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

Peter Merisi
ORCID iD: https://orcid.org/0000-0001-7753-8034

Ansurie Pillay
ORCID iD: https://orcid.org/0000-0002-9174-0543

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

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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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Peter Oluwaseun Merisi
English Education
University of KwaZulu-Natal
South Africa
MerisiP@ukzn.ac.za

Ansurie Pillay
School of Education
University of KwaZulu-Natal
South Africa
PillayA3@ukzn.ac.za