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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