Curriculum Development for Online Teaching and Learning: Academics' Perspectives from A Rural-Based University in South Africa

Nhlayisi Cedrick Baloyi and Edgar Julius Malatji

University of Limpopo, Faculty of Humanities, School of Languages and Communication Studies, Department of Communication, Media and Information Studies

Corresponding Author: edgar.malatji@ul.ac.za

ABSTRACT

This study sought to explore academics' perceptions of the development and delivery of curriculum for online teaching and learning in a rural-based university. Technology integration into teaching and learning in higher education is receiving more attention, thanks to the Coronavirus pandemic that has forced all facets of lives to look for alternative methods of operation instead of face-to-face contact. The pandemic saw most institutions of higher learning move their mode of curriculum delivery from face-to-face to multimodal learning using technology. This, however, was done without considering whether the existing curriculum that was accredited to be delivered face-to-face will perfectly fit into multimodal learning. The exploratory research design within the qualitative research methodology was applied in this paper. Purposive and convenience sampling techniques were applied to sample a rural university in Limpopo province of South Africa, and academics respectively. Semi-structured interviews and reflexive thematic analysis were employed for data collection and analysis for this paper. The study revealed there is a relationship between curriculum development and the mode of delivery used for teaching. Some of the academics indicated that a lack of technological skills poses a threat to adopting new technologies for teaching. In light of this, the study recommends ICT infrastructure investment and human resource capacitation for proper integration of technology for teaching and learning.

Keywords: Curriculum, Technology, Higher education, Teaching, and learning

INTRODUCTION

The use of technology in the educational sector comes a long way, and the integration of Information and Communication Technologies (ICTs) in the higher education sector has received much attention recently. Several factors including the technological revolution and the advancement of the Fourth Industrial Revolution (4IR), natural disasters, and the Coronavirus (Covid-19) pandemic amongst others influence the massive move in integrating technology in the higher education sector (Mhlanga & Moloi, 2020). Institutions of higher learning in South Africa, particularly the historically disadvantaged ones are always playing catch-up with the technological advancement in the sector (Du Plessis, et. al., 2022). Most of the previously disadvantaged institutions of higher learning are accredited to provide education through the contact and/or face-to-face mode of teaching and learning. However, the Covid-19 pandemic and the lockdown regulations such as avoiding face-to-face meetings have proven that nothing will remain static, and institutions of higher learning were advised to adopt alternative ways to continue with teaching and learning (Baloyi & Malatji, 2022). Thus, most if not all institutions of higher learning adopted

multimodal learning as a suitable approach to delivering teaching and learning (Ally, Pillay & Govendor, 2022). This approach received great attention from scholars all over the world in trying to integrate technology for teaching and learning as a mitigating factor against the Covid-19 virus. However, there is a realisation that a multimodal approach to teaching and learning will be embraced forever, regardless of the changing situation of the Covid-19 pandemic (Ngoatle, Mothiba & Ngoepe, 2022).

Various Learning Management Systems (LMSs) have been adopted to facilitate teaching and learning in the higher education sector. Some of the LMSs that have been embraced include Blackboard, Moodle, Canvas, Google Classroom, Desire2Learn, and Schoology among others. These LMSs permit academics and students to have virtual lecture sessions without having physical contact. These platforms also provide an unlimited space for virtual teaching and learning, where a much number of students can attend a single class unlike when they have to be confined by the classroom building and limited resources. These platforms also provide a range of other advantages including recording and archiving of lecture sessions for reference and future use (Singh, Steele & Singh, 2021). This move also saw the rapid adoption of other features such as social media platforms for teaching and learning. Social media platforms that were formally known for communication and socialising, such as Facebook, WhatsApp, YouTube, and others started to receive much attention for different use. These platforms are now being utilised to facilitate teaching and learning within the higher education sector (Ansari & Khan, 2020). Academics and students can create a WhatsApp group chat where they can share study materials, record and share lectures, facilitate consultations, and provides platforms for peer learning among students. Institutions of higher learning are now utilising these platforms for teaching and learning (Khan, et al., 2021). Curriculum development would

consider the content to be taught in class, the methods and/or approach for teaching and learning, and the assessment methods that would be applied to test the learning among students among other aspects. Accordingly, it is of significance to consider all these aspects when the institution of higher learning migrates from a face-to-face approach to teaching and learning to multimodal learning.

PROBLEM STATEMENT

Multimodal teaching and learning have been rapidly adopted in the higher education sector, due to the Covid-19 pandemic. However, such adoption was implemented without taking into account whether the existing curriculum flawlessly fit into the adopted approach (Muhuro & Kang'ethe, 2021). As much as these technological platforms bring about more advantages regarding teaching and learning, it also exposes other challenges for both academics and students. These challenges include a lack of technological skills in using various technologies for teaching and learning, poor Information Communication Technologies (ITC) infrastructure within institutions of higher learning, and a lack of capacity in transforming the existing curriculum to fit multimodal learning (Najafabadi, Poorsadegh & Mirdamadi, 2013). Various curricula would need different approaches when delivered for teaching and learning. Thus, there is a need to properly capacitate academics to develop a new curriculum that would be perfectly delivered using various technologies including social media. Thus, it was significant to explore academics' perceptions in the development and delivery of curriculum for online teaching and learning in a rural-based university.

LITERATURE REVIEW

The reviewed literature pays attention to the technology integration for teaching and

learning, the curriculum development and the use of technology for teaching and learning, and also opportunities and challenges faced by academics in using technology for teaching and learning.

Technology integration for online teaching and learning in higher education.

Technology integration into education has been existing for ages with the adoption of early ICTs for teaching and learning. These ICTs include the use of audio speakers to maximise the voice of the facilitator, and the use of visual screens, overhead projectors, and computers to enhance teaching and learning. Moreover, technological advancement has witnessed the change that has been brought by digitisation into education. This saw the advent of the concept of online teaching. The notion can be easily understood as the interconnectedness of the teacher and the student through an array of digital platforms (Akcil, Uzunboylu & Kinik, 2021). This also includes access to learning materials through technology; and the facilitation of communication between the teacher and students. Online teaching also suggests that the teacher should be able to assist students using various digital platforms of communication (Malatji, Masuku & Baloyi, 2021). Furthermore, online teaching and learning should be regarded as a formal learning platform like any traditional teaching environment. However, these digital platforms require adequate aptitude, assertiveness, and knowledge of academics to perform in a better way that surpasses the expected standards. The lack of such capacity would be detrimental in integrating new technologies for teaching and learning. Several skills would be needed for curriculum development, delivery, communication, and assessments. Other required skills involve lesson planning, archiving lessons, and study materials among other activities. Thus, the previous literature has paid significant

attention to the classifications and characteristics of online teaching abilities. Akram, Yingxiu, Al-Adwan and Alkhalifah (2021) highlight course design using technology as one of the significant skills needed by academics. Designing a course while taking into account the use of technology for teaching and learning makes it easier to deliver such content to students. On the other hand, Hanafi, Said, Wahab and Samsuddin (2017) submit that the attitude and behaviour of academics are important in adopting online technology for teaching and learning. A positive attitude and good behaviour would assist academics to easily acclimatise to the use of digital platforms for teaching. Moreover, Schaffhauser (2022) indicates that academics should possess the required skills to develop a curriculum suitable for online teaching and learning.

Curriculum development and use of online technology for teaching and learning

Literature has highlighted the significance of integrating online technology in curriculum development and pedagogical practices. Atabek (2020) indicates that it is important to integrate technology for teaching and learning while taking into cognisance the curriculum and the teaching practice to be used within such technologies. The literature also indicates that using online technologies to teach assists academics to be competent in teaching practice as well as the curriculum they teach in their virtual classroom. Moreover, the digital skills of academics empower them to easily familiarise themselves with different teaching approaches, which ultimately enhance their performance when delivering curriculum (Oliva-Córdova, Garcia-Cabot & Amado-Salvatierra, 2021). This also assists students to learn fluently, however, this will depend on the suitability of the developed curriculum and the teaching approach applied when using technology for teaching. Ifinedo,

Rikala and Hamalainen (2020) highlight that academic digital competence plays a crucial role in integrating technology for online teaching and learning, while the aptness of the teaching approach and the inclusion of professionals in developing appropriate curriculum would go a long way in enhancing online teaching and learning. The literature highlighted a need to train academics in developing a suitable curriculum that will perfectly fit online teaching and learning. Experts in curriculum development play a critical role in capacitating academics and curriculum developers in this regard. The curriculum that was meant for traditional face-to-face teaching and learning needs to be reviewed and transformed for online teaching and learning. Alanazy and Alrusaiyes (2021) are of the view that online technology cannot be properly integrated into teaching and learning unless academics possess the three basic critical digital skills which are namely, technological, curriculum, and pedagogical.

Opportunities and challenges in curriculum design for online teaching and learning

The technological revolution has brought about a change in many facets of lives and societies, and it has put some pressure on curriculum design, teaching and learning. The internet has transformed and reshaped the nature of education, and it is viewed as one of the significant elements of curriculum support, irrespective of whether the curriculum is viewed as content or a pedagogical process (Castaneda & Williamson (2021). Furthermore, online technology has transformed the way curriculum has been developed and delivered in the teaching and learning process (Pangrazio, 2021). Technological advancement has brought the possibility of various forms of teaching and learning and enhanced the improvement of processes and

the change in the curriculum design; teaching and learning process (Viana & Peralta, 2021). Critical elements such as the internet of things, artificial intelligence, and big data among others have seen a change in most of the curriculum and its way of delivery (Abichandani, Sivakumar, Lobo, Iaboni & Shekar, 2022). The change of curriculum in most of the subjects has taken into consideration technological advancement as a way of delivery.

Another angle of curriculum design that needs a critical evaluation is the efficiency of students' collaboration and interactivity through digital platforms. It has been proven by the previous literature that digital platforms have enhanced the way students communicate amongst themselves and with academics. Topal (2016) submits that communication among students is an essential element of learning in any given teaching approach. Communication using digital platforms amongst students includes social media, emails, and texts through group discussion boards while learning management systems facilitate communication between students and academics (Gloria & Uttal, 2020). On one hand, developing design for students living with disabilities is a critical area that still needs special attention. This will establish whether online teaching and learning is appropriate for the needs of students living with disabilities. A part of the literature indicates that online technologies present challenges for students living with disabilities (May, 2020). On the other hand, literature also indicates that students living with disabilities take advantage of using different online learning opportunities, including communication, easy access to study materials, and collaboration with fellow students among other activities (Hunter & Ross, 2019).

THEORETICAL FRAMEWORK

The theoretical framework is one of the fundamental elements of scientific investigation, and it is essential in knowledge

production. The theory is used as a lens that boosts a particular argument. Accordingly, the Connectivism learning theory has been employed as a lens for this study. Connectivism explained as a learning theory for a digital age was discovered by George Siemens in 2004 (Siemens, 2004). The main aim of this theory is to lead a way for an appropriate new model of learning, which is suitable for society, where "learning is a process of connecting specialised nodes or information sources" (Siemens, 2004). The theory maintains that the principle of connectivism should take a center stage in the teaching and learning process since the internet has brought about a huge change in comprehension of knowledge. The concept of 'connectivism' was coined to explain learning networks, and according to Bates (2015), knowledge is created away from the level of an individual. Knowledge in the networks is not created and/or managed by an individual or any formal organisation, but people can always log in to this world of continuous information flow to make meaning from it. Some of the assumptions of Connectivism learning theory state that learning and knowledge rest in diversity of opinions; learning is a process of connecting specialised nodes of information sources; learning may reside in non-human appliances; and the capacity to know more is more critical than what is currently known amongst other principles (Siemens, 2004). Thus, this study is aligned with the Connectivism learning theory to elucidate the important aspects of the discussion. The theory emphasises the importance of using technology to connect and access an array of information for teaching and learning.

Furthermore, this theory is relevant for this study since it highlights the significance of taking an advantage of the ever-changing technology for teaching and learning. Thus, it is of importance that academics together with students should understand that the learning process is changing and should be aligned with the relevant technologies used in this process. It is understood that students would positively accept the use of online technology for teaching and learning, provided the academics portray a positive attitude, behaviour, and assertiveness in using these technologies for teaching purposes. Hence, the background of academics is significant in this context, since they are the ones who should lead in adopting online technologies for teaching and learning. Certainly, the connectivism learning theory is apt for engaging the collected data in this study.

RESEARCH DESIGN AND METHODOLOGY

This section focuses on the research design and the methodology that has been employed for this study.

Research design

Research design can be described as a comprehensive plan for linking conceptual research problems to appropriate and attainable empirical research (Asenahabi, 2019). Furthermore, Creswell (2014) defines it as a blueprint for scientific research, which provides an explicit guide for procedures in an investigation. Scientific research should be informed by the apposite research design to generate reliable findings. For this study, the exploratory research design was employed as a blueprint for the investigation. Bitsch (2005); Wimmer and Dominick (2014) describe exploratory research design as an important blueprint to explore a given phenomenon. Academics' perspectives on using technology for teaching and learning; their understanding of the relationship between curriculum development and the use of technology for teaching and learning; opportunities and challenges in technology for teaching and learning were explored through the exploratory research design.

Thus, these main themes directed the approach in which the data were collected from academics. Moreover, this design also included the overall discourse, qualitative research method, population, and sampling method applied data collection instrument, and the way in which the data were analysed. Accordingly, the subsequent section explains these methods and techniques applied taking into account the purpose of the study.

Methodology

This section focuses on how the study was conducted. This is a qualitative study as proven by the methods and techniques applied in the sampling of the population, data collection, and analysis. Jackson, Drummond and Camara (2007, p. 22) describe the methodology as the "identification and utilization of the best approach for addressing a theoretical or practical problem". The qualitative method suggests that the investigation should be conducted with the purpose to examine without any amplification of the data and findings. Bless, Higson-Smith and Kagee (2006) submit that the qualitative method entails the investigation of a matter in its natural form. Thus, this method enabled the research to collect significant data from suitable participants. For this study, qualitative methods were employed in sampling of the population, data collection, and analysis. Semi-structured interviews were used to collect data from academics in a rural-based institution of higher learning, and reflexive thematic analysis was adopted to analyse the data.

Population and sampling

This study sought to explore academics' perceptions of the development and delivery of curriculum for online teaching and learning in a rural-based university. Thus, purposive and convenient techniques within the non-probability sampling method were used to sample the institution of higher learning and the participants respectively. Bhardwaj (2019) submits that the purposive sampling technique is perfectly used when you sample the members of the population according to the purpose of the study. This technique is sometimes known as the judgmental sampling technique. That is when the researcher knows more about the subjects (Ames, Glenton & Lewin, 2019). Thus, a selected rural-based university in Limpopo province of South Africa was purposefully selected for this study. The selected institution of higher learning is in a rural area of the Limpopo province, and it is classified as a former historically disadvantaged higher learning institution in South Africa. It was significant to select such an institution to understand its academics' perceptions in developing a curriculum for online teaching and learning. The institution was selected because of its location, and the fact that it is still catching up with adopting technology for teaching and learning. On the other hand, the convenience sampling technique was used to sample academics for this study. Taherdoost (2016) indicates that the convenience sampling technique has to do with sampling participants for the study due to their availability. This sampling technique was suitable for the study since any lecturer could form part of the study regardless of their sex, age, and/or subject field they belong to. Thus, academics from a rural-based university were conveniently sampled to take part in the interview for this study.

Data collection

According to Creswell (2014), data collection is an important stage of the scientific research process. This stage is regarded as one of the significant processes of strengthening an investigation. Semi-structured interviews were adopted as a data collection instrument for this study. Ruslin, et

al. (2022) suggest that this data collection instrument is most pertinent when seeking a profound probe into a phenomenon where little knowledge exists, or a different opinion is pursued. Thus, for this study, semi-structured interviews were applied to engage academics in seeking their perspectives regarding the development of the curriculum for online teaching and learning in a rural university. This data collection instrument enabled academics to express their views. The interviews with five academics were conducted and moderated by the researcher. The interviews were conducted virtually using Google Meet instead of the face-to-face format. The researcher recorded the sessions for easy transcription with the consent of all the interviewees. A semi-structured interview permits both the researcher and the participants to divert a little bit if the notion is to be followed in detail. When using this data collection instrument, a researcher still uses a general outline of themes and questions, which can be broadened when the need arises (Wimmer & Dominick (2014). In this method, questions can be asked to participants in different ways, considering the context.

There was a set of questions that aided in guiding the data collection process, i.e., the data collection process was not conducted haphazardly. The subsequent questions were drafted to guide the study:

a) What is the relationship between curriculum development and the adoption of new online technologies for teaching and learning?

b) What challenges did you face with curriculum development and delivery when transitioning from face-to-face to online teaching and learning?

c) What are the opportunities presented by using online technology for teaching and learning in a rural university?

d) What are the challenges presented by using online technology for teaching and learning in a rural university?

e) In your opinion, do academics possess the required skills to develop a curriculum that suits online teaching and learning?

f) What are the measures do you recommend should be taken to enhance the use of online technology for teaching and learning?

These significant issues guided the core of the subject under investigation. Academics shared their perspectives based on these key questions. Thus, the developed themes emanating from the questions that were asked to the academics. Hence, reflexive thematic analysis was used to analyse the collected data.

Data analysis

Bhatia (2017, p. 16) defines data analysis as the significant process of "scrutinizing raw data to draw conclusions about that information." For this study, reflexive thematic analysis has been employed to analyse the collected qualitative data. Braun and Clarke (2006) define reflexive thematic analysis as "an approach to analysing qualitative data to answer broad or narrow research questions about people's experiences, views and perceptions, and representations of a given phenomenon." As the study explored academics' perceptions in the development and delivery of curriculum for online teaching and learning in a rural-based university, it was of significance to apply reflexive thematic analysis to develop themes to clarify the findings. This method of data analysis enabled the researcher to examine different perceptions shared by academics and encapsulate a large volume of data (Braun & Clarke, 2006). There are six steps to be followed when one conducts a thematic analysis as outlined by Braun and

Clarke (2006). These steps include familiarising oneself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming the themes, and producing the report. The researcher followed these steps in analysing the data.

Ethical considerations

Fleming (2018) submits that ethical considerations are significant in ensuring that the rights of the participants are upheld. Some of these privileges include the right to remain unanimous and to give consent to participate in the study. These ethical issues demand that the researcher should uphold these rights and ensure that during and after the process, research values such as honesty, objectivity, confidentiality, and avoiding conflict of interest are safeguarded. Thus, the researcher approached all the respondents with a clear explanation of the study and the significance of participating in a study of this nature. Accordingly, the researcher sought the consent of the participants to take part in this study. The researcher also confirmed that the participants' identities have been concealed. The participants understood the importance of participating in this study and they did so voluntarily.

DISCUSSION OF FINDINGS

The following discussions and the developed themes emanate from the data that were collected from academics.

THEMES

Theme 1: Curriculum development and the use of technology for teaching and learning

Academics strongly embrace the link between curriculum development and the pedagogy chosen to deliver such a curriculum at a given time. The respondents highlighted that since most institutions of higher learning adopted online and multimodal teaching and learning approaches with the advent of the Covid-19 pandemic, there is a need to review the existing curriculum and develop one that is appropriate for the adopted method of teaching and learning. Some of them shared their views in this way:

The issue of curriculum design or development is interwoven with how the teaching and learning are delivered, whether it is mobile learning, or e-learning or open distance learning. That is quite imperative for curriculum designers to take note of these issues. (Respondent 2)

The way the curriculum is developed or designed also says scholars and academics who are involved in that process including experts from the industries, students' structures and other sectors, meaning the planning and strategies should be detailed. (Respondent 3)

Whether it is a teaching strategy, or students' access and success, those facets or elements should be infused into the manner the curriculum is developed or designed. That on its own says if you are designing a curriculum for a traditional institution that opts for a face-to-face kind of teaching and learning model, the curriculum should detail how those aspects are going should be dealt with in terms of the contact sessions, assessments, etc. Some curriculums need practicum components and in that case, the online teaching model might not work in some instances, let us say someone is doing Agriculture, and they need to go to the field, and that overlaps with face-to-face engagements between instructors and students. However, in

some programmes, such as Anthropology you might not need a hybrid model for teaching and learning because all aspects and the resources that students need can be accessed online. There is no hindrance, and this resonates with students' access and success. (Respondent 1)

Indeed, there is a blend, the strategy or teaching and learning model should be intertwined with the existing curriculum as far as the design is concerned. (Respondent 5)

Theme 2: Opportunities of using online technology for teaching and learning

Respondents were asked to explain some of the opportunities that come with online teaching and learning. Most of them indicated that one of those opportunities includes flexibility regarding how teaching and learning is conducted. Academics submit that students have the latitude to learn in the comfort of their own time and space due to the flexibility of the pedagogy.

The issue of flexibility, which is also highlighted in the teaching and learning policy of the university, you can make arrangements in terms of prerecording the sessions. (Respondent 2)

Some indicated that the online teaching and learning approach helps with archiving the lessons for revision and future use, which was impossible with the face-to-face learning approach.

There are positives indeed, one would talk about a repository, we are able to archive and store the lessons for future use, some would even pre-record the lecture session and upload it, and then students would listen in the comfort of their

own time. Students can revisit and use these recordings for revision. (Respondent 4)

It has improved how we document our teaching materials. All lecturers are obliged to store their study materials through learning management systems such as Blackboard. (Respondent 3)

Another benefit of online teaching and learning as indicated by the respondents has to do with the facilitation of communication and collaboration among students and lecturers. As one of them shared this sentiment:

You can also use other platforms such as Facebook or WhatsApp to stimulate communication among students and academics that makes things easier, for students to directly communicate with their lecturers. (Respondent 1)

Theme 3: Challenges of using online technology for teaching and learning.

The participants were also asked to share some of the challenges they come across as far as online teaching is concerned. Lack of resources remains a hindrance to adopting online teaching and learning in a rural-based university. Lack of monetary support leaves this kind of institution in limbo without any way forward in their core business which is to teach students. One of the respondents explained it in this manner:

Yeah, we had many challenges particularly ours as a rural university, some scholars have a different opinion, and they say it is a rural-based university instead of a rural university. The issues of resources were a major challenge because when you talk about our

students' profile, we have so many students who come from indigent families, and disadvantaged backgrounds so to say, that on its own say there is a lack of resources and infrastructure. Our students do not have access to computers, laptops, tablets, smartphones, or any gadget that makes it easier for students to learn or be part of the cyberspace for e-learning or mobile learning. Moreover, we cannot isolate mobile learning whether synchronised or synchronised, so those are the aspects of the conundrum at a rural-based university, because students had to be supported with devices, and that process was so protracted. In addition, because of this, the university was lagging in terms of rescuing the 2020 academic year at some point. (Respondent 4)

The lack of digital skills by academics also contributes to the slow pace of online pedagogy in higher education institutions. This respondent submits that some of the academics could not move along with the university when it transitioned to multimodal teaching and learning:

Well, I would say as academics we had challenges, we had to be taken through robust training to acclimatise us in terms of using the software, whether it is course management software, or how to run teaching and learning platforms. The ICT department ran those processes, and some of our colleagues struggled to keep up with the transition, it was a huge and laborious process for an institution such as ours. (Respondent 1)

Some of the respondents highlighted the need to amend the teaching and learning policy to permit the institution to move with

time since the digital revolution would never go back and how teaching and learning is taking place would forever change with technology.

How the teaching and learning policy of the institution has been structured, is silent about hybrid and multimodal teaching and learning. The whole aspect of multimodal teaching and learning was a recommendation from the Department of Higher Education and Training, and some universities like ours were not well capacitated to have a smooth transition moving from face-to-face to online teaching and learning. (Respondent 3)

Challenges of repositioning the teaching and learning model come with culture; you know in the curriculum we have what we call null or hidden curriculum, so with us the null curriculum said to us, the electronic devises access and the resources that you will need to carry out teaching online including assessments was a huge challenge. (Respondent 5)

Another challenge that comes with online teaching and learning is the issue of academic integrity. It should be noted that cyberspace affords people to cheat easily, and students are engaged in academic dishonesty as far as assessments are concerned.

Another aspect that we talk about includes academic integrity, whether students would cheat online, do we know how to use the invigilation app, even today, the university does not have an invigilation app for about three years and our students have been writing summative assessments online, meaning the academic integrity is

compromised. Some of our students confirmed that teaching is rife in the cyberspace. This also has so much to say about the kind of students who are produced through this system. (Respondent 2)

Theme 4: Skills to develop a curriculum for online teaching and learning

The respondents highlighted that most academics lack the required skills to design a suitable curriculum for online teaching and learning. Nonetheless, some submit crucial training is needed to capacitate academics as far as curriculum development is concerned.

Well, I think with help from institutions that have been operating in that space, like UNISA and others that have been working with students from a distance, online or even hybrid learning, academics can play an integral role and be capacitated to design a curriculum that is applicable and convenient for online teaching and learning. (Respondent 3)

The respondents also academics are struggling to facilitate proper assessments and guard against academic dishonesty. Some of them also propose that universities should do away with exams and adopt continuous assessments.

Some of our colleagues ended up suggesting that maybe we should move away from summative assessments in a form of exams and adopt continuous assessments in a form of assignments to deal with the issue of academic dishonesty. (Respondent 4)

Theme 5: Recommendations to enhance the use of online technology for teaching and learning at rural-based universities.

As part of recommendations to enhance the adoption of online teaching and learning, academics suggest that the university should amend policies to easily permit and adopt the needed changes as far as teaching and learning is concerned.

I think our university should revise its teaching and learning policy to ensure there is flexibility, and adopt hybrid teaching and learning model that can help our students. (Respondent 2)

Some suggest that the university should adopt mobile learning to afford students a latitude to learn in the comfort of their time and space without any difficulties of the lack of resources on the premises of the university.

The issue of mobile learning, it says students can learn from wherever they are asynchronously so that on its own can help our university, especially our students in the rural areas who maybe do not have access to the high-tech technologies to be able to learn, because this model says students can access study materials via posts or courier, and it can help a lot because we know students have challenges. In this case, some of our students can learn from home without any problems. Nevertheless, the policy should also talk about these issues to ensure that we move with time, like other international universities. (Respondent 3)

As part of the recommendations, the government and the private sector are urged to dig deep in their pockets to support the previously disadvantaged institutions of higher learning to acclimatise to online teaching and learning.

Well, the government must also enhance the way they are supporting your former disadvantaged institutions of higher learning in terms of monetary support. I mean even today, most of your rural universities are still playing catch-ups when it comes to adopting online teaching and learning, not to mention the alignment of curriculum development with such digital platforms. (Respondent 1)

I would say apart from the government, the private sector should also extend its hands to support these universities with proper equipment, and provide training to capacitate the academics with the relevant skills needed to infuse online teaching and learning. The private sector is one of the major sectors that benefits from the products that are produced from these institutions. (Respondent 5)

LIMITATIONS

The study focused on academics' perspectives in developing and delivering curricula for online teaching and learning, without including other important sectors within the higher education sector. This study was conducted focusing on academics' perceptions of using online technology for teaching and learning, without taking into cognisance the opinions of students.

CONCLUSION AND RECOMMENDATIONS

The study has found that indeed the curriculum design and the pedagogical approach are interwoven. The content being taught to students, how the teaching and learning are taking place, and the way assessments are handled are all taken into consideration when designing the curriculum. This finding is related to the one established by Patton and Prince (2018). The study also found that rural universities are still lagging behind in terms of online teaching and learning adoption. This revelation is strongly supported by Coman, et al. (2020). Challenges such as lack of high-tech resources, incapacitated human resources, and lack of monetary support are some of the hindrances faced by the former disadvantaged universities. The study has also established that some academics are struggling to keep up with the pace of the digital revolution that is taking place within institutions of higher learning. This makes it difficult for such institutions to quickly embrace the ever-changing environment in the higher education sector. Lack of apt skills by academics would results in snail pace and frustrations when dealing with technology for teaching and learning, and ultimately has an undesirable consequence on students. This was also established by Mpungose (2020). Rural-based universities also find it difficult to come into agreements and partnerships with private sectors that are involved in developing adequate learning management systems to assist in teaching, learning and assessments. As a result, the lack of soft wares for adequate assessments leads to a lack of academic integrity and a bad reputation for the institution and the graduates.

This paper recommends that further research should be conducted focusing on students' perceptions of curriculum development and delivery using online technologies. Further study should be conducted on the role of the department of higher education in assisting rural institutions of higher learning in adopting technology for teaching and learning. This paper also recommends a study on the rural universities' adoption of technology for teaching and learning juxtaposed with the socio-economic

challenges faced by the communities they serve. Further studies should be conducted on the use of social media platforms including for teaching and learning in higher education.

REFERENCES

Abichandani, P., Sivakumar, V., Lobo, D., Iaboni, C. & Shekar, P. (2022). Internet-of-things curriculum, Pedagogy, and assessment for STEM education: A review of literature. *Institute of Electrical and Electronics Engineers*, DOI:10.1109/ACCESS.2022.3164709.

Akcil, U., Uzunboylu, H. & Kinik, E. (2021).Integration of technology to learning-teaching processes and Google workspace tools: A literature review. Sustainability, 13, 5018. URL:https://doi.org/10.3390/su13095018 Accessed on21 September 2022.

Akram, H., Yingxiu, Y., Al-Adwan, A.S. & Alkhalifah, A. (2021). Technology Integration in Higher Education during COVID-19: An assessment of online teaching competencies through technological pedagogical content knowledge model. *Frontiers in Psychology*. 12, 736522.URL:https://www.frontiersin.org/articles/10.3389/fpsyg.2021.736522/full Accessed on 21 September 2022.

Alanazy, M.M. & Alrusaiyes, R.F. (2021). Saudi pre-service special education teachers' knowledge and perceptions towardusing computer technology. *International Education Studies*, 14, 125-137.

Ally, F., Pillay, J.D. & Govendor, N. (2022). Teaching and learning considerations during the COVID-19 pandemic: Supporting multimodal student learning preferences. *African Journal of Health Professions Education,*14(1), 13-16.

Ames, H., Glenton, C. & Lewin, S. (2019). Purposive sampling in a qualitative evidence synthesis: A worked example from a synthesis on parental perceptions of vaccination communication. *BMC Medical Research Methodology*, 19, 26.

Ansari, J.A.N. & Khan, N.A. (2020). Exploring the role of social media in collaborative learning the new domain of learning. *Smart Learning Environments*, 7, 9. URL:https://doi.org/10.1186/s40561-020-00118-7 Accessed on 18 September 2022.

Asenahabi, B.M. (2019). Basics of researchdesign: A guide to selectingappropriate research design.*International Journal of Contemporary Applied Researches,* 6(5), 76-89.

Atabek, O. (2020). Experienced educators'suggestions for solutions to the challenges to technology integration. *Education and Information Technologies*, 1, 5669-5685.

Bates, A.W. (2015). *Teaching in a digital age: Guidelines for designingteaching and learning.* URLhttps://opentextbc.ca/teachinginadigitalage/chapter/3-6-connectivism/Accessed on 19 September 2022.

Baloyi, N.C. & Malatji, E.J. (2022). University students' perceptions in using Social Media for Teaching and Learning in the midst of the Covid-19 pandemic and beyond, *African*

Perspectives of Research in Teaching and Learning (APORTAL), 6(2), 125-138.

Bhardwaj, P. (2019) Types of sampling in research. *Journal of the Practice of Cardiovascular Sciences*, 5(3), 157-163.

Bhatia, M.K. (2017). Data analysis and its importance. *International Research of Advanced Engineering and Science*, 2(1), 166-168.

Bitsch, V. (2005). Qualitative research: A Grounded theory example and evaluation criteria. *Journal Agribusiness*, 23(1), 75-91.

Bless, C. Higson-Smith, C. & Kagee, A. (2006). *Fundamentals of social research Methods: An African Perspective.* 4th Edition. Cape Town: Juta.

Castaneda, L. & Williamson, B. (2021). Assembling new toolboxes of methods and theories for innovative critical research on educationaltechnology. *Journal of New Approaches in Educational Research*,10(1), 1-14.

Coman, C., Tiru, L.G., Mesesan-Schmitz, L., Stanciu, C. & Bularca, M.C. (2020). Online teaching and learning in higher education during the coronavirus pandemic: Students' perspective. *Sustainability*, 12,10367. DOI:10.3390/su122410367.

Du Plessis, M., Van Vuuren, C.D., Simons, A., Frantz, J., Roman, N. & Andipatin, M. (2022). South African higher education institutions at the beginning of the Covid-19 Pandemic: Sense-Making and Lessons Learnt. *Frontiers in Education*, 6, 740016.DOI:10.3389/feduc.2021.740016.

Fleming, J. (2018). Methodologies, methodsand ethical considerations forconducting research in work integrated learning. *International Journal of Work-Integrated Learning*, 19(3), 205-213.

Gloria, A.M. & Uttal, L. (2020). Conceptualconsiderations in moving from face-to-face to online teaching. *International Journal on E-Learning*, 19(2), 139-159.

Hanafi, H.F., Said, C.S., Wahab, M.H. & Samsuddin, K. (2017). Improving students' motivation in learning ICT course with the use of a mobile augmented reality learning environment. IOP. Con. *Series: Materials Science and Engineering*. URL: https://www.researchgate.net/publication/319106896Improving_Students'_Motivation_in_Learning_ICT_Course_With_the_Use_of_A_Mobile_AugmentedReality_Learning_Environment/link/5991acc0458515a8a248d82c/download Accessed on 21 September 2022.

Hunter, J. & Ross, B. (2019). Does increased online interaction between instructors and students positively affect a student's perception of quality for an online course? *Journal of Empowering Teaching Excellence*, 3(2), 4.

Ifinedo, E., Rikala, J. & Hämäläinen, T. (2020). Factors affecting Nigerian teacher educators' technology integration: considering characteristics, knowledge constructs, ICT practices and beliefs.

Computers & Education, 146,103760.

Jackson, R.L., Drummond, D.K. & Camara,S. (2007). What is Qualitative research? *Qualitative Research Reports in Communication*, 8(1), 21-28.

Khan, M.N., Ashraf, M.A., Seinen, D., Khan, K.U. & Laar, R.A. (2021) social media for knowledge acquisition and dissemination: The impact of the COVID-19 pandemic on collaborative learning driven social media adoption. *Frontier in Psychology*, 12, 648253. doi:10.3389/fpsyg.2021.648253.

Magaldi, D. & Berler, M. (2020). Semi-structures. In: Zeigler-Hill, V., Shackelford, T.K. (eds) *Encyclopedia of personality and individualdifferences*. Spinger, Cham.URL:https://doi.org/10.1007/978-3-319-24612-3_857 Accessed on 19 September 2022.

Malatji, E.J., Masuku, M., & Baloyi, N.C. (2021). Students' perceptions of online Teaching and Learning Amid Covid-19: A case of University of Limpopo, *International Conference on Public Administration and Development (IPADA)*, 513 -522.

May, A. (2020). Curriculum development based on online and face-to-face learning in a Saudi Arabian university. *Journal of Curriculum and Teaching*, 9(3), 141-148.

Mhlanga, D. & Moloi, T. (2020). COVID-19 and the digital transformation of education: What are we learning on 4IR in South Africa? *Education Sciences*, 10, 180; doi:10.3390/educsci10070180.

Mpungose, C.B. (2020). 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*, 7:113. URL:https://doi.org/10.1057/s41599-020-00603-x Accessed on 19 September 2022.

Muhuro, P. & Kang'ethe, S.M. (2021). Prospects and pitfalls associated with implementing blended learning in rural-based higher education institutions in southern Africa. *Perspectives in Education*, 39(1), 427-441.

Najafabadi, M.O., Poorsadegh, M. & Mirdamadi, S.M. (2013). Challenges of Application ICTs in Technical and Vocational Training from Students' and Instructors' Perception in Maragheh. *International Journal of Advanced Science and Technology*, 54, 105-112.

Ngoatle, C., Mothiba, T.M. & Ngoepe, M.A.(2022). Navigating through COVID-19 pandemic period in implementing quality teaching and learning for higher education programmes: A document analysis study. *International Journal of Environmental Research and Public Health*, 19:11146. URL:https://doi.org/10.3390/ijerph191711146 Accessed on 19 September 2022.

Oliva-Córdova, L.M., Garcia-Cabot, A. &Amado-Salvatierra, H.R. (2021). Learning analytics to support teaching skills: A systematic literature review. *Institute of Electrical and Electronics Engineers (IEEE)*, 58351-58363.

Pangrazio, L. (2021). Digital rights, digitalcitizenship and digital literacy: What's the difference. *Journal of New Approaches in Educational Research,* 10(1), 15-27.

Patton, A.L. & Prince, K.L. (2018). Curriculum design and planning: Using postmodern curriculum approaches. *Journal of Curriculum Theorizing*, 32(3), 93-114.

Ruslin, R., Mashuri, S., Rasak, M.S.A., Alhabsyi, F. & Syam, H. (2022).Semi-structured interview: A methodological reflection on the development of qualitative research instrument in educational studies. *Journal of Research & Method inEducation*, 12(1), 22-29.

Schaffhauser, D. (2022). Free Resources to Help with Remote Learning in 2022. URL: https://campustechnology.com/articles/resources/free-resources-to-help-with-remote-learning-in-2022.aspx Accessed on 21 September 2022.

Siemens, G. (2004). *Connectivism: A learning theory for a digital age.* URL: http://www.itdl.org/journal/jan_05/article01.htm Accessed on 20 September 2022.

Singh, j., Steele, K. & Singh, L. (2021). Combining the best of online and face-to-face learning: Hybrid and blended learning approach for COVID-19, post vaccine, & post-pandemic world. *Journal of Educational Technology Systems*, 50(2), 140-171.

Taherdoost, H. (2016). Sampling methods in research methodology: How to choose a sampling technique for research. *International Journal of Academic Research in Management (IJARM)*, 5(2), 18-27.

Topal, A.D. (2016). Examination of university students' level of satisfaction and readiness for e-courses and the relationship between them. *European Journal of Contemporary Education*, 15(1), 7-23.

Viana, J. & Peralta, H. (2021). Online learning: From the curriculum for all to the curriculum for each individual. *Journal of New Approaches inEducational Research*, 10(1), 122-136.

Wimmer, R.D. & Dominick, J.R. (2014). *Mass media research: An introduction*. 10th edition. Canada: Wadsworth Cengage Learning.