

## **The Challenges and Opportunities of e-Learning in an Emerging University in South Africa**

**Khulekani Yakobi & Siphokazi Yakobi**  
**Mangosuthu University of Technology, South Africa**

**Godwin Kaisara**  
**Namibia University of Science and Technology, Namibia**

**Sulaiman Olusegun Atiku**  
**Walter Sisulu University, South Africa**

### **ABSTRACT**

The purpose of this article was to explore the challenges and opportunities for using e-learning in a South African emerging university, especially during and after the COVID-19 pandemic. The article adopts an explanatory case study design to answer the research question. A quantitative research method was adopted using the convenience sampling technique. A structured Likert Scale questionnaire was designed and distributed online to 500 undergraduate students through a WhatsApp classroom group. The Statistical Package for Social Sciences (SPSS) version 27 was used to analyse the quantitative data and SmartPLS, version 3.3.3 was used for path analysis. The findings revealed that Microsoft Teams remains the most accessed e-learning tool for teaching and learning at emerging universities. Furthermore, the findings indicate that most undergraduate students use their laptop devices with mobile data for Internet access. The main contribution is the determination of perceived usefulness and ease of use of e-learning in emerging universities.

**Keywords:** *COVID-19; e-Learning; Information and Communications Technology (ICT); Teaching and learning*

### **INTRODUCTION**

The advent of the COVID-19 pandemic forced universities across the globe to temporarily close in order to arrest the spread of the highly communicable COVID-19 virus. The suspension of face-to-face classes necessitated a shift from traditional teaching approaches to e-learning. Similarly, South African universities were rushed by the pandemic to adopt e-learning systems to minimise the disruption to education. The transition means that in the post-COVID-19 era, e-learning has become an integral part of higher education, one that universities can ill-afford to ignore. Historically Disadvantaged Institutions (HDIs), sometimes referred to as emerging universities, were particularly negatively affected by the pandemic due to their relatively poor Information and Communications Technology (ICT) infrastructure (Maphosa 2021; Yakobi et al, 2022; Zarei & Mohammadi, 2021). Nevertheless, challenges associated with the COVID-19 pandemic forced HDIs to augment the traditional teaching style (face-to-face) with e-learning.

Amid the universal adoption of e-learning in South African universities, there is a need to ascertain the effectiveness of such interventions, especially in emerging universities (Maphosa 2021). Students, as the primary stakeholders of the e-learning service at any university, are key in any effort to establish e-learning effectiveness. As noted by Barrot *et al.* (2021), the evidence of e-learning's effectiveness can be established by considering the nuanced understanding of student e-learning experiences. According to early research by Blackmon & Major (2012), it is critical to understand students' experiences with e-learning because such information could strategically

benefit universities in a number of important ways. Some of these e-learning opportunities for universities were highlighted by Gedera (2014), who postulated that e-learning environments hold the potential to offer learners plenty of opportunities related to interaction and collaboration, distinctly different from face-to-face learning environments, as well as flexibility.

While e-learning has been documented to have innumerable opportunities, emerging universities may not fully embrace the said opportunities due to several inherent constraints. For example, Aung & Khaing (2015) argued that there are many challenges that impede the implementation of e-learning in developing countries and emerging universities, such as poor network infrastructure, lack of ICT knowledge, and weakness in content development. These challenges were evident in the emerging universities of South Africa (Badat, 2010), which have sought to pursue social equity and redress, and quality in higher education simultaneously. There are difficulties related to political and social dilemmas in the emerging universities.

E-Learning presents many advantages that have been highlighted in several studies (Franklin & Nahari, 2018; El Mhouthi *et al.*, 2018; Mpungose, 2020b; Tawafak *et al.*, 2020; & Tirziu & Vrabie, 2015). However, there is scant literature specifically focusing on the unique e-learning experiences of students and faculty in emerging universities in South Africa. South Africa, with its apartheid past and the subsequent chasm between the previously privileged and emerging institutions presents a unique context for scholars (Martinerie, 2023). Consequently, the unique context created by the apartheid past of South Africa necessitates caution when appropriating knowledge developed in foreign contexts. There are also scant reports in the literature that reflect on the challenges and opportunities faced by the undergraduate students in emerging universities when using e-learning. As a result, this paper aims to address this vacuum in the literature by exploring the challenges and opportunities of using e-learning in an emerging university context. The main research question that this paper addresses is:

- *“What are the challenges and opportunities afforded by e-learning in emerging universities in SA?”*

### **Context of the Study**

In 1953 the apartheid government introduced the Bantu Education Act Number 47, aimed at thwarting the education of Africans that would inspire them to pursue roles in society that they would not be permitted to occupy (Deane, 2005). As a result, black African dominated institutions were deprived of both intellectual and physical resources, which greatly affected the quality of education offered. The democratic post-apartheid government has sought to redress some of the imbalances, availing significant resources to emerging universities. In South Africa, the term "emerging university" refers to a university that has been placed in a developing category because of the underprivileged legacy systems emanating from the apartheid regime's dual education system. Spaul (2013) pointed out that even though racial segregation was abolished, schools and universities that served the majority of white students during apartheid were still in operation, and in many ways, the legacy apartheid structures remained. Similarly, those that served black students were still in operation and were largely still unable to impart the fundamental reading and numeracy skills that students need. Mlachila & Moeletsi (2019) posited that emerging universities in South Africa are still battling with issues related to dysfunctional education systems due to a lack of leadership, resources, infrastructure and other challenges, leading to a persistent digital divide between privileged universities and emerging universities in South African (Masimbe, 2019). Consequently, there were still a variety of challenges, opportunities and differences in the utilisation of e-learning in each type of university in South Africa (Letseka *et al.* 2018).

There is a burgeoning body of literature on various aspects of e-learning use among students in various contexts of African and South African universities. The study conducted by Azeez & Van

Der Vyver (2018) provided suggestions to learners, lecturers and government on how to achieve better optimisation with e-learning and m-learning in their learning process in South African Universities. A plethora of researchers (Bozalek, Ng'ambi & Gachago, 2013; Kativhu, 2021; Mhlanga, Denhere & Moloi, 2022; Zeleza & Okanda, 2021) suggested transformation through digital technologies. However, there is still no study that specifically focuses on the appropriation of digital technologies, considering the attributes of emerging universities in South Africa which consist of merger and incorporation legacy systems. As such, the challenges and opportunities encountered by e-learners are not yet fully conceptualised in the context of South African emerging universities. According to Mpungose (2020b), although South African universities were forced to transition from traditional face-to-face mode of instruction to e-learning due to the COVID-19 pandemic, there are still challenges identified that hinder disadvantaged students from realising the full potential and opportunities of e-learning. Thus, an emerging university such as Walter Sisulu University, whose student demographics are dominated by students from underprivileged backgrounds, continues to experience some challenges when adopting and implementing e-learning. Existing models for the perceived usefulness, perceived ease of use, attitude towards use and acceptance of e-learning are primarily based and focused on western contexts and developed universities.

## LITERATURE REVIEW

### Use of e-Learning Systems

According to Almaiah *et al.* (2020), e-learning usage and adoption among users is a difficult problem for many universities, both in developed and developing nations. However, given the significant advancements that have already been made, it is likely that challenges associated with e-learning adoption are less pronounced in the developed Global North. According to Alqahtani & Rajkhan (2020), e-learning was expanding at a rate of about 15.4% annually in educational institutions worldwide before the COVID-19 pandemic, with no pressure or uncertainty placed on either the institutions or the students. However, since the pandemic, a lot has changed, and e-learning has gained added importance. According to Maphosa (2021), connectivity is a major hindrance in poor countries, where only approximately 35% of people have access to the Internet, compared to 80% in developed countries. Anderson (2016) described e-learning as the use of electronic media, represented by the Internet, mobile phones, even television and CDs, to provide distance learning and teaching. Mpungose (2019) viewed e-learning as a means of transferring knowledge and education using various electronic devices. Further, e-Learning is considered by Coman *et al.* (2020) as a method or system that is often used for formal teaching, or a network where information is sent through electronic resources to a large audience of students. Whilst definitions may vary, it is evident from different definitions that central to the functioning of such systems are computers and the Internet.

The use of the Internet has come to be more and more important for institutions of higher education. The omnipresence of ICTs, coupled with the onset of the highly infectious COVID19 pandemic, led to the rise of e-learning systems in universities, including emerging universities (Shahzad *et al.* 2021). ICT adoption has grown as an effort to expand access to education through e-learning, whereby learning can occur anytime and anywhere. ICTs has been described as a powerful tool for educational change and reform (Fu, 2013). Numerous studies (Eliana, 2016; Franklin & Nahari, 2018; Kommers *et al.* 2015; & Pavel *et al.* 2015) found that an appropriate use of ICTs can raise educational quality and connect learning to real-life situations. The ability of ICTs to transform and improve the quality of education are thus a powerful incentive for policymakers in emerging universities, whose quality output has been questioned in the past.

### **Challenges of e-Learning Systems**

Many South African regions, especially the rural ones where emerging universities are situated, have suffered from a significant lack of infrastructure and stable Internet connectivity (Faturoti, 2022). According to Odili, Adetona & Eneh (2020), this impedes students' access to online resources, collaboration platforms, and live lectures. There is a significant digital divide in South Africa that is characterized by variations in the accessibility of devices like computers, tablets, and smartphones (Hlatshwayo, 2022). According to Mathrani, Sarvesh & Umer (2022), many students did not have access to personal or shared devices, which limited their ability to participate completely in online learning activities. Cullinan et al. (2021) stated that affordability was a major issue for students who would find it difficult to pay for the Internet connection or data bundles needed for learning online, given that ninety percent (90%) of the students at emerging universities are dependent on government support as they do not have sufficient funds to pay these costs.

The most noticeable challenge is that e-learning is dependent on technology, including the Internet and computers. To some extent, students may not have access to the Internet and computers due to interruptions or other system errors that may appear during courses (Van Deursen & van Dijk, 2019). Many students and staff members also commonly lacked the digital literacy required to use online learning systems effectively. Emerging universities tend to fall short in offering appropriate training and assistance for digital literacy (Reddy Moonasamy & Naidoo, 2022). Khoza (2019) noted that e-learners may easily get distracted, lose focus, or miss deadlines and e-Learners were often entangled in piracy and plagiarism, predisposed by inadequate selection skills as well as the ease of use of the copy and paste functions. Turnbull, Chugh & Luck (2021) pointed out that a major pedagogical adjustment is necessary when switching from traditional face-to-face instruction to online learning. Due to this, a large number of lecturers in emerging universities lack the education and experience needed to create and deliver dynamic, engaging online courses (Hassan, Mirza, & Hussain (2020). Arkorful & Abaidoo (2015) suggested that e-learning may also contribute to the deterioration of the institutions' role, the socialisation role and the role of instructors as the directors of the process of education. Also, not all fields or disciplines can employ the e-learning systems in education, especially in South African emerging universities. E-learning, for example, cannot properly exempt purely scientific fields that include practical components. Some universities still struggle to apply e-learning systems to fields related to medical sciences and pharmacy, due to a lack of developed practical skills in the system. Bylieva *et al.* (2019) argued that e-learning had become more appropriate in fields such as social science and humanities. Despite all the disadvantages of e-learning, there are a lot of opportunities that inspire its use and encourage the search for ways to reduce its disadvantages.

### **Opportunities of e-Learning Systems**

The use of e-learning in education has several opportunities. According to Arkorful & Abaidoo (2015), the adoption of e-learning provides institutions and their students with flexibility of time and place of delivery or receipt according to learning information. Potcovaru (2018) noted that e-learning makes available extra prospects for interactivity between students and teachers during content delivery. Basire & Mapatagane (2018) argued that e-learning is an excellent mode of course delivery that is not limited by time or location, allowing access to instruction at any time and from any location. Arkorful & Abaidoo (2015) indicated that students found the online environment a convenient way to fit education into their busy lives. The ability to learn using any computer with Internet access, 24 hours a day, seven days a week, is a tremendous incentive for many of today's students. e-Learning is efficient because it is faster, it saves money because it does not involve traveling, and the uploaded content is consistent and can be easily updated (Coman *et al.* 2020).

There are diverse methods of e-learning that are used by universities to teach learners. Mpungose (2020) stated that the e-learning method depends on the topic and the demands of the user. The

e-learning environment necessitates that instructors remain creative and exceed the expectations of traditional lecture modes to incorporate more engaging and interactive learning processes. According to Mpungose (2019), successful learning consists of downloadable pre-recorded lectures or slide presentations with or without voice-over commentary. The e-Learning environment provides interactive discussion boards or other designated forums that foster student interaction. Some tools as part of the process during e-learning are email communication with the instructor and possible virtual office hours. There are collaborative tools like Google Drive that may be used as a strategy to coordinate group projects or other interconnected activities. Student learning support tools, including virtual tutoring and resource centers, are often provided. Other forms of e-learning can allow teaching to take place in real time, including a live webinar, virtual classroom, instant messaging, live webcast, and video/audio conferencing (and so forth) (Mpungose, 2020a).

Students and lecturers are immediate end-users of e-learning systems in any university. e-Learning presents various experiences amongst students, especially for undergraduate students in emerging universities. Tirziu & Vrabie (2015) posited that with e-learning, the teaching and learning happens differently than in the traditional classroom and can present new experiences to learners and professors. As such, Moubayed *et al.* (2018) argued that one of the problems that arose when using e-learning is how to keep students motivated and not allow them to become disengaged. Learning motivation refers to the students' interests and academic achievement (Tawafak *et al.* 2020). To achieve the best learning outcome, it is always vital to understand students' learning styles. It is important to highlight that while the COVID-19 pandemic forced universities across the world to adopt e-learning, some emerging universities were not sufficiently prepared in using e-learning or were proficient in technology usage. These real-world problems led the authors to investigate the experience of students in the use of e-learning. Therefore, this study hypothesizes the following for analysis:

Hypothesis 1: The challenges of e-learning systems exert an adverse effect on the use of e-learning in a South African emerging university during the pandemic.

Hypothesis 2: Perceived opportunities of e-learning systems exert a positive influence on the use of e-learning in a South African emerging university during the pandemic.

## **THEORETICAL FRAMEWORK AND RESEARCH DESIGN**

The Technology Acceptance Model (TAM) proposed by Davis (1989) was used to undergird this study, which argues that the perceived usefulness of e-learning is determined by the influence of both the challenges and opportunities of e-learning on user acceptance of e-learning. This study seeks to provide a theory grounded reinterpretation of e-learning challenges and opportunities in emerging universities since they are perceived to be developing and previously disadvantaged. Bagozzi (2007) posited that the main strength of TAM is in its parsimony which consist of intentions to use a technology, such as influence usage behavior, and perceived usefulness and perceived ease of use, to determine intentions to use. According to Chuttur (2009), the study of user acceptance of technology has been an important field for over two decades and it is still important. This study is grounded in TAM theory to investigate how the challenges and opportunities of e-learning influence its use in emerging universities in South Africa.

### **Research Design and Methods**

This study adopted an explanatory case study design to examine the use of e-learning in an emerging university and identify the challenges and opportunities of students when using e-Learning. A quantitative research approach was adopted to underpin the study, using an online survey questionnaire that provided for the collection of relatively large amounts of data.

### **Research participants and Ethical Considerations**

The respondents were undergraduate students from different academic departments namely: Commerce and Administration, Educational Sciences, Health Sciences, and Humanities, Social Sciences and Law, at a previously disadvantaged university in South Africa. The respondents were selected using the convenience sampling technique. A structured Likert Scale questionnaire was designed using Google Forms and administered to 500 students, with 237 responses received.

The researchers strictly adhered to ethical considerations consistent with social science research. The researchers solicited ethical approval from the university's research committee as the study was conducted amongst students from four different faculties of the university. The ethics clearance certificate was issued after the comments from the ethics committee were addressed. The participants were informed about the goal and the potential contribution of the study to the university and society. Participants were assured of anonymity, and data that could individually identify participants was not collected. The information provided was strictly confidential.

### **Instrument and Statistical analysis**

An online structured questionnaire was created on Google Forms and distributed to undergraduate students via WhatsApp class groups that included students from different departments.. A 5-point Likert scale type of questionnaire was relevant for this study to measure the challenges of e-learning, perceived opportunities of e-learning, and the use of e-learning. The research instrument developed by the authors consisted of 42 items, gathering demographic data and eliciting information regarding the major constructs of the study.

The quantitative data collected in this study were analyzed using the Statistical Package for Social Sciences (SPSS), version 27, and path analysis was performed using SmartPLS, version 3.3.3 (Ringle, Wende, & Becker, 2015). SmartPLS, which is a variance-based structural equation modelling tool, is instrumental in illustrating the path analysis from each explanatory (exogenous) variable to the dependent (endogenous) variable. The exogenous variables provided in the structural model are the challenges of e-learning and the opportunities of e-learning. The endogenous variable was specified as the use of e-learning. SmartPLS was a suitable tool for the sample size used in this study as it facilitates both testing and confirmatory testing.

## **RESULTS**

The preliminary analysis begins with frequency distributions and descriptive statistics to capture the demographic characteristics of the undergraduates who participated in the study. According to the data in Table 1, approximately 61 percent of the undergraduates who participated in the study were between the ages of 21 and 25, while most of them were females (66.7%). Statistically, the majority (86.9%) of the respondents were undergraduates in the Faculty of Commerce and Administration. Almost all the respondents were full-time students (99.2%), whereas the majority (85%) of the students were on bursaries.

The results showed that Microsoft Teams (over 40%) was adopted for online teaching in the university. Most of the students made use of their laptops (53%) and mobile data (76%) for e-learning in an emerging university in South Africa during the pandemic. Statistically, virtual classrooms (24%) and online discussions (68%) emerged as the most frequently used e-learning tool during the pandemic.

**Table 1: Demographic characteristics of the undergraduates**

<b>Variable</b>	<b>Categories</b>	<b>Frequency</b>	<b>Percentage</b>
Age	Less than 21 years	53	22.4
	21-25 years	144	60.8
	26-30 years	24	10.1
	31-35 years	10	4.2
	36 years and above	6	2.5
Gender	Male	79	33.3
	Female	158	66.7
Level of study	First-year	91	38.4
	Second-year	51	21.5
	Third-year	68	28.7
	Fourth-year	18	7.6
	Fifth year	1	.4
	Sixth year	8	3.4
Faculty	Commerce and Administration	206	86.9
	Educational Sciences	9	3.8
	Health Sciences	18	7.6
	Humanities, Social Science and Law	4	1.7
Mode of study	Full-time	235	99.2
	Part-time	2	.8
Source of Funding	Self-funding	11	4.6
	Bursary	202	85.2
	Loan	24	10.1
e-Learning tools	Blackboard	39	16.5
	Moodle	42	17.7
	Ms Teams	97	40.9
	Blackboard and Moodle	1	.4
	Moodle and Ms Teams	9	3.8
	Blackboard, Moodle and Ms Teams	20	8.4
Devices	Blackboard and Ms Teams	29	12.2
	Laptop	125	52.7
	Smartphone	57	24.1
	Tablet	1	.4
	Laptop and Smartphone	50	21.1
Types of Internet access	Laptop, Smartphone, Desktop Computer and Tablet	4	1.7
	Home WIFI	30	12.7
	Mobile Data	179	75.5
e-Learning methods	Home WIFI and Mobile Data	28	11.8
	Webinars	1	.4
	E-quiz (e-tests)	12	5.1
	Virtual classroom	57	24.1
	Online discussions	161	67.9
	Interactive e-lessons	2	.8
	Electronic simulations	2	.8
Mobile learning	2	.8	

Source: Survey 2021

The data analysis procedure was conducted via SmartPLS to determine the validity of the instrument using average variance extracted (AVE) for convergent validity and the Fornell-Larcker criterion for discriminant validity. Fourteen items were deleted to ensure the validity of key constructs in this study. As indicated in Table 2, the AVE values for opportunities of e-learning systems (0.415), challenges of e-learning systems (0.459), and use of e-learning (0.499) are slightly less than the threshold of 0.5, which is an indication of the convergent validity of latent variables. The square root values of AVE for opportunities of e-learning systems (0.644), challenges of e-learning systems (0.678), and use of e-learning (0.707) are greater than the inter-item correlations, which ascertain discriminant validity following the Fornell-Larcker criterion. Statistically, the Cronbach's alpha and composite reliability coefficients of all latent variables investigated in this study are greater than 0.7, which confirms the internal consistency of the research instrument.

**Table 2:** Construct reliability and validity

Construct	<i>a</i>	CR	AVE	1	2	3
1. Opportunities of e-learning systems	0.880	0.875	0.415	<b>0.644</b>		
2. Challenges of e-learning systems	0.709	0.714	0.459	-0.104	<b>0.678</b>	
3. Use of e-learning	0.831	0.832	0.499	0.567	-0.454	<b>0.707</b>

Source: Survey 2021

Note. All correlations are significant at ( $p < 0.001$ )  $\alpha$  = Cronbach's alpha, CR = composite reliability, AVE = average variance extracted; diagonal are the square roots of the AVE.

The structural model showcasing the influence of perceived opportunities and challenges of e-learning systems on the use of e-learning is presented in Figure 1. The path coefficient from the challenges of e-learning systems to the use of e-learning ( $r = -0.399$ ,  $p < 0.001$ ,  $n = 237$ ) shows that the challenges of e-learning systems exerted a significant adverse effect on the use of e-learning during the pandemic. This result shows that the challenges of e-learning systems hindered the use of e-learning among undergraduates. The path from perceived opportunities of e-learning systems to the use of e-learning ( $r = 0.526$ ,  $p < 0.001$ ,  $n = 237$ ) implies that the perceived opportunities of e-learning systems exerted a significant positive influence on the use of e-learning during the pandemic. The  $R^2$  value ( $R^2 = 0.479$ ) explains the joint influence of perceived opportunities and challenges of e-learning systems on the use of e-learning in the university in times of crisis. The  $R^2$  value suggests that the predictive variables examined in this study explain 47.9% of the variance in the use of e-learning in an emerging university in times of crisis.

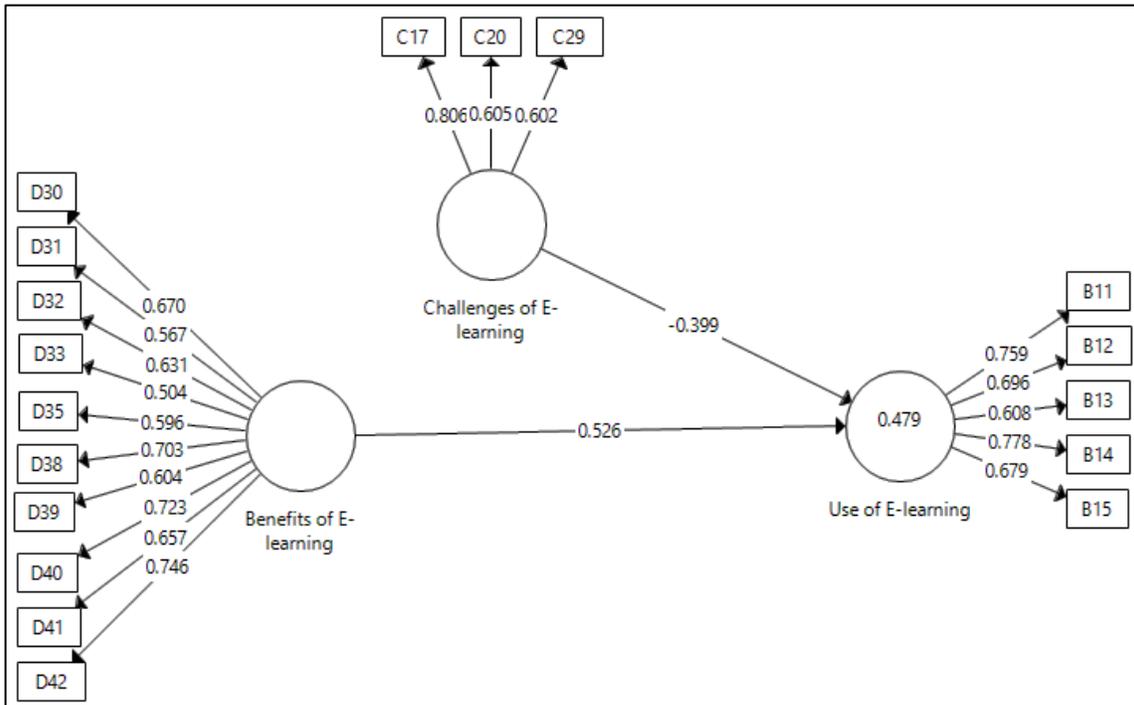


Figure 1: Use of e-Learning

Table 3 presents a summary of findings from the structural model with the goal of explaining the significant influence of perceived opportunities and challenges of e-learning systems on the use of e-learning in an emerging South African university during the pandemic. Statistically, Hypothesis 1 was supported, given the beta loading and the corresponding level of significance. By implication, the challenges of e-learning systems exerted a significant negative influence on the use of e-learning in an emerging South African university during the pandemic. Hypothesis 2 was also supported, which is an indication that perceived opportunities of e-learning systems exerted a significant positive influence on the use of e-learning in an emerging South African university during the pandemic. Statistically, the perceived opportunities of e-learning systems made the largest contribution to the use of e-learning in an emerging South African university during the pandemic; as shown in the beta loading and the p-value reported in Table 3.

Table 3: Summary of findings from the hypotheses

Hypothesis	Latent variable	Beta loading	Decision
H1	The challenges of e-learning systems exert an adverse effect on the use of e-learning in a South African emerging university during the pandemic.	r = -0.399, p < 0.001, n = 237	Supported
H2	Perceived opportunities of e-learning systems exert a positive influence on the use of e-learning in a South African emerging university during the pandemic	r = 0.526 p < 0.001 n = 237	Supported

Source: Emerged from statistical analysis

DISCUSSION OF RESULTS

During the COVID-19 pandemic, e-learning offered both developed and emerging institutions a great opportunity to offer continued access to education. However, the challenges hampering the

optimum adoption of e-learning are well documented. Nevertheless, there is a dearth of information about the influence of e-learning opportunities and challenges on the use of such systems by students in emerging universities in South Africa. Hence this study makes unique contributions to the body of e-learning evidence, particularly in the context of developing countries. First, the results of the study confirm that the majority of students use various forms of mobile devices to access e-learning content. Similar findings have been made in various contexts, such as Namibia (Kaisara & Bwalya, 2021), in Jordan (Maqableh & Alia, 2021) and in Zimbabwe (Maphosa, 2021). Whilst smartphones are traditionally and largely the primary device used to access learning materials in African universities (Gismalla *et al.* 2021), the results revealed that laptops are the primary tool used to access learning materials at the emerging university where our study was conducted.

This paper found that the challenges associated with e-learning have a negative influence on the use of e-learning. Conversely, the opportunities of e-learning have a positive influence on the use of e-learning among students in an emerging South African university. A positive user experience for students is critical to the eventual acceptance and appropriation of e-learning systems. It is thus important that scholars and practitioners develop strategies that can lessen the influence of the challenges of e-learning on the use of such systems. Among the most influential challenges is the prior experience (or lack thereof) of e-learning use. This paper's findings are consistent with those of Aguilera-Hermida (2020), that demonstrated the importance of prior experience with e-learning. Furthermore, students with low prior e-learning experience were found to "have a lower perception of self-efficacy, and those with a low sense of self-efficacy have a lower cognitive engagement" (Aguilera-Hermida, 2020). Against the foregoing, it is apparent that universities should be intentional about their efforts to cultivate digital skills amongst students. In some contexts, earlier studies have shown that e-learning users have explicitly demanded that more training and guidance on e-learning be provided to them (Harrati *et al.*, 2016). As digital skills tend to increase with continued use (Aguilera-Hermida, 2020), the sustained use of e-learning may lessen the influence of this factor in the near future.

Another important challenge that contributes to low e-learning use is the perceived poor quality of the e-learning content provided to students. According to Maatuk *et al.* (2021), weak content development remains a major concern in developing countries, primarily owing to the novelty of some e-learning applications. This paper's findings reveal that the challenges associated with weak content development are compounded in practical courses, which echoes the observations of scholars such as Maatuk *et al.* (2021). Furthermore, Zarei & Mohammadi (2021) posited that most of the educators in developing countries are inexperienced in transferring their knowledge into e-learning content. With the rushed nature of e-learning mass adoption at the height of the COVID-19 pandemic, it is doubtful whether universities had ample time to design and implement training programmes meant to provide instructors with the requisite digital skills.

## **CONCLUSION AND LIMITATIONS**

The aim of this study was to investigate the challenges and opportunities of using e-learning in a South African emerging university, especially during and after the COVID-19 pandemic. Over time emerging universities in South Africa have been under-developed and battled with several issues that include the legacy systems. Therefore, the main contribution of this study was an exploration of the opportunities and benefits of using e-learning in emerging universities through the perspective of student experiences. It is expected that the study findings will help policymakers at the emerging universities to develop a strategic plan and policies for the successful implementation of e-learning that will cater to student development and academic achievement. Whilst e-learning has traditionally been on the periphery of education, the COVID-19 pandemic has transformed the role of e-learning in contemporary society. As a result of the increased importance of e-learning, there has been a plethora of studies that seek to elucidate the various challenges and opportunities that arise due to the adoption of e-learning. This study looks beyond the common challenges and

opportunities associated with the uptake of e-learning. The findings of this study will benefit both scholars and practitioners through the recognition of the influence of both the challenges and opportunities of e-learning on user acceptance of e-learning. One limitation of this study is that data was collected from one South African emerging university. This means that the results cannot be generalised to all emerging universities in South Africa. Future research could opt to broaden the study to a different population size, incorporating all developing universities in the country. Future studies may also purposefully seek to replicate this study in a different context, that is, in more developed universities or different countries. Since most respondents were from the business sciences, future studies may focus on the natural sciences, which are notoriously difficult to offer through e-learning. Existing models used for e-learning in the South African context are westernised and rely on limited factors related to the country context. As a result, they benefit developed universities. There is a need for additional research on the challenges and opportunities of e-learning and future directions regarding its user acceptance in emerging universities. Lastly, this study was conducted when e-learning use was not optional, which might have influenced the responses. There is a need to conduct similar studies in a setting where there is choice. Based on the findings of our study, we suggest that more efforts be expended by scholars and practitioners to develop intervention strategies that could lessen the influence of e-learning challenges on the adoption of e-learning. Furthermore, scholars may focus more on mobile learning, as most of the respondents in this study used mobile devices to access learning materials.

## REFERENCES

- Aguilera-Hermida, A. P. 2020. "College students' use and acceptance of emergency online learning due to COVID-19". *International Journal of Educational Research Open*, 1. <https://doi.org/10.1016/j.ijedro.2020.100011>
- Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. 2020. "Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic". *Education and information technologies*, vol. 25, pp. 5261-5280.
- Alqahtani, A. Y., & Rajkhan, A. A. 2020. "E-learning critical success factors during the covid-19 pandemic: A comprehensive analysis of e-learning managerial perspectives". *Education sciences*, vol. 10, no. 9, pp. 1-16.
- Anderson, T. 2016. "Theories for learning with emerging technologies". *Emerging technologies in distance education*, vol. 7, no. 1, pp. 7–23.
- Arkorful, V., Abaidoo, N. 2015. "The role of e-learning, advantages and disadvantages of its adoption in higher education". *Int J Instruct Technol Distance Learn* vol. 12, no. 1, pp. 29–42.
- Aung, T. N., & Khaing, S. S. 2015. "Challenges of implementing E-learning in developing countries: A review". In *International Conference on Genetic and Evolutionary Computing* (pp. 405-411). Springer, Cham.
- Azeez, N.A. and Van Der Vyver, C. 2018. "Digital education: assessment of e-learning and m-learning adoption in tertiary institutions in South Africa". In *2018 IEEE Conference on e-Learning, e-Management and e-Services (IC3e)* (pp. 23-28). IEEE.
- Bagozzi, R. P. 2007. "The legacy of the technology acceptance model and a proposal for a paradigm shift". *Journal of the association for information systems*, vol. 8, no. 4, pp. 244-254.

- Badat, S. 2010. "The challenges of transformation in higher education and training institutions in South Africa". *Development Bank of Southern Africa*, vol. 8, no. 1, pp.1-37.
- Barrot, J.S., Llenares, I.I. and Del Rosario, L.S., 2021. "Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines". *Education and information technologies*, vol. 26, no. 6, pp.7321-7338
- Blackmon, S. J., & Major, C., 2012. "Student experiences in online courses: A qualitative research synthesis. *Quarterly Review of Distance Education*, vol. 13, no. 2, pp. 77–85.
- Bozalek, V., Ng'ambi, D. & Gachago, D. 2013. "Transforming teaching with emerging technologies: Implications for higher education institutions". *South African Journal of Higher Education*, vol. 27, no. 2, pp.419-436.
- Bylieva, D., Lobatyuk, V., Safonova, A., & Rubtsova, A. 2019. "Correlation between the Practical Aspect of the Course and the E-Learning Progress". *Education Sciences*, vol. 9, no. 3, pp. 1-14.
- Chuttur, M. Y. 2009. "Overview of the technology acceptance model: origins, developments and future directions". *Sprouts: Working Papers on Information Systems*, vol. 9, no. 37, pp. 1–21. Indiana University, USA
- Coman, C., Țîru, L. G., Meseșan-Schmitz, L., Stanciu, C., Bularca, M. C. 2020. "Online teaching and learning in higher education during the coronavirus pandemic: students' perspective". *Sustainability*, vol. 12, no. 24, pp. 1-24.
- Cullinan, J., Flannery, D., Harold, J., Lyons, S., & Palcic, D. 2021. "The disconnected: COVID-19 and disparities in access to quality broadband for higher education students". *International Journal of Educational Technology in Higher Education*, vol. 18, pp. 1-21.
- Davis, F. D. 1989. "Perceived usefulness, perceived ease of use, and user acceptance of information technology". *MIS quarterly*, vol. 13, no. 3, pp. 319–340. <https://doi.org/10.2307/249008>.
- Eliana, E. D. S., Senam, S., Wilujeng, I., & Jumadi, J. 2016. "The effectiveness of project-based E-learning to improve ICT literacy". *Jurnal Pendidikan IPA Indonesia*, vol. 5, no. 1, pp.51-55.
- El Mhouti, A., Erradi, M., & Nasseh, A. 2018. "Using cloud computing services in e-learning process: Benefits and challenges". *Education and Information Technologies*, vol. 23, no. 2, pp.893-909.
- Faturoti, B. 2022. "Online learning during COVID19 and beyond: A human right based approach to Internet access in Africa". *International Review of Law, Computers & Technology*, vol. 36, no. 1, pp. 68-90.
- Franklin, U.E. and Nahari, A.A., 2018. "The impact of e-learning on academic performance: preliminary examination of King Khalid University". *Development*, vol. 7, no. 1, pp. 83-96.
- Fu, J. 2013. "Complexity of ICT in education: A critical literature review and its implications". *International Journal of education and Development using ICT*, vol. 9, no. 1, pp.112-125.

- Gedera, D. 2014. "Students' experiences of learning in a virtual classroom: An Activity Theory perspective". *International Journal of Education and Development using ICT*, vol. 10, no. 4, pp 93-101.
- Gismalla, M. D. A., Mohamed, M. S., Ibrahim, O. S. O., Elhassan, M. M. A., & Mohamed, M.N. 2021. "Medical students' perception towards E-learning during COVID 19 pandemic in a high burden developing country". *BMC Medical Education*, vol. 21, no. 1, pp.1-7.
- Harrati, N., Bouchrika, I., Tari, A., & Ladjailia, A. 2016. "Exploring user satisfaction for e-learning systems via usage-based metrics and system usability scale analysis". *Computers in Human Behavior*, vol. 61(2016), pp. 463-471.
- Hassan, M. M., Mirza, T., & Hussain, M. W. 2020. "A critical review by teachers on the online teaching-learning during the COVID-19". *International Journal of Education and Management Engineering*, vol. 10, no. 5, pp. 17-27.
- Hlatshwayo, M. 2022. "Online learning during the South African COVID-19 lockdown: University students left to their own devices". *Education as Change*, vol. 26, no. 1, pp. 1-23.
- Kaisara, G., & Bwalya, K. J. 2021. "Investigating the E-Learning Challenges Faced by Students during COVID-19 in Namibia". *International Journal of Higher Education*, vol. 10, no. 1, pp.308-318.
- Kativhu, S. 2021. "Covid-19 as a Catalyst for Digital Transformation in Higher Education: Insights for Rural-based Universities in South Africa". *African Renaissance*, vol. 18, no. 4, pp. 285–304. <https://doi.org/10.31920/2516-5305/2021/18n4a14>
- Khoza, S. 2019b. "Lecturers' reflections on curricular spider web concepts transformation strategies". *Transformation of higher education institutions in post-apartheid South Africa*. vol.1, pp. 15–26
- Kommers, P. A., Smyrnova-Trybulska, E., Morze, N., & Issa, T. 2015. "Conceptual aspects: analyses law, ethical, human, technical, social factors of development ICT, E-learning and intercultural development in different countries setting out the previous new theoretical model and preliminary findings". *International Journal of Continuing Engineering Education and Life Long Learning*, vol. 25, no. 4, pp.365-393.
- Letseka, M., Letseka, M. M., & Pitsoe, V. 2018. "The challenges of e-Learning in South Africa". *Trends in E-learning*, vol. 8, pp. 121-138.
- Maatuk, A. M., Elberkawi, E. K., Aljawarneh, S., Rashaideh, H., & Alharbi, H. 2021. "The COVID-19 Pandemic and E-learning: Challenges and Opportunities from the Perspective of Students and Instructors". *Journal of Computing in Higher Education*, vol. 34, no. 1, pp.1-18.
- Martinerie, C. 2023. "Theorising disciplinary failures and decolonial pitfalls in South Africa: A retrospective on radical academic history under apartheid". *Postcolonial Cultures Studies and Essays*, vol. 2, pp. 1-21.
- Mathrani, A., Sarvesh, T., & Umer, R. 2022. "Digital divide framework: online learning in developing countries during the COVID-19 lockdown". *Globalisation, Societies and Education*, vol. 20, no. 5, pp. 625-640.

- Maphosa, V. 2021. "Factors influencing student's perceptions towards e-learning adoption during COVID-19 pandemic: A developing country context". *European Journal of Interactive Multimedia and Education*, vol. 2, no. 2, pp. 1-8.
- Masimbe, C. 2019. *Mobile Internet access and affordability among youth in South Africa: rethinking universal service and access in the age of digital mobility* (Doctoral dissertation).
- Maqableh, M., & Alia, M. 2021. "Evaluation online learning of undergraduate students under lockdown amidst COVID-19 Pandemic: The online learning experience and students' satisfaction". *Children and Youth Services Review*, vol. 128, 106160. doi: 10.1016/j.childyouth.2021.106160.
- Mhlanga, D., Denhere, V. and Moloi, T. 2022. "COVID-19 and the key digital transformation lessons for higher education institutions in South Africa". *Education sciences*, vol. 12, no. 7, p.464.
- Mlachila, M. M., & Moeletsi, T. 2019. "Struggling to make the grade: A review of the causes and consequences of the weak outcomes of South Africa's education system. vol. 19, no. 47, pp. 61.
- Moubayed, A., Injadat, M., Shami, A., & Lutfiyya, H. 2018. "Relationship between student engagement and performance in E-learning environment using association rules". In: *2018 IEEE world engineering education conference (EDUNINE)*, pp 1–6. <https://doi.org/10.1109/EDUNINE.2018.8451005>
- Mpungose, C.B., 2020. "Is Moodle or WhatsApp the preferred e-learning platform at a South African university? First-year students' experiences". *Education and information technologies*, vol. 25, no. 2, pp. 927-941.
- Mpungose, C.B., 2020. "Beyond limits: Lecturers' reflections on Moodle uptake in South African universities". *Education and Information Technologies*, vol. 25, no. 6, pp. 5033-5052.
- Mpungose. C. 2020b. "Emergent transition from face-to-face to online learning in a South African University in the context of the Coronavirus pandemic". *Humanities and Social Sciences Communications*, vol. 7, no. 1, pp.1-9.
- Odili, N., Adetona, C. O., & Eneh, A. E. 2020. "Online resources for e-learning in educational institutions: A case of COVID-19 era". *International Journal of Research and Review*, vol. 7, no. 10, pp. 95-102.
- Pavel, A. P., Fruth, A., Neacsu, M. N. 2015. "ICT and e-learning—catalysts for innovation and quality in higher education". *Procedia economics and finance*, vol. 23, pp.704-711.
- Potcovaru, A. M. 2018. "Using the Methods of E-learning in Educational System". In *Conference proceedings of eLearning and Software for Education (eLSE)* (Vol. 4, No. 14, pp. 208-215)." Carol I" National Defence University Publishing House.
- Reddy Moonasamy, A., & Naidoo, G. M. 2022. "Digital Learning: Challenges experienced by South African university students' during the COVID-19 pandemic". *The Independent Journal of Teaching and Learning*, vol. 17, no. 2, pp. 76-90.
- Ringle, Christian M., Sven Wende, and Jan-Michael Becker. 2015. SmartPLS 3. Bönningstedt: SmartPLS. Available online: <http://www.smartpls.com> (accessed on 22 July 2024).

- Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. 2021. "Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female". *Quality & quantity*, vol. 55, no. 3, pp. 805-826.
- Spaull, N. 2013. "Poverty & privilege: Primary school inequality in South Africa". *International Journal of Educational Development*, vol. 33, no. 5, pp. 436-447.
- Tawafak, R. M., Alfarsi, G., AlNuaimi, M. N., Eldow, A., Malik, S. I., & Shakir, M. 2020. Model of Faculty Experience in E-learning Student Satisfaction. *In 2020 International Conference on Computer Science and Software Engineering (CSASE)* (pp. 83-87). IEEE. <https://doi.org/10.1109/csase48920.2020.9142071>
- Tirziu, A. M., & Vrabie, C. (2015) Education 2.0: E-learning methods. *Procedia-Social and Behavioral Sciences*, vol. 186, pp.376-380.
- Turnbull, D., Chugh, R., & Luck, J. 2021. "Transitioning to E-Learning during the COVID-19 pandemic: How have Higher Education Institutions responded to the challenge?". *Education and Information Technologies*, vol. 26, no. 5, pp. 6401-6419.
- Van Deursen, A. J., & van Dijk, J. A. 2019. "The first-level digital divide shifts from inequalities in physical access to inequalities in material access". *New Media Soc*, vol. 21, no. 2, pp. 354-375.
- Yakobi, S., Yakobi, K., Lose, T., & Kwahene, F. 2022. "E-Assessment Implementation and Implications for the Success of Historically Disadvantaged Institutions (HDIs) in South Africa". *Journal of Educational Studies*, vol. 21, no. 4), pp. 110-122.
- Zarei, S., & Mohammadi, S. 2021. "Challenges of higher education related to e-learning in developing countries during COVID-19 spread: a review of the perspectives of students, instructors, policymakers, and ICT experts". *Environmental Science and Pollution Research*, vol. 29, no. 57, pp. 85562-85568.
- Zezeza, P.T. and Okanda, P.M. 2021. "Enhancing the digital transformation of African universities". *Journal of Higher Education in Africa/Revue de l'enseignement supérieur en Afrique*, vol. 19, no. 1, pp.1-28.

---

Copyright for articles published in this journal is retained by the authors, with first publication rights granted to the journal. By virtue of their appearance in this open access journal, articles are free to use with proper attribution, in educational and other non-commercial settings.