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Learning Management Systems as a platform for information sharing during the COVID-19

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Background: During the outbreak of the deadly respiratory coronavirus disease (COVID-19) in the 2019–2022 period, many South African institutions of higher learning adopted online learning management systems (LMS) to share information and salvage the academic project. This adoption was fraught with challenges including a lack or preparedness, resources and strategy on how to manage change.

Objectives: The study examined the challenges faced while using an online LMS as an information sharing platform in academia, specifically in a rural-based university in South Africa during (COVID-19) lockdown period. In addition, the study also explored the state of readiness of the rural-based university to transition to an online LMS.

Method: A quantitative research methodology was used to collect data through the administration of a survey to respondents from a rural-based university. The target population for the study was students and academic staff.

Results: The study revealed that online learning management provided a collaborative knowledge and information sharing platform. This study established that LMS enabled the university to continue sharing knowledge and interact with their students, staff, and stakeholders to continue to facilitate teaching and learning. Internet connectivity, a lack of preparedness and data costs were cited as key challenges.

Conclusion: This study highlighted how an online LMS was used as a collaborative and knowledge sharing platform during a global crisis.

Contribution: The study contributes to information and knowledge sharing disciplines to create awareness to authorities on the importance of technology during a crisis.

Keywords: COVID-19; learning management systems; Internet; information; knowledge; security; collaborative.

Introduction

The emergence of the coronavirus disease (COVID-19), a deadly respiratory disease, was jointly announced by the World Health Organization (WHO 2020); Centers for Disease Control (CDC 2020) and the United Nations (UN 2020) on the 20th of January 2020. The announcement was that COVID-19 started in Wuhan, China (Sumardi, Suryani & Musadad 2021; WHO 2020). It became a global pandemic because of its exponential spread with a short space of time resulting in loss of human lives and productivity. The global economy closed down its operations to mitigate the spread of the virus. This effectively signalled the restricted movement of people except those in designated essential services (WHO 2020). By mid-March 2020, more than 130 countries had been severely affected by the COVID-19, and South Africa was in the list of top African countries affected (WHO 2020).

As a direct response to the WHO's call towards minimising the spread f the deadly COVID-19 pandemic, the South African government announced a hard lockdown on the 26th of March which took effect from the 27th of March 2020. A number of interventions inter alia wearing of face masks, sanitisation, social distance and prohibitive inter-city or inter-provincial travels, social gatherings, funerals et cetera formed part of the national intervention strategy (Raza et al. 2020). During the lockdown, people were subjected to social distancing, self-isolation and self-quarantine for a minimum of 10 days if they were infected with the virus (Anderson et al. 2020). The severity of the virus disrupted the status quo. Every aspect of human life, business model and economy activity was affected (Chigada & Madzinga 2021). The only means for information and knowledge sharing were social media, radios and televisions. Universities had to find ways to share

knowledge and information with their stakeholders, students and staff to facilitate teaching and learning.

During the peak of COVID-19, millions of people around the country remained in their homes to prevent the virus from spreading. This affected the livelihoods of the citizens and the rural-based universities especially those that offer face-to-face teaching and learning (Anderson et al. 2020; Netshakhuma 2021). In South Africa, universities are classified as urban and rural universities (Patel, Kadyamatimba & Madzvamuse 2018). Rural universities are those universities that are previously disadvantaged and strategically situated in rural communities with the aim of providing high-quality education for rural growth in their communities (Francis, Kilonzo & Nyamukondiwa 2016). However, the emergence of the global COVID-19 forced a paradigm shift and reconfiguration of teaching and learning through online learning management systems (LMS) (Raza et al. 2021). Staff, stakeholders and students vacated university campuses and offices as a response to government directive towards restricted movement of people.

The Department of Higher Education (DHET) urged universities to identify appropriate, cost-effective teaching, learning and research solutions such as online platforms (Gamede, Ajani & Afolabi 2021) These online platforms also known as LMS (Chigozie-Okwum, Ezeanyeji & Odii 2018; Gamede et al. 2021; Mtebe 2015) are designed to administer, record, monitor, report, automate and deliver educational courses (Lopes 2012). Learning management systems as e-Learning tools have made it possible for rural-based universities to continue with teaching and learning during the COVID-19 lockdown period (Zwain 2019). Lecturers provided lessons remotely, which were accessed by students in the comfort of their homes at any time using LMS (Patel et al. 2018). This affirms that teaching and learning are no longer confined within a classroom (Rahmanda, Sandhi & Sunaryo 2020).

As the COVID-19 lockdown disrupted ways of doing things, there is a need to examine the use and effectiveness of online LMS in rural-based universities (Sumardi et al. 2021). Gamede et al. (2021) state that many researchers have been focusing on examining the relevance of LMS in South African universities. Most of these studies investigated the impact of online LMS on teaching and learning in universities that are situated in urban areas (Patel et al. 2018). In recent times, some studies have been conducted to focus at factors that influence the acceptance of online LMS during the COVID-19 pandemic in Higher Education Institutions (Gamede et al. 2021; Raza et al. 2020). Given the different studies that have focused on LMS, this study has identified that there is a dearth of information suggesting studies focusing on the challenges faced by South African rural-based universities transitioning to online teaching and learning during the COVID-19 pandemic. Therefore, the objectives of this article are to:

- Examine the state of readiness of a rural-based university to use an online LMS as a platform for knowledge sharing.

- Establish challenges faced by a rural-based university while using an online LMS as an information sharing platform.
- Explore the benefits of an online LMS for knowledge and information sharing.

Literature review

This section reviews literature on key concepts that underpin this article, inter alia LMS, benefits, challenges and knowledge sharing.

Learning management system

Learning management systems are defined as a server or cloud-based online applications (Emmamoge, Hassan & Kauthar 2020; Lopes 2012) that include Success Factors, Blackboard, Moodle, Sakai, MyGuru2, Sum Total, etc. (Gamede et al. 2021; Mtebe 2015). Online LMS are used to facilitate teaching and learning in educational institutions as well as uploading and downloading learning materials (Mtebe 2015). Learning management systems can also be used for assessment and for student interactions (Mohd Kasim & Khalid 2016). Therefore, LMS complements traditional brick 'n' mortar information and knowledge sharing platforms such as the face-to-face interactions.

Janson, Söllner and Leimeister (2017) posit that LMS have become popular in recent years because they enhance the traditional tools used in teaching and learning through online learning platforms. Learning management systems enable synchronous communication between students and lecturers because a message sent by either lecturers or students gets delivered instantly, unlike asynchronous communication where a message gets delayed to be delivered (Emmamoge et al. 2020). These applications save the university, students and lecturers resources and time (Raza et al. 2021). The university saves resources such as water, electricity and paper because students will access their lessons online from their respective geographic locations or in the comfort of their homes (Lopes 2012; Raza et al. 2021). In this case, students save time and money travelling to campuses because they will access teaching and learning digitally (Setiawan & Fitriyah 2021). In addition, LMS have inbuilt capabilities to record, store and share large volumes of information. Students access learning materials and information through their student numbers.

Online learning management systems aspects

Online LMS comprises curriculum planning, instant evaluation, content management and learner engagement components (Kulshrestha & Kant 2013). Curriculum planning is a common feature of online LMS. Usually, Technical Educational Institutions (TEIs) lecturers are involved in curriculum planning, which is carried out before the beginning of the semester or year. This feature is used to create a course plan (Kulshrestha & Kant 2013; Wardah et al.

2020). The course plan is a comprehensive structure that outlines the lecture schedule, what will be covered, an overview of the chapters, learning resources, timetable and the total number of hours required for the course (Chigozie-Okwum et al. 2018; Lopes 2012). The essence of various components of an LMS is to create an interactive platform and knowledge repository that can be used repeatedly (Chigada & Ngulube 2015).

The instant evaluation feature also known as the grading feature (Chigozie-Okwum et al. 2018) is used to mark multiple choice questions (MCQs) and true or false questions (Emmamoge et al. 2020). While making use of instant evaluation features to mark these types of questions, students get their results instantly. Therefore, when the student selects the answer, the instant evaluation feature grades the student's choice and when the student clicks the submit button, the system automatically displays the results (Chigozie-Okwum et al. 2018; Wardah et al. 2020). This feature improves the turnaround time for marking scripts. It also reduces the anxiety of the lecturers caused by marking students' scripts (Gamede et al. 2021). Students can access their marks through grading feature without necessarily calling or visiting the examination office.

The control of course material is not a common feature for most students (Kulshrestha & Kant 2013). The content management feature is used to create, maintain and store content for future use. Lecturers who teach the same modules every semester or year can use the same material (Chaubey & Bhattacharya 2015; Kulshrestha et al. 2013). Students use this feature for revision even though they have passed the module (Kulshrestha & Kant 2013; Mohd Kasim & Khalid 2016).

Learner engagement is the real relationship in which students and lecturers interact (Heaslip, Donovan & Cullen 2014). This feature can be used by students to interact with their lecturers using e-chat rooms, texts, forums, wikis, just to name a few, where students or lecturers can post topics and learn from other students through their responses (Janson et al. 2017; Mohd Kasim & Khalid 2016; Setiawan & Fitriyah 2021).

State of readiness to implement a learning management systems in the context of digital age

The presence of information and communication infrastructure in South Africa is not reliable, specifically in rural areas. Internet connectivity is very poor, thus there is a high possibility of high failure rate. However, the authors acknowledge that the digital age has made it easier for students and educators to interact. Khadim (2018) agrees that access to information has become very easy and cheaper than before. The digital age has paved way for learning that harnesses power, speed and ubiquity of digital capability. However, the emergence of the COVID-19 pandemic caught many institutions unprepared for change. Thus, crises can accelerate change leading to reconfiguration of business models (Khadim 2018).

Common online learning tools in South Africa

Aljawarneh et al. (2008) highlighted that there are numerous tools and systems that can be used:

- **Course management system (CMS):** The CMS is a web-based system with a database back-end. It allows lecturers to obtain resources for students and used to facilitate the management of the course and tasks. Both students and lecturers can share course resources and activities remotely.
- Modular object-oriented dynamic learning environment (MOODLE).

The MOODLE is a free software package designed to help lecturers and students as a tool to provide in creation of quality teaching (Aljawarneh, Muhsin, Nsour, Alkhateeb & AlMaghayreh 2008). The Nelson Mandela University (NMU) and University of Venda (UNIVEN) use the MOODLE e-learning, which has been customised for lecturers to be registered as users who can edit the site. The MOODLE comprises four e-learning environments: *iLearn* for teaching and learning *assesses* for assessments, *engage* for engagement and *Incoko* for research, which is hosted by the NMU Business School. Students can register at anytime and do not need to be physicaly present on campus:

- **Blackboard:** This is a teaching and learning tool that entails the use of tests, surveys, assignments, grading systems, reporting and assessments.
- **Sakai:** Sakai is a popular e-learning site that is used by prominent universities in the world and in South Africa. In South Africa, prominent universities such as the University of the Witwatersrand and University of Cape Town make use of it. Sakai is an open-source license platform that supports teaching and learning as well as research.
- **Charmilo:** Charmilo is another free software tool used by higher institutions worldwide to enhance e-learning and content management. The main aim is to improve access to education and knowledge globally (Limani 2020).
- **Claroline:** Claroline is collaborative e-learning platform, and it is also linked to e-Working platform. Different institutions use Calorline to create and administer courses and collaboration spaces on the Internet. It is also a cost-effective, accessible and user-friendly online learning platform available as open-source license.

Benefits of an online learning management system

- **Boundaryless education:** An LMS promotes education without boundries of geography nor locality (Aljawarneh et al. 2008). With boundaryless education, students can study anywhere, anytime as long as there is Internet connectivity and do have data (Chigozie-Okwum et al. 2018). Students can structure their studies so that they do

not clash with family or work-related commitments. These LMS facilitate seamless information and knowledge sharing across regions; however, users should be wary of security breaches because credentials to join or participate remotely can be shared by many people. Chigada and Daniels (2021) state that when using BYOD, unauthorised people may access the devices and log into the corporate network with nefarious intentions.

- **Cost-effectiveness:** Despite being boundaryless education, students and lecturers can access teaching and learning through LMS and these platforms are affordable (Lubabalo 2019; Patel et al. 2018). Furthermore, Anderson and McCormick (2005) highlighted that e-learning must be priced to be accessible to any educational institution. According to Aljawarneh et al. (2008) e-learning is the most effective and cost-saving method of learning as compared with the traditional way of teaching. Cost-effectiveness in the industry results in an open market where small firms integrate in a much-digested markets. According to Bates (2003), e-learning generally raise profits for institutions because it cuts lot of cost and promotes productivity and efficiency.
- **Ease of use:** Thousands of students and their lecturers can use online LMS without attending any form of training (Arkorful & Abaidoo 2014).
- **Learner engagement:** It is the responsibility of the instructor to select, organise and present course content, design and develop learning activities and assessments (summative and formative assessments). Online LMS enables students to interact with their lecturers using e chat rooms, texts, forums, wikis, etc., where students or lecturers can post topics and learn from other students through their response (Kulshrestha et al. 2013).
- **Cognitive presence:** Emmamoge et al. (2020) state that the extent to which participants construct meaning through communication determines cognitive presences. This means that in a blended learning environment, the assumption is that facilitators of modules should develop a leaner-centred approach, which focuses primarily on the learner and the learning process and those who help the learner. Facilitators' roles are a teaching presence, responding to the learners' activities (Chigozie-Okwum et al. 2018).

Challenges encountered when transitioning to an online learning management systems

Chigozie-Okwum et al. (2018) established that lack of Information Technology (IT) skills, high cost of internet connection, reluctance to embrace change, unavailability of infrastructure and support are the challenges that affect the adoption of online LMS. Seedat (2022) conducted a study that examined the challenges faced while transitioning to an online LMS and established that data costs in South Africa are very high and beyond the reach of many students. Given that there were restricted movements, students would not go to public places to use unsecured public Wi-Fi. Many households in South Africa do not have Internet-enabled facilities let alone communities in rural areas, which struggle with connectivity problems.

Unavailability of infrastructure and support includes the availability of information systems components and the skilled staff to support these components. Unwillingness to embrace change has been found to be one of the challenges in the high institution of learning. Both lecturers and students become complacent with the way they do things (Gamede et al. 2021; Raza 2020). Parasuraman (2000) states that people's readiness to interact with technology is a key challenge facing many institutions. Technology readiness refers to 'people or firms' propensity to embrace and use new technologies for accomplishing goals in home life and at work. An institution must be ready enough to cater for all the requirements as demanded by the innovation. Infrastructure, support structures, training, etc., are some of the things that should be put in place to support successful integration of technology in education (Parasuraman 2000).

Mawere, Chigada and Sambo (2020) state that technology has positively impacted the education sector especially during and post-COVID-19 because many institutions have knowledge and information sharing platforms. Students interact with their lecturers remotely and, on the other hand, there is tele-commuting.

The next section discusses the research methodology adopted in this article.

Research methodology

A positivist approach was adopted to guide the authors study in order to understand the phenomenon associated with the subject (Myers 2013; Saunders, Lewis & Thornhill 2019). This approach was used as a science to examine the challenges faced when using an online LMS as an information sharing platform in academia, specifically in a rural-based university in South Africa during the COVID-19 lockdown period.

The research paradigm influences the research methodology of the study. According to Creswell (2014), there are three methodologies that can be selected to conduct an inquiry, namely quantitative, qualitative and mixed methods. Qualitative research is a way of understanding and exploring the human or social problem ascribed to groups or individuals. Qualitative research collects non-numeric data inductively to understand participants' views, opinions, experiences and concepts in general through the generation of themes (Creswell 2014; Kothari 2004; Myers 2013). On the contrary, quantitative research is used to aggregate variables from a group of respondents. Qualitative research collects numeric data from the participants to measure the association between variables in order to accept or reject the hypothesis (Creswell 2014; Saunders et al. 2019). In quantitative research, data are collected through a survey using a questionnaire (Cresswell & Clark 2011).

This study adopted a quantitative research methodology because the data were collected using a questionnaire from rural-based university students and lecturers who adopted an online LMS because of the COVID-19 lockdown.

In research, the purpose of research design is to present a plan that will be used to collect and analyse data to address the research problem. Therefore, this study was conducted during the COVID-19 lockdown in a rural-based university in South Africa, Vhembe district. The participants in this study were students and lecturers who used LMS during the COVID-19 lockdown. A total number of 200 participants were targeted. Random sampling techniques were used to pick the participants from the population. The authors chose the students and lecturers as the main respondents because they were the main users of online LMS for teaching and learning. Simple random sampling technique gave everyone an equal opportunity for inclusion in the study. Kothari (2004) states that randomisation minimises bias or favouritism while selecting sample elements for a study.

Data collection is a systematic method of gathering relevant data from the target population to address research problems and questions (Myers 2013). Data can be collected from primary and secondary sources (Creswell 2014). Secondary data refer to data gathered through the review of books, conference articles, journal articles, magazines, government reports and other published materials. Primary data are collected by scholars through empirical work directly from the respondents. This data can either be collected through questionnaires, interviews, focus group, etc. (Myers 2013; Saunders et al. 2019). When using quantitative research methodology, primary data are collected using the survey data collection technique (Myers 2013). In this study, primary data were collected using questionnaires. A questionnaire is a way to elicit feelings, beliefs, experiences, perceptions or attitudes from the respondents (Kothari 2004; Myers 2013). Hard copies of questionnaires were distributed to the respondents who were on campus to give their responses and those who were not on campus because of COVID-19 restrictions a google forms link was sent to their emails to complete the questionnaire online. The researcher used Google forms to collect data online.

A total of 162 responses were distributed and received as follows: 132 responses were collected using Google forms. Out of 132 Google form responses, 23 responses were not appropriate for analysis. On the other hand, a total of 30 printed questionnaires were distributed to students and lecturers who were on campus. Out of 30 printed questionnaires, 28 questionnaires were returned and all of them were appropriate for analysis. Therefore, 137 responses were analysed for this study. The respondents who used Google forms to participate in this study were asked to select appropriate choices by clicking a radio button and those who used a printed questionnaire were asked to mark appropriate choices using a cross. The next section presents the results.

Results

This section begins by presenting the findings about demographic information. A total of 130 (94.90%) responses were collected from students, and 7 (5.10%) respondents were collected from lecturers. Table 1 shows that the dominant gender in this study was female. Females constituted 73 (53.30%) responses and 64 (46.70%) responses were from males. As per findings in Table 1, 88 (64.23%) respondents were between 21 and 30 age group, while the second highest responses were from 35 (25.55%) respondents who were between 17 and 20 age group and followed by the 11 (8.03%) respondents who were between 31 and 40 age group. Again, 3 (2.19%) respondents were between 41 and 50 age group. There were no respondents who were aged 51 and above.

Other questions in this study dealt with the level of study. This question was only answered by the students who studied at a rural-based university. Findings show that the majority (83 [63.85%]) of the respondents were undergraduate students, while the second highest (38 [29.23%]) respondents were busy with their honour's degree followed by the 7 (5.38%) respondents who were busy with their master's degree. At the time of data collection, only 2 (1.54%) respondents were busy with their PhD degrees.

Furthermore, there were questions that dealt with the usage of online LMS in a rural-based university. According to Table 2, 104 (75.91%) respondents used Moodle, while 24 (17.52%) respondents used Blackboard and 9 (6.57%) respondents used other LMS as knowledge and information

TABLE 1: Demographic information.

Characteristics	Frequency	%
Q1: Status		
Student	130	94.90
Lecturer	7	5.10
Q2: Gender		
Male	64	46.70
Female	73	53.30
Q3: Age		
17–20	35	25.55
21–30	88	64.23
31–40	11	8.03
41–50	3	2.19
50 and above	0	0
Q4: Level of study		
Undergraduate	83	63.85
Honours	38	29.23
Masters	7	5.38
PhD	2	1.54
Q5: Learning management systems platforms		
Moodle	104	75.91
Sakai	0	0
Blackboard	24	17.52
Other	9	6.57
Q6: Purpose for using learning management systems		
Learning	116	84.67
Teaching	19	13.87
Other	2	1.46

TABLE 2: Benefits of an online learning management system.

Questions	SA (%)	A (%)	U (%)	D (%)	SD (%)
Learning management system facilitates teaching and learning.	67.88	29.93	1.46	0.00	0.73
It is easy to upload and access learning material using an online learning management system.	56.93	35.77	3.65	1.46	2.19
Online learning management system enables interaction between the students and lecturers.	58.39	27.01	5.84	3.65	5.11
Online learning management system is accessible from any smart device.	49.63	48.18	2.19	0.00	0.00
I can share information and knowledge through the online learning management system.	58.39	37.23	3.65	0.00	0.73

SA, strongly agreed; A, agree; U, uncertain; D, disagree; SD, strongly disagree.

TABLE 3: Students and lecturers' challenges of online learning management usage.

Questions	SA (%)	A (%)	U (%)	D (%)	SD (%)
There was a lack of training on the use of learning management systems.	25.55	27.74	7.30	35.04	4.01
There was a lack of digital infrastructure to access online learning management systems.	13.87	32.12	14.60	35.77	3.64
I experience a lot of internet connection problems when trying to connect to an online learning management system.	62.14	29.20	2.92	4.38	1.46
There was a lot of distraction when using learning management systems during COVID-19 lockdown.	30.66	30.66	3.65	30.65	4.38
It is difficult to write or set assessment using learning management systems.	54.74	31.39	5.84	4.38	3.65

SA, strongly agreed; A, agree; U, uncertain; D, disagree; SD, strongly disagree.

sharing platforms. In the rural-based university that was used as a sample unit, there were no respondents who used Sakai during the COVID-19 lockdown. Lastly, the majority of these 116 (84.67%) respondents used LMS for learning, while 19 (13.87%) respondents used it for teaching and 2 (1.46%) respondent used it for other reasons.

To address and answer the research questions, the following data were collected using the Linkert scale and analysed thereafter. The respondents were asked to choose from strongly agreed (SA), agree (A), uncertain (U), disagree (D) and strongly disagree (SD). The first question looked at the benefits of online LMS during the transition period. The results in Table 2 show that 93 (67.88%) of respondents strongly agree and 41 (29.93%) of respondents agree that LMS were useful for teaching and learning during COVID-19 lockdown. A total of 2 (1.46%) of the respondents were uncertain, whereas 1 (0.73%) respondents strongly disagree that LMS had a great impact during COVID-19 lockdown.

Furthermore, a total number of 78 (56.93%) and 49 (35.77%) respondents strongly agreed and agreed that it was easy to upload or access learning material using LMS during COVID-19 lockdown, while 5 (3.65%) respondents were uncertain and 2 (1.46%) and 3 (2.19%) respondents strongly disagree and disagree with the that.

As shown in Table 2, a total of 80 (58.39%) and 37 (27.01%) respondents strongly agree and agree that Online LMS enables interaction between the students and lecturers, while 8 (5.84%) respondents were uncertain about the statement. A total of 5 (3.65%) and 7 (5.11%) respondents disagree and strongly disagree with the question.

Furthermore, a total of 68 (49.64%) and 66 (48.18%) respondents strongly agree and agree that they could access online LMS on any smart device during COVID-19 lockdown. A total of 3 (2.19%) of the respondents are uncertain. Lastly, a total of 80 (58.39%) and 51 (37.23%) of the respondents strongly agree and agree that the use of LMS helped students and lecturers to share study material among each other during lockdown. A total of 5 (3.65%) of respondents are uncertain. A total of 1 (0.73%) respondents strongly disagreed with the question.

On the contrary, the researchers examined the challenges encountered during this transition. The researchers found that the issue of internet connectivity was the main concern because a total of 85 (62.14%) and 40 (29.20%) respondents strongly agree and agree that they experienced internet connection problems when using online LMS during COVID-19 lockdown, while 4 (2.92%) respondents were U and 6 (4.38%) and 2 (1.46%) respondents disagree and strongly disagree with the question.

A total of 19 (13.87%) and 44 (32.12%) respondents strongly agree and agree that there was a lack of digital infrastructure to access LMS during the COVID-19 lockdown, while 20 (14.60%) respondents are uncertain about the question. A total of 49 (35.77%) and 5 (3.64%) respondents disagree and strongly disagree with that.

Furthermore, as shown in Table 3, a total of 35 (25.55%) and 38 (27.74%) respondents strongly agree and agree that there was a lack of training on how to use LMS during COVID-19 lockdown. Again, 10 (7.30%) respondents are uncertain and 48 (35.04%) and 6 (4.01%) respondents disagree and strongly disagree with the question.

Table 3 shows that a total of 42 (30.66%) and 42 (30.66%) respondents strongly agree and agree respectively, that they were easily distracted when using LMS at home during COVID-19 lockdown, while 5 (3.65%) respondents were uncertain and 42 (30.65%) and 6 (4.38%) respondents disagree and strongly disagree with the question.

Lastly, a total of 75 (54.74%) and 43 (31.39%) respondents strongly agree and agree that it was difficult to write or set assessments using online LMS, while 8 (5.84%) respondents were uncertain and 6 (4.38%) and 5 (3.65%) respondents disagree and strongly disagree with the question.

Discussion of findings

During the transition to online LMS, the process was not a smooth sailing. The universities, students and lectures enjoyed some of the benefits that come with the adoption of online learning management; however, there were challenges that threatened the transition. Most respondents indicate that

they were not trained and they found it difficult to use online LMS. This finding is supported by Mashau (2016) who suggests that training is important in the technology usage and will influence the adoption of the new innovation.

Furthermore, most respondents were unable to use online LMS for learning because of intermittent internet connectivity problems. A study by Chigozie-Okwum et al. (2018) asserts with this finding. It shows that internet connection affects the use of learning management in some areas globally. The issue of internet connectivity encompassed the issue of access to digital infrastructure. Most respondents indicated that they did not have a digital device to access online LMS.

Conclusion and recommendations

This study sought to explore the transitioning to an online LMS during COVID-19 in order to identify the benefits and challenges encountered during COVID-19 lockdown. In this study, it was found that most participants had the experience of using online LMS such as Moodle and Blackboard. Furthermore, the data show that the students and lecturers were able to continue with the teaching and learning using online LMS. However, they experienced some challenges. A lack of digital devices and internet connection was found to be a challenge that affected rural-based universities in South Africa.

Therefore, this study recommends that rural-based universities should fuse online LMS to their programmes even post COVID-19 lockdown because students and lecturers showed a willingness to adopt online LMS. However, training is a key to the adoption of learning management in universities. For successful adoption, rural-based universities should develop a culture of technology readiness to enhance the uptake of technology adoption. The emergence of COVID-19 surprised many institutions, resulting in many challenges towards transitioning from system to the other.

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Competing interests

Authors' contributions

The authors contributed significantly to the development of this research article. K.N. conceptualised the study and shared it with N.L.M. leading to a research project. N.L.M. and J.C. developed the structure and key issues of the article. J.C. identified a fit for purpose journal in which this article could be published. N.L.M. and J.C. did some additional write-up to bring the article to an acceptable standard. J.C. did the editing, final structure and submission to the journal.

Ethical considerations

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Data availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Disclaimer

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