked to review

the content, teaching and assessment methodologies in line with Education 5.0, which emphasises the need to inculcate skills that would produce relevant goods and services. This Education 5.0 is a reincarnation of the philosophy of Education with Production, introduced in schools soon after independence (Zvobgo 1997:63). Therefore, this new demand for online pedagogy comes at the right time, namely when the HEIs have been asked to transform their curriculums. This is an opportunity that HEIs should capitalise on in order to implement online education. To illustrate how this HEIZ under study, together with other institutions of higher learning in Zimbabwe has been thrown into the deeper end, even at this time of writing the chapter, the institution is still in a quandary about how to assess its third-year undergraduate students who are either on work-related learning, popularly known as attachment, or teaching practice (in the case of teacher-learners).

Conclusion

The chapter discussed how the specific HEIZ used online programme delivery and assessment for a Religious Studies class in the undergraduate programme, School of Education in the context of the COVID-19 crisis. It was revealed that the majority of students used the Email platform to submit assignments for assessment by lecturers while the WhatsApp model was the most popular among students, owing to its accessibility, affordability, convenience and efficiency. The study also determined that the Google Classroom was the best/most preferred platform by lecturers, but was utilised by the least number of students. It was also found that both students and lecturers had challenges with implementing online teaching and learning with little support from HEIZ's administration.

The study has demonstrated that online education is here to stay and it is high time that all and sundry embrace it, despite the daunting tasks that lay ahead in Zimbabwe and beyond. It is unfortunate that the poor and marginalised students who cannot access Internet facilities are thrown into the deep end by the emergency remote instruction mode of online learning under COVID-19. Both teaching, supportive and administrative staff should either shape up or ship out. Therefore, the findings at this HEIZ are indicative of the greater need for HEIs to put shoulder to the wheel and move with speed in embracing online education. More fundamentally, COVID-19 is challenging deep-rooted notions of when, where and how we deliver education, the role of

colleges and universities, and the importance of lifelong learning. The COVID-19 crisis has struck our education system like a lightning bolt and shaken it to its core. Nakayiwa (2020) posits in a Ugandan context that

> the adoption of ICT in learning, curriculum review and in the delivery of higher education programmes […] is still a long way off, or maybe this is the time to reflect on how it can be mainstreamed in the offering of degree programmes.

We can conclude with the observation that just as the First Industrial Revolution forged today's system of education we can expect a different kind of educational model to emerge from COVID-19.

In light of the foregoing conclusion, in the context of the COVID-19 crisis and other future disasters, the study makes the following recommendations:

- Given that e-learning, in the context of COVID-19, is fast becoming the 'new normal'; the administrators at HEIZ should urgently support online teaching and learning by providing adequate resources and infrastructure for both lecturers and students.
- Lecturers, students and administrators are encouraged to embrace online teaching-learning and assessment by experimenting with what Msila (2013) calls the 'Open Book Examinations' assessment model meant to nurture critical thinking in students.
- The e-Portfolio assessment approach should be adopted as an alternative form of student assessment, especially for students on work-related learning and teaching practice.

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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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Time of the Writer Festival from Physical to Virtual Platform: Lessons for Emergency Remote Teaching and Learning during the Time of COVID-19

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Abstract
The Centre for Creative Arts at the University of KwaZulu-Natal is a multi-disciplinary arts organization that was established in 1996. Its vision is to contribute to an enabling environment for the flourishing of artistic and cultural expressions, development and exchange. One of the festivals coordinated by the centre is Time of the Writer. This festival aims to celebrate and recognize relevant and outstanding African Writers, create a platform for African writers to engage with their peers on their work for an exchange of cultural and creative experiences, engage book lovers, critics and scholars in KwaZulu-Natal, in dialogue with established international authors on the content of their work and the state of the industry in general. The festival provides young scholars and emerging writers in KwaZulu-Natal with access to expertise. Due to the social distancing and later lockdown pronounced by the President of South Africa in light of the predicament presented by the COVID-19 pandemic, the Time of the Writer festival 2020 shifted from physical to virtual. COVID-19 is attacking both our local and global society, the people who connect us with our humanity, our artists. This chapter shares the methods used to deliver the virtual Time of the Writer festival. These methods ranged from live recordings, to live sessions on social media platforms like Instagram, Twitter, YouTube, and Facebook, as well as the use

of radio stations. This chapter adopted a case study method. It makes recommendations for methods used to deliver the Time of the Writer virtual festival to be considered in delivering emergency remote teaching and learning in Higher Education Institutions.

Keywords: COVID-19, Remote teaching and learning, Virtual festival, Community of Inquiry, Digital migration.

1 Introduction

The COVID-19 pandemic is a public health concern that requires a large public health response in line with African values of Ubuntu. This pandemic is not only a challenge for the health sector, but for all sectors affected by it. The economy and education are heavily affected by this pandemic, because many countries resorted to a lockdown to prevent the spread of the virus. In December 2019, China identified and notified the global public health community about the emergence of a novel coronavirus among patients at health facilities in the Hubei province of the country, Langba (2020). According to the World Health Organisation (2020), this novel coronavirus was identified as the coronavirus SARS-CoV-2 and its attendant illness as coronavirus disease 2019 (COVID-19). The World Health Organization (WHO) later declared this a pandemic on 11 March 2020, as the new coronavirus continued to spread across the globe with devastating outcomes for lives, livelihoods, and economies. In South Africa, President Cyril Ramaphosa announced a national state of disaster in terms of the *Disaster Management Act* in his official address to the nation on 15 March 2020. In his address, he said that 'to encourage social distancing, gatherings of more than 100 people are prohibited'. When the president addressed the nation, we were in the middle of a welcome dinner for all the participants of the Time of the Writer festival that would open the following day. Immediately after the address, it was apparent that a drastic decision was required, whether to cancel the festival or to go virtual. The writers were anxious, as the president had discouraged air travel locally and internationally. After consultation with stakeholders on the morning of 16 March, a decision was taken to migrate the Time of the Writer festival to a virtual platform. This decision diverted the social media strategy of the festival.

This chapter has three main objectives:

i) firstly, to provide a background to the Centre for Creative Arts and the Time of the Writer festival;

ii) secondly, to share technical methods used to deliver the virtual Time of the Writer festival including the use of social media; and

iii) thirdly, to share how these technical methods could be used to deliver emergency remote teaching and learning at institutions of higher education guided by a community of inquiry framework (CoI).

2 Background to the University of KwaZulu-Natal's Centre for Creative Arts and Time of the Writer Festival

The University of KwaZulu-Natal's Centre for Creative Arts (UKZN-CCA) is a multi-disciplinary arts organization that was established in 1996. Its vision is to contribute to an enabling environment for the flourishing of artistic and cultural expressions, development and exchange. UKZN CCA coordinates four annual hallmark festivals which are the foremost of their kind in Africa and have been the only consistent Arts Festivals in the City of EThekwini/Durban. These festivals are Time of the Writer; Durban International Film Festival; and JOMBA! Contemporary Dance Festival and Poetry Africa. UKZN CCA plays a vital facilitative function as promoter of the arts. It creates platforms for networking and cultural exchanges, acts as a capacity builder, and fulfils goal 3 of the UKZN Strategic plan 2017-2021, which is high-impact Societal and Stakeholder Community Engagement; as well as goal 4, which targets internationalization. UKZN has identified Social Cohesion as one of the four research flagship areas in order to address inequality. Inequality remains a challenge globally as well for South Africa. There is unequal access to resources (Human Rights Commission 2018). In an attempt to achieve equity, UKZN CCA bridges the gap by working with marginalised communities in Durban and neighbouring places.

UKZN CCA is part of a number of cultural networks in Africa involved in dialoguing strategies to promote cultural activities, networking dynamics, information exchange and new forms of Pan-African and international cooperation. This is in line with the vision of the University of KwaZulu-Natal to be a premier university of African scholarship (UKZN

Strategic Plan 2017-2021).The principal aims of UKZN CCA are the production and promotion of arts and cultural activities from within the City of Durban, exposure of different cultures through the arts, provision of creative platforms, performance spaces and economic opportunities for local and international artists and related industries, facilitation of inter/trans-cultural exchange opportunities and network development between South Africa and the world and various other international writers, poets, filmmakers, dancers, choreographers, cultural managers and organizations, the provision of meaningful seminars, training workshops and activity programmes for aspirant local artists and communities, with a key focus on community engagement and development and strategic development of audiences.

The festival that is key to this chapter is the 'Time of the Writer festival' (ToW). This festival aims to celebrate and recognize relevant and outstanding African Writers, create a platform for African writers to engage with their peers on their work for an exchange of cultural and creative experiences, engage book lovers, critics and scholars in KwaZulu-Natal in dialogue with established international authors on the content of their work and the state of the industry in general. The festival gives young scholars and emerging writers in KwaZulu-Natal access to expertise. The ToW festival is one of the largest and longest-running literature festivals in Africa. In 2020, the festival chose the theme, *'Do you read me?'*. Through this theme, we intended to address and respond to all the social ills we see in our country. Gender-based violence remains a national challenge (Russo & Pirlott 2006; UN 1993; 1995). Writers' contribution to understanding themselves and one another is important. We cannot deny the importance of creating and maintaining communities in which reading is the norm. It is imperative that as writers we understand one another's stories. As part of sustaining the status of the city of Durban as the first African UNESCO city of Literature, the ToW festival 2020 was organized in partnership with the Ethekwini Municipality Libraries department in order to deliver a community engagement programme that actively promotes reading and writing. The ToW festival promotes both South African and African writers in the current cultural climate that sees literature as part of a bigger social process around nation building and social cohesion within South Africa and our continent, Africa. This festival has – and continues – to encourage debates and dialogue around all forms of the spoken and written word as part of UKZN CCAs' agenda to celebrate contemporary culture and histories, both local and international. The ToW festival 2020

featured a diverse gathering of leading novelists, social commentators, activists, playwrights and short story writers, the majority of whom are from South Africa. There were also writers from the USA, Namibia, Uganda, and Ukraine. The ToW festival was delivered virtually from 19-25 March 2020 and became the first virtual literary festival of 2020 (Africainwords 2020). The following section will go into detail, sharing the technical methods used to deliver virtual ToW 2020.

3   Technical Methods Used to Deliver Virtual ToW 2020

This section of the chapter will focus on the technical aspects of the festival by looking closer at the tools that were employed to facilitate the shift from a physical programme to a virtual one. The technical aspects of the project were as at the centre of elements that had to be observed in order to achieve the goals of the festival. This had to be achieved without compromising the quality of the final product. The task at hand was to organise technical equipment for the recording of writers and later publish the videos on the UKZN CCA's various social media platforms, and this exercise had to run concurrently with the live broadcasts. Central to the success of this project was the ability of the team to carry out the plan with maximum precision. It required a schedule for writers and a proper brief on how they will relay information on the screen. The recording place had to be a spacious venue with minimal echo inside, for example, air-con levels had to be adjusted. It had to accommodate branding of the Time of the Writer Festival as well as lighting for equipment set-up.

3.1   Set Up for Recording

It is vital that we share some guidelines to follow in order to achieve an environment best suited to conducting a shoot for interviews or live broadcasts. This is based on our experience during the virtual ToW festival 2020 edition in line with the objectives of this chapter. The guidelines are as follows:

- Set up a day before the recording, if the environment and time allow.
- Establish the background of the set to suit the purpose of the shoot, for example, festival banners.
- Two or more cameras to add different angles for editing.
- Noise should be as minimal as possible.

- Lighting also needs time to set up, not less than two hours at the most.
- Mixer to control the shots from various cameras.
- Equipment used, 2 x monitors, atem box, laptop, hard drive, 3 x tripods, lights and light stands, comms headsets (Wireless headsets used by the camera crew), 3 x camera's, cabling, multi-plugs, headphones, lapel mics. It will differ from each set, depending on the intended outcomes.
- Presenters should be prepared and be made aware that if they make a mistake a re-shoot will be done. This prolongs the session and at times may lead to anxiety.

In an environment where an edit station is set up it will allow for quick editing and re-shooting, if necessary, while the participants are still on the scene. We could not achieve some of these due to the fact that we were working according to a very limited time frame.

3.2   Writers Interviewed for the Festival

We managed to interview about six writers, since most had already gone home and others had to leave early on Monday 16 March. Part of the brief given to them was to talk about their books and highlight the festival's chosen bookseller, which was Ike's Bookshop. Despite the fact that almost all these writers had previous experience in either television or radio, the team had to remind them just before the actual recording how the sequence of events was going to unfold. This entails pointing at the focus camera and giving them a heads-up when cameras had to roll. Few scenes had to be recorded again, because we had less time to prepare and the venue was given to the Centre for Creative Arts to utilise for a few hours. However, we did achieve our intended goals despite the challenges.

3.3   The Use of Social Media for the Virtual Festival

Social media is defined as 'collaborative online applications and technologies that enable participation, connectivity, user-generated content (UGC), sharing of information, and collaboration amongst a community of users' (Henderson & Bowley 2010, 239). Social media applications can be classified, based on the degree of self-presentation/self-disclosure they require, and the social

presence/ media richness they allow, in six categories: collaborative projects (e.g. Wikipedia), blogs, content communities (e.g. YouTube), social networking sites (e.g. Facebook), virtual game worlds (e.g. World of Warcraf) and virtual social worlds (e.g. Second Life) (Kaplan & Haenlein 2010). Social media provides a wide set of tools and applications for firms and organisations to manage information and knowledge, collaborate with customers, co-create experiences, and enhance the perceived value of the services and products (Cova & Cova 2002; Kaplan & Haenlein 2009; Pasanen & Konu 2016; Sigala 2012).

Instagram and Facebook were the most convenient when the decision to go virtual was announced. The initial idea was to utilise every social media platform available prior to the opening night and during the festival. The framework included live interviews on Twitter, Skype, Facebook and Instagram. Twitter, Instagram and Facebook were used much earlier than the rest of the mediums in order to send press releases, call-outs and interact with key stakeholders, many of whom were part of the reading campaign. Mintel (2013) supports this idea of using social networks as key delivery of marketing channels for events and festivals. Several book launches on Facebook and Instagram afforded audiences an opportunity to interact with the writers in real-time. Skype and Twitter questions and answers also produced a wealth of knowledge that was also beneficial to the festival, the audiences and the wider literary world.

Post-production, the videos were distributed to all the platforms, including Facebook and YouTube. They were produced in mp4 format, simply because it is reliable and it does not lose quality when one has to compress it. Compressing videos can prove to be a challenge, while this type of format is also compatible with various media players such as Windows Media Player and VLC. VLC is a multimedia player which plays most multimedia files, for example DVDs, CDs and streaming. Interesting newspaper articles and video footage created from the radio interviews were posted on the social media channels. The virtual festival has built up an archive of cultural importance, which was also uploaded on YouTube.

3.3.1 Alternative Technologies

There are other options for live streaming and one can buy a device that can connect to popular channels like YouTube. In this instance, one can feed the

video to these channels for broader audiences to access the broadcasted live event. Devices that use SIM cards make it possible and portable to stream in places where there is cell phone coverage. This kind of technology can be used even in the most remote areas of South Africa, including remote areas in the province of KwaZulu-Natal.

Overall, the virtual ToW festival 2020 was a success due to the decision to use social media. Any organisation that hoped to make a meaningful impact during COVID-19 had to explore the route of using smart technologies. Research conducted by various scholars such as Fuchs and Schreier (2011), Pitta and Fowler (2005) and Sigala (2012) note the importance of social media applications in customer involvement and the co-creation of new services with them. The link between social, print and broadcast media was a very important aspect of the entire campaign for virtual ToW festival 2020.

4 Methodology

The chapter follows a case study approach. It takes ToW festival 2020 within the Centre for Creative Arts, at the University of KwaZulu-Natal in South Africa as a case study. There is no desire to generalise the findings. The context of the CCA and indeed the University is unique and there is no intention to generalize findings. The chapter is largely qualitative by nature. The chapter draws on information collected from the delivery of ToW festival 2020. The ToW festival 2020 was identified through purposive sampling. This festival was unique because it was the first virtual literary festival delivered in 2020 during the time of COVID-19. The study was interested in answering the 'how' and 'what' questions, i.e. how the ToW festival was delivered virtually and what lessons for emergency remote teaching and learning can be derived from the virtual delivery of the festival.

The information for the chapter was collected from various sources. The three authors of the chapter were practically and directly involved in the planning and delivery of the virtual festival. In that way, practical experiences were used as a source of information. The second source of information was institutional websites about the Centre for Creative Arts and other websites that reported about the festival including the publicity report for the ToW festival 2020. Qualitative data analysis was employed. Data collection and data analysis happened concurrently as an ongoing process.

5   Theoretical Framework

The theory adopted in this chapter is the Community of Inquiry Framework. The Community of Inquiry (CoI) framework is a social constructivist model of learning processes in online and blended environments. The framework is built upon three dimensions, namely *teaching, social* and *cognitive presences* (Garrison, Anderson & Archer 2000; Garrison 2017; Huang 2015; Huang *et al.* 2018; Picciano 2017). The framework supports online learning environments and activities.

Teaching presence is defined as the design, facilitation, and direction of cognitive and social processes for the realization of meaningful learning. This involves the,

>   (1) instructional design and organization of the course and activities;
>   (2) facilitation of the course and activities; and
>   (3) direct instruction (Huang *et al.* 2018).

Social presence refers to the ability to perceive others in an online environment as 'real' and the projection of oneself as a real person. Social presence involves open communication, affective expression, and group cohesion (ibid).

Cognitive presence is the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse. The ultimate goal of the Community of Inquiry is to build a solid foundation of social presence and teaching presence to stimulate cognitive presence in a course (Garrison *et al.* 2000).

Understanding the CoI framework is an important enabler in establishing remote teaching and learning in South African higher education. Remote teaching and learning are the only viable solutions in order to save the academic year. The use of social media platforms is vital to facilitate remote teaching and learning. Social media may be useful in sharing educational content and in increasing engagement between students and with teachers (Chugh & Ruhi 2018). Whilst it is understood that well-planned online teaching takes over approximately six to nine months and takes two or three iterations before academics are used to the process (Hodges, Moore, Lockee, Trust & Bond 2020), emergency remote teaching and learning work in

contrast, because it is a rushed shift to address an emergency, in this case COVID-19, since no physical teaching and learning can take place.

6 Lessons for Emergency Remote Teaching and Learning in Higher Education

The unprecedented COVID-19 pandemic globally forced many countries to lock down. Institutions of higher learning and schools had to shut down to prevent the spread of COVID-19. In order to save the 2020 academic year, institutions of higher learning across the globe started to rethink teaching along the lines of online learning. The South African Higher Education and Training (DHET) sector had to respond to this emergency. The DHET urgently established a COVID-19 Task Team comprising the Universities South Africa (USAF), the South African College Principals Organisation (SACPO), and Higher Health and Health Experts to coordinate a sector response and collate institutional case management (Nzimande 2020). This task team requested all universities to conduct surveys in order to check their readiness in delivering online teaching and learning. The intention of the surveys was also to identify any institutions that require immediate assistance from the DHET in order to enhance their capability. However, not all the institutions submitted their surveys on time. Few universities such as UCT, Wits, UP, Stellenbosch and UJ reported that they were going to roll out online learning on 20 April 2020 (Khumalo 2020; Hlati 2020). Understanding both the existential and resource inequality of South African Higher Education (Swartz *et al.* 2019) is critical at this time of COVID-19.

The Minister of the DHET, Dr Blaze Nzimande, stated the following in a media statement of 17 April 2020:

> It is expected that universities will return to online and remote learning from 4 May 2020. There should be no full return to face-to-face campus activities until the peak of the virus is over, which is projected to be only in September 2020.

The situation in higher education requires that universities immediately shift to remote teaching and learning in order to save the academic year and address teaching and learning obligations. Many universities in South Africa are using learning management systems such as Moodle, Blackboard and Sakai

(Ssekakubo, Suleman & Marsden 2012) in preparation for remote teaching and learning. At the same time, they should adhere to the principle of no-student-left-behind. This section of the chapter looks at the lessons learnt from the Time of the Writer in the delivery of the virtual festival. The festival organizers and the publicity team had four days to prepare and deliver the virtual festival. This was work in emergency mode. Whilst there is a huge difference in the delivery of the festival and delivery of quality higher education, there are lessons to be learnt, especially of the key innovative technologies that could be used to deliver emergency remote teaching and learning.

The CoI framework provides the cognitive presence in addressing the complex ideas and convergent thinking (Huang *et al.* 2018). Anderson (2017) is of the view that with the predominance of the social media available and used today, participants (both teachers and students) have a great many tools that can be used to enhance their social presence beyond the institutional learning management system. An important part of Higher Education is aimed at developing students' understanding, within a particular discipline, of the criteria and values that underpin academic study of that discipline, and these include questions of what constitutes valid knowledge in that subject area (Bates 2019: 48). New technologies need to be tested as universities migrate to emergency online teaching and learning. The form of teaching in emergency remote teaching and learning is an interim change of instructional provision, due to emergency conditions and the purpose is to offer temporary access to instruction (Hodges *et al.* 2020). As universities prepare for emergency remote teaching and learning, one of the lessons from the virtual ToW festival 2020 is that the use of smart technologies is the way forward during COVID-19. In order to migrate digitally and reach out to the many university students, audio recordings are one of the recommended options of delivering the curriculum that should be considered in addition to video recordings. This is the *teaching* and *social* presence in the CoI framework. Students could view these videos during their own study time. This is what Bates (2019) calls a 'flipped classroom'.

Another lesson is that universities may collaborate with various radio stations, both community and commercial stations, in order to provide learning opportunities for students. The Department of Basic Education in KwaZulu-Natal is working with ukhozifm to assist Grade 12 learners. These classes were not necessitated by COVID-19, but have been there for many years. During lockdown, additional time was allocated to these classes to assist learners. This

will be vital, because it will acknowledge the worldview of many African students who come from oral cultures. Whilst we acknowledge arguments such as the one presented by Rosemead (2020) that technology can never replace a well-trained creative teacher, because learning is a social process, we need to embrace digital technologies in difficult times like these presented by COVID-19. The Council of Higher Education (2020) has also lifted restrictions for all programmes they have accredited for contact only so that they are offered, supported and assessed through virtual and online delivery and blended learning approaches.

The University of KwaZulu-Natal has developed an online learning resource known as UKZN Tech Online Portal (UTOP) (http://utlo.ukzn.ac.za/utop).This information hub houses Moodle, (http://utlo.ukzn.ac.za/utop/Moodle) which is the official learning platform for UKZN. UKZN has Kaltura (http://utlo.ukzn.ac.za/utop/Kaltura), which has been linked to Moodle to enhance video capability. UKZN's Technology Enhanced Learning (UTEL) (https://utel.ukzn.ac.za/) is also available to assist staff members to prepare for remote teaching and learning. It is this facility that was used for video recordings in order to deliver a virtual ToW 2020. In order to share best practice online, the UKZN Tech Online Forum has been created to enable staff to share digital experience. This forum is vital, because it will be linked to the CHE national repository currently being developed in which instances of good practice, innovations, and materials will be stored and shared with the higher education sector.

In order to respond to emergency remote teaching and learning, blended learning is key to achieving that. This is because there will be complementary teaching and learning approaches integrated into technologies. This will assist universities in terms of learning outcomes to produce graduates who can perform in a technology-driven world. The use of online teaching and learning will equip students with critical digital literacy skills, and address issues of cyber bullying, hate speech, and circulation of false information (Pather 2020). We acknowledge that resources are a challenge for some students, but many universities have been working for many years preparing students for online learning. Some universities have made it a requirement that students should possess a laptop or a tablet in order to succeed from the first year of study. The increase in the number of students supported by NFAS made it possible for these students to own laptops. This is a big commendation for the Department of Higher Education and Training.

7   Concluding Remarks and Recommendations

The impact of the COVID-19 pandemic is global. The arts industry is affected negatively across the world. In this chapter, we have reflected on how we were able to stage the first virtual literary festival for 2020. It was a learning experience, and we hope that it will assist other festivals in advance planning. We also hope that some lessons will assist institutions of higher education in their planning for emergency remote teaching and learning. Since online, print and social media were key to delivering the festival. We learnt that consistent posting, sharing and tweeting are essential in order to build a following that is not only growing, but is also actively engaged. This is a recommendation for institutions of higher learning to keep students engaged at all times during this transition period to remote learning. The principle of no-student-left-behind is vital in addressing inequalities that exist in South African Higher Education. The need for additional budgets for online books is critical during this time of COVID-19. Online books could be made available to students and this could be linked to a learning platform adopted by each university. Bookshops and publishing houses also need to consider online books.

The use of Zoom was proposed as another method for offering workshops during the festival. We have seen government departments, broadcasting agencies, and universities use zoom for their meetings. This platform could be recommended for use in supervising postgraduate students. In conclusion, the use of smart technologies as recommended by ToW 2020 is the way forward during COVID-19. If there is a university that has not yet embraced remote learning, COVID-19 is now transforming the teaching and learning landscape in higher education. This calls for teaching and learning approaches to be integrated with technology.

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