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The Adoption of Blended Learning by Rural-Based Institutions of Higher Learning in South Africa Amid Covid-19: Experiences and Challenges

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ABSTRACT

Many institutions of higher learning were forced to adopt blended learning since the outbreak of coronavirus disease (Covid-19). The adoption of blended learning amid Covid-19 has delayed learning processes in most rural-based institutions of higher learning in South Africa. Thus, the study has adopted a non-empirical research design: a systematic review, and it was conducted to establish solutions to blended learning challenges faced by rural-based institutions of higher learning in South Africa amid Covid-19. Conversation theory was adopted in this study because it advocates that students should get the opportunity to interact with the lecturers, which could help to amend the digital divide and promote advanced blended learning in rural-based institutions of higher learning. Therefore, the data for the study was obtained by using scientific search engines for articles and books. The study's articles were obtained from the computer-based scientific search engines Google Scholar, EbscoHost, ResearchGate, ScienceDirect, and Scopus. Thus, purposive sampling was used to select relevant articles rather than using any articles that had no bearing on the study. The secondary data was then analysed using thematic analysis. It was found that the delay in advanced blended learning was caused by the digital divide and barriers to digital transformation in rural-based institutions, among other challenges. It was recommended that the government should provide digital equipment to rural-based institutions of higher learning and provide training to all students and lecturers on how to use different technologies to ensure the accessibility of blended learning.

Keywords: Blended learning, Covid-19, higher learning, rural-based institutions, South Africa

INTRODUCTION

Education is an evolving and dynamic field. In the previous decades, it has always been associated with the physical presence of the institution, classrooms, examination hall, lecturer, textbooks and examination, among others (Ma'arop & Embi, 2012). Before blended learning and the Covid-19 outbreak, most higher academic institutions accepted e-learning as an alternative to traditional classroom teaching without any resistance. In this regard, Olawale and Mutongoza (2021) explained that internet-based learning during the Covid-19 pandemic is considered as an option given that it is an alternative to traditional learning, and it became an essential element for maintaining the activities in higher education institutions.

However, to ensure the effectiveness of e-learning, many institutions of higher learning across the globe are currently using blended learning for teaching and learning. According to Volchenkova and Bryan (2016), blended learning is a formal education programme in which a student learns, at least in part, through the online

delivery of content and instruction with some element of student control over time, place, path, and/or pace and, at least in part, at a supervised brick-and-mortar location away from home. Further, these authors explained that the origins of blended learning pre-date the advent of digital technology.

Thus, the era of Covid-19 and technological innovations has resulted in new trends in the learning environment and introduced a more modern and advanced conception of learning.

Since the outbreak of Covid-19 in China (Wuhan), the pandemic has had a massive impact on people's lives and habits (Fevale, Soro, Trevisa, Drago & Mellia, 2020). World Health Organisation (2021) explained Covid-19 as an infectious disease caused by a newly discovered coronavirus.

Wang, Hassan, Pyng and Ye (2022) explained that the epidemic crisis has disrupted education all over the world, and to ensure the continuous development of the teaching and learning process most institutions opted for a mixed method of combining online and face-to-face classes (blended learning). In the context of South Africa, Olawale and Mutongoza (2021) explained that Covid-19 has predominately caused a major disruption in the education sphere. According to the above-mentioned authors, for the first time, both students and lecturers in many developing countries including South Africa were required to communicate officially through an online platform for academic-related purposes. As a result, many educational institutions were forced to adopt blended learning. Yet, blended learning is ideal for the current terrain of the Covid-19 pandemic which requires learning modalities that promote social distancing to reduce the spread of the disease while ensuring that students have access to quality teaching and learning materials and frequently stay engaged (Muhuro & Kang'ethe, 2021). In this regard, Fevale *et al*. (2020) explained that the urge to respect social distancing and lockdown measures adopted to limit the spread of the infection led to a shift in the realisation and supply of a wide number of services, i.e. the shift to online lessons and the adoption of blended learning.

Blended learning, according to Muhuro and Kang'ethe (2021), has also become important during the outbreak of diseases such as Covid-19 where face-to-face teaching is prohibited to combat the spread of the disease.

Desirably, therefore, blended learning is an innovative endeavour that could benefit students in rural-based universities in Southern Africa (Muhuro & Kang'ethe, 2021). The statement above is supported by Mhlanga (2021:15) who explained that the Covid-19 pandemic created opportunities for the introduction of blended learning post-Covid-19, which can help to expand access to education in South Africa.

As Marwala (2021) sees it, the necessary move to modern modes of teaching and learning during the era of the Covid-19 pandemic has revealed what works and where institutions of higher learning need to refocus their efforts. Olawale and Mutongoza (2021) explained that while digital transformation is affecting and changing various sectors significantly, the education system is being encouraged to take advantage of new technologies and tools to develop strategies and actions to play an active role in the digital transformation process.

Related to what Marwala (2021) and Olawale and Mutongoza (2021) explained, Muhuro and Kang'ethe (2021) add that for many rural-based universities, successful blended learning implementation implies an exploration of possible ways to strengthen existing practices.

For Olawale and Mutongoza (2021), given that teaching and learning

have historically been confined to students gathering in the lecture halls to listen to lecturers or gathering around a table for discussion among their peers, technology innovation is challenging those traditional practices, thereby bringing about radical change to the higher education system.

Thus, there is a need for strategies to improve the working conditions of teaching at rural institutions of higher learning to ensure that there is improvement in terms of students' performance across the rural areas of South Africa.

STATEMENT OF THE PROBLEM

In his study, Dube (2020) revealed that Covid-19 and the implementation of blended learning have magnified the challenges faced by rural students and lecturers. Olawale and Mutongoza (2021) found that because blended learning has limited mechanisms for monitoring assessments, lecturers are often left unsure of how effectively they can measure students' learning abilities. From the above-mentioned statements, one could concur that the outbreak of Covid-19 has found teachers unprepared for using technologies to enhance the blended learning approach in higher education institutions.

Thus, teaching using new technologies, according to Dube (2020), is new to many students, especially those living in rural areas, which leads underprivileged students to fear that education during the time of Covid-19 will serve their counterparts students who have the privilege and who are connected to resources such as the internet and Wi-Fi. Without any doubt, it can be argued that students from rural-based institutions are still left behind in terms of using new technologies and this negatively affects their learning performance amid and beyond Covid-19.

Olawale and Mutongoza (2021) explained that based on challenges like the lack of internet connectivity, irregular electricity supplies, and the lack of technological resources which enable online learning, the rural and poor populations appear to be the most alienated from access to education. Similar to the above, UNESCO (2021) revealed that lack of connectivity and devices excluded at least one-third of students from pursuing learning remotely. The statement above shows that lack of connectivity also determines the performance of students when blended learning is adopted by rural-based institutions.

RESEARCH QUESTIONS

The research questions of this study are as follows:

- What is the importance of blended learning in institutions of higher learning amid Covid-19?
- What are the blended learning challenges faced by rural-based institutions of higher learning amid Covid-19?
- What are the solutions to blended learning challenges faced by rural-based institutions of higher learning?

THEORETICAL FRAMEWORK: CONVERSATION THEORY

The Conversation theory developed by Gordon Pask in the 1970s was adopted and used as a theoretical lens to ensure that there is flexibility in delivering education that integrates technology and digital media with traditional instructor-led classroom activities. In this regard, Bouman (2012) explained that traditional instructor-led classrooms are teaching in a style that is contradictory to the way students learn outside of the classroom.

According to Creswell (2014), theory in research may often serve as a lens

for the inquiry or it may be generated during the study. Leavy (2017) sees theory as an account of social reality that is grounded in data but extends beyond that data.

In the context of this study, Heinze and Procter (2007) explained that the Conversation theory depicts the communication process that occurs between the lecturer and student in the development of the student's knowledge. In this regard, one can concur that the adoption of blended learning as a result of Covid-19 means a reduction of face-to-face contact time, which reduces opportunities for face-to-face lecturer-student dialogue. In their overview of this theoretical approach, the aforementioned authors suggest that it is important that conversation should be encouraged and take place in a virtual space.

Using conversation as the basis for teaching, the learning relationship becomes more transparent and open to both the student and lecturer (Heinze & Procter, 2007). Based on what the above-mentioned authors indicated in the context of Covid-19, and with particular reference to rural-based institutions of higher learning in South Africa, one can argue that there is a need for students and lecturers to use conversation to promote social and learning conditions.

Laurillard (2002) is of the view that there is no one right medium for the conversation; each medium has its drawbacks and hence it is important to maintain the various dialogic aspects all the time. With the above-mentioned statement, one can suggest that lecturers should strike balance between face-to-face and virtual platform conversations so that students benefit from blended learning.

LITERATURE REVIEW

Importance of blended learning in institutions of higher learning

As far as the importance of blended learning in institutions of higher learning is concerned, Marwala (2021) believes that given the history of South Africa, a blended model is appropriate as it takes into account the unique circumstances of the student. Instead, Olawale and Mutongoza (2021) point out that this model brought about the use of a flipped classroom, which is a simple strategy for providing learning resources such as articles, pre-recorded videos, and YouTube links before the class. The above-mentioned authors also believe that the modern kind of learning deepens understanding through discussions among students.

In the study conducted by du Plessis, Jansen van Vuuren, Simons, Frantz, Roman, and Andipatin (2022), it was highlighted that institutions of higher learning familiar with blended learning shifted to this new kind of learning fully, and fairly swiftly, by employing the necessary tools, teaching practices and requirements for online learning. In this regard, du Plessis *et al.* (2022) indicated that in this case, the impact on students resulted in much less disruption to continue with their academic programmes.

Findings from the study conducted by Muhuro and Kang'ethe (2021) indicated that prospects of blended learning entail providing opportunities for flexible learning, enabling access to a wide range of educational resources, and limiting alienation associated with purely online education delivery. Similar to this statement, Perumal, Pillay, Zimba, Sithole, van der Westhuizen, Khosa, Nmngcoyiya, Mokone and September (2021) state that a large number of colleges and universities are transitioning to online or blended pedagogy due to the need to maintain a competitive edge and classes more

accessible to growing and diverse student population.

In the context of the importance of blended learning in institutions of higher learning, Mhlanga (2021) argues that the other unique feature of blended learning is that it takes advantage of different learning experiences that can be offered by using a mix of learning environments such as lectures, self-paced study, online collaboration, and communication exercises simulations and using interactive multimedia.

In their perspective, Muhuro and Kang'ethe (2021) explained that rural institutions benefit from using blended learning because they can hire part-time staff to offer some of the classes online and use social media platforms, mobile learning tools, and/or learning management systems to reduce the strain on staff having to repeat lessons for students who miss classes due to illness or other constraints. The above-mentioned authors believe that students benefit from blended learning as they can learn the materials at their own pace and can use other technological tools for further research to access important learning content that improves the student experience.

Another important aspect of blended learning is that to attain its benefits there is a need for a strong commitment from teaching staff and institutional support for their efforts (Mhlanga, 2021).

Blended learning challenges faced by rural-based institutions of higher learning amid Covid-19

The education sector was the most hard-hit as the virus demanded social distance making learning impossible in tertiary education (Mhlanga, 2021). Further, the study conducted by Mhlanga (2021) discovered that introducing blended learning is associated with challenges related to high levels of inequality, the massive digital divide, resource constraints, and skills shortages. This is supported by Dube (2020) who indicated that the greatest challenge faced with modern education is that an internet connection is very expensive and, in some cases, very limited. In this regard, UNESCO (2021) also found that since its outbreak two years ago, the Covid-19 pandemic has disrupted education systems and it has increased inequalities, and exacerbated a pre-existing education crisis.

As far as Marwala (2021) is concerned, while Zoom, Microsoft Teams, and even WhatsApp provided solutions, they failed to answer issues of inequality, inequity, and lack of success. Similarly, Mhlanga (2021) explained that one of the greatest challenges of switching to blended learning is the problem of inequality in South Africa. Further, Mhlanga (2021) argued that inequality in South Africa manifests itself through skewed income distribution and unequal access to opportunities that later cause disparities in almost every sector, education included.

According to Marwala (2021), data, Wi-Fi and access to smartphones and tablets, at the very least, are necessities for a complete transition to the new method of teaching and learning. To this end, one can concur that rural-based institutions of higher learning in South Africa are seemingly helpless on how to approach blended learning during the Covid-19 lockdown.

In their study, du Plessis *et al.* (2022) also revealed that the challenges surrounding the new kind of learning highlighted the inequalities at higher education institutions and demonstrated that South Africa may not be prepared for the 4th industrial revolution (4IR). Further, du Plessis *et al.* (2022) revealed that the Covid-19 pandemic exposed the inequalities within and between universities as some institutions were ready to move to

a new kind of teaching and continue with the academic term, whereas others faced severe constraints related to students' poor access to technology and poor socio-economic circumstances.

As a result of the outbreak of the Covid-19 and adoption of blended learning, Olawale and Mutongoza (2021) revealed that most institutions of higher learning have witnessed high rises in students' academic dishonesty, and in most cases, they simply do not have effective mechanisms to combat this illicit behaviour. Most importantly, the above-mentioned authors explained that owing to Covid-19-induced learning, most institutions do not have measures that regulate academic integrity online. Thus, lecturers are often left to believe in the honesty and independence of students in doing assignments, thus institutions often bemoan the rise of contract cheating where assignments and tests are increasingly being done for students by 'ghost writers' at a price.

Pertaining to lecturers, Lassoued, Alhendawi and Bashitialshaaer (2020) discovered that lecturers have become accustomed to traditional teaching and favoured it for many years without thinking about the new method of teaching i.e. blended learning. According to du Plessis *et al.* (2022), those institutions that were much less prepared for the new kind of learning struggled to upskill academic staff and students, and at the same time needed huge investments in technology to effect the change to blended learning. In addition, Olawale and Mutongoza (2021) indicated that for many lecturers, the Covid-19 pandemic is a transformative challenge in which there is no specified guide for an appropriate response when they communicate through an online platform with their students.

According to Marwala (2021), lack of data, Wi-Fi, and access to digital devices, among others, negatively affect the new kind of learning. Similar to the above, Muhuro and Kang'ethe (2021) found that many institutions have constraints related to unstable or non-existent network coverage characteristics in rural locations, and curricular deficits stemming from the blended learning model not aligning to context, thus lowering morale for wider implementation. The above-mentioned constraints according to the authors are exacerbated by weak goodwill and limited policy guidelines on a specific blended learning model. Also, du Plessis *et al.* (2022) explained that the lack of inclusion of institutional documentation such as protocols or policies that address the Covid-19 pandemic is a challenge. Further, the above-mentioned authors accentuated that whilst this would have provided insight into how South African higher education institutions made sense of the Covid-19 pandemic from the institutional perspective, these policies did not exist or are only in development as higher education institutions navigate the unprecedented and unpredictable nature of the Covid-19 pandemic.

Mhlanga (2021) explained that many students in rural areas were excluded from teaching and learning due to challenges related to resource constraints such as lack of internet access, absence of learning management systems, and low-tech software. The author revealed in his study that apart from challenges related to resources, students were also concerned with future professional careers and studies and a lot of them experienced boredom anxiety, and frustration due to the various hygienic practices that were practised and the various restrictive measures that were imposed by the government.

Unpacking the blended learning challenges faced by rural-based institutions of higher learning amid Covid-19 in South Africa, Mhlanga (2021) explained that when educators do not have digital literacy

skills, it will be very difficult for blended learning to achieve meaningful results.

Plausible solutions to blended learning challenges faced by rural-based institutions of higher learning

Before planning, designing, and implementing blended learning there is a need to assess the environment. In his study, Dube (2020) argues that in the time of Covid-19, the traditional approach to teaching is no longer permissible, and there is a need to invent new ways of teaching, which, unfortunately, is new to many students in rural areas, leading to the fear that education during the time of Covid-19 will serve a few privileged students who are connected to resources.

Based on the findings of his study, Dube (2020) suggests that rural lecturers and students should have access to data. With the availability of data, one can concur that this could help both lecturers and students to engage in the blended learning process, especially if they are not going to have face-to-face lectures. This, of course, could also mitigate learning challenges caused by the outbreak of Covid-19 in the South African education system, particularly at rural-based institutions of higher learning where there is a lack of digital education tools for lecturers and students.

Marwala (2021) explains that data, Wi-Fi, and access to devices, at the very least, are necessities for a complete transition to this kind of new learning. In this regard, Lassoued *et al.* (2020) state that institutions of higher learning need to take advantage of developments in communication technology and use them to provide their curricula to those who wish to continue their higher education anytime, anywhere.

Recommendations from the paper presented at the 12th Annual AISA International Interdisciplinary Conference by Sundani and Mangaka (2021), posit that to avoid the digital divide and lack of provision of teaching and learning in the era of Covid-19, the South African government should provide Wi-Fi, digital devices and data to students and lecturers, especially from rural-based institutions.

Related to what Sundani and Mangaka (2021) suggested, Olawale and Mutongoza (2021) believe that the South African government should ensure the availability of effective communication tools and promote technology-enabled learning for students capable of bridging the digital divide that exist both in the community and in the education system. In the context of the provision of resources, the study conducted by Muhuro and Kang'ethe (2021) recommends governmental support for resourcing rural universities to acquire affordable and usable resources to offset challenges hindering blended learning. Further, the two authors recommend that rural institutions should also strive to strengthen support to students and staff to build confidence in the potential of blended learning. As suggested by these authors, the digital divide should be dealt with by the government so that blended learning can be implemented in rural-based institutions of higher learning.

Further, Marwala (2021) explained that higher education institutions will remain pivotal for engaging in meaningful action to contribute towards local, national, and global debate through this kind of new learning approach. Like other higher education institutions, universities must continually revisit their strategic plans and curricula to ensure constructive alignment with a rapidly changing society.

Further, the paper presented by Sundani and Mangaka (2021) suggests that the Ministry of Higher Education in South Africa should develop a curriculum that promotes the usage of new media

technologies in teaching and learning to produce a technologically advanced generation. One can concur that if rural-based institutions adopt blended learning, this could help to prepare students to be ready to live and work in the digital world.

Creating conducive conditions for blended learning in rural-based universities necessitates a context-friendly implementation model where institutional evaluation data inform strategies, support and pedagogical approaches, and related resources that can be used locally (Muhuro & Kang'ethe, 2021).

Prioritising education as a public good is crucial to avoiding a generational catastrophe and driving a sustainable recovery. To be more resilient, equitable and inclusive, education systems must transform, leveraging technology to benefit all students and building on the innovations and partnerships catalysed throughout this crisis (UNESCO, 2021).

The study conducted by Mhlanga (2021) recommends that for blended learning to be successful, it is important to ensure that there is a policy platform for addressing challenges related to inequality, skills deficit and the massive digital divide. Moreover, the study accentuated that policies that are geared towards addressing all the challenges above should be prioritised if blended learning is to be effective in South Africa.

Also, du Plessis *et al.* (2022) emphasised that research studies should be conducted that review institutional documentation to identify how institutions made sense of the Covid-19 pandemic. Of utmost importance, the above-mentioned authors emphasised that blended learning requires more than technology and software tools. It demands collaboration, care, preparation, expertise, resources, and learning lessons. Furthermore, it was indicated that higher education institutions' agility to effectively adapt to change is contingent on change management skills, preparedness for crises, sensitivity and willingness to collaborate, offer care and support to staff and students, and lastly, an innovative yet cautious attitude towards employing new and untested educational technology.

ADOPTED METHODOLOGY

This study adopted a non-empirical research design: a systematic review. According to Siddaway, Wood, and Hedges (2019), the systematic review involves a comprehensive and systematic search to locate all relevant published work that addresses one or more research questions, and a systematic presentation and integration of the characteristics and findings of the results of that search.

Given that Covid-19 has resulted in the adoption of blended learning, this paper qualitatively explores experiences and challenges of blended learning by rural-based institutions of higher learning in South Africa amid Covid-19 and establishes solutions to blended learning challenges faced by the institutions. The qualitative research approach, according to Kumar (2011), helps to describe the variation and diversity in a phenomenon, situation, or attitude with a flexible approach to identify as much variation and diversity as possible.

As indicated in the abstract, the study's articles were obtained from the computer-based scientific search engines Google Scholar, EbscoHost, ResearchGate, ScienceDirect, and Scopus. All of the articles in this study were evaluated based on the inclusion criteria and relevance.

Therefore, purposive sampling was used to select relevant articles rather than using any articles that had no bearing on the study. According to Leavy (2017), purposive (judgment) sampling is based on the premise that seeking out the best cases for the study produces the best data, and

research results are a direct result of the cases sampled. Purposive sampling, according to Silverman (2000), allows the researcher to select a case because it illustrates an interesting feature or process.

In this regard Etikan, Musa, and Alkassim (2016) are of concern that purposive sampling is typically used in qualitative research to identify and select the information-rich cases for the most proper utilisation of available resources.

Purposive sampling was used to select articles for inclusion in this study, which used the following criteria:

- Articles on the adoption of blended learning by rural-based institutions of higher learning in South Africa amid Covid-19;
- Global studies that reported on the adoption of blended learning by other institutions of higher learning;
- Primary studies that showed originality in the field of research; and
- Studies conducted between 2000 and 2022 mainly.

The process of selecting articles for inclusion in this study is depicted in Figure 1 below. The initial search yielded 41 records in this study, with an additional 10 records (books) and other unpublished literature consulted, for a total of 51 records. Ten records were removed from this total, either due to information duplication or because they did not meet the inclusion criteria. The remaining records totalled 41, of which 31 were further screened. As a result of the screening, 1 record was excluded because it contained irrelevant information, leaving 30 records. The eligibility of the remaining 30 records was then determined. In addition, five articles were removed because they contained information about other countries. Finally, only 19 articles and 6 books were used for the purpose of this study, for a total of 25.

The researchers used the five steps below to assess the studies that would be included in this systematic review:

- Framing the question for review;
- Identifying relevant work;
- Assessing the quality of the studies;
- Summarising the evidence;
- Interpreting the findings.

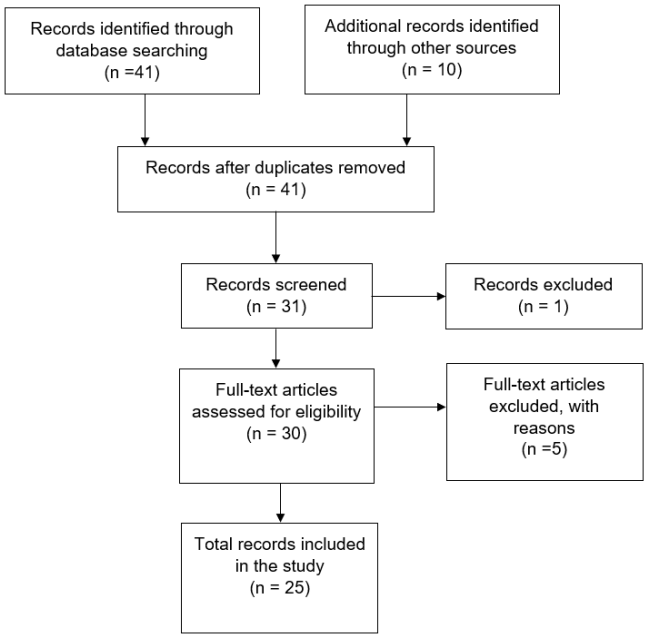

Figure 1: The process followed in identifying articles relevant to this study (PRISMA)

The researchers used the thematic analysis method to analyse data from the repository about the adoption of blended learning by rural-based institutions of higher learning in South Africa amid covid-19. The researchers used thematic analysis because they wanted to deal with patterns that allow for a more understandable thick analysis. In this regard, Ibrahim (2012) explained that thematic analysis is a type of qualitative analysis that is used to analyse classifications and present themes (patterns) that relate to the data.

The researchers used thematic analysis to organise data into different themes and sub-themes that emerged in a narrative revised form. All themes developed during the inception of this study and researchers were guided by the study's research questions.

RESULTS AND DISCUSSION

Importance of blended learning in institutions of higher learning

The findings focus on the importance of blended learning in institutions of higher learning in South Africa.

Online learning resources

According to the findings of this study, articles consulted revealed that blended learning provides learning resources such as online articles, pre-recorded videos, and YouTube links before the class takes place. As guided by the presented reviewed literature of this study, this was also emphasised by Olawale and Mutongoza (2021).

Opportunities for flexible learning

During the research, it was revealed that prospects of blended learning entail providing opportunities for flexible learning. In this regard, Muhuro and Kang'ethe (2021) believe that this enables access to a wide range of educational resources and limits alienation associated with purely online education delivery.

Competitive edge

It was revealed in this study that blended learning helps to maintain a competitive edge and classes more accessible to a growing and diverse student population. This was highly emphasised in the study conducted by Perumal *et al.* (2021).

Different learning experiences

The study discovered that this kind of learning pedagogy promotes different learning experiences for both students and lecturers. Further, the study conducted by Mhlanga (2021) found that this could be possible by mixing learning environments such as lectures, self-paced study, and online collaboration, among others.

Personalising pace

Most sources consulted in this study revealed that students benefit from blended learning as they can learn the materials at their own pace and can use other technological tools. In line with this, Muhuro and Kang'ethe (2021) indicated that technological tools can be used for further research to access important learning content that improves the student experience.

Blended learning challenges faced by rural-based institutions of higher learning amid Covid-19

This discovery sheds light on the blended learning challenges faced by rural-based institutions of higher learning amid Covid-19.

Most expensive internet connection

The study revealed that internet connection is very expensive and, in some

cases, very limited. From the articles consulted, Dube (2020) clearly emphasised that the lack of internet dismally affects the adoption of blended learning by rural-based institutions of higher learning amid Covid-19.

Inequalities at higher education institutions

According to the findings of this study, inequalities at higher education institutions demonstrate that South Africa may not be prepared for blended learning amid 4IR. In this regard, the study conducted by du Plessis *et al.* (2022) found that some higher education institutions are ready to move to a new kind of teaching and continue with the academic term, whereas others faced severe constraints related to students' poor access to technology.

High rises in students' academic dishonesty

It was revealed in this study that during the adoption of blended learning, most institutions of higher learning have witnessed high rises in students' academic dishonesty, and in most cases, they simply do not have effective mechanisms to combat this illicit behaviour. This was emphasised in the study conducted by Olawale and Mutongoza (2021). Further, the study revealed that most institutions do not have measures that regulate academic integrity online.

Accustomed to traditional teaching

The study discovered that another challenge to blended learning is accustomed to traditional teaching by rural-based institutions of higher learning amid Covid-19. According to Lassoued *et al.* (2020), the reason is that most institutions favoured traditional teaching for many years without thinking about the new method of teaching i.e. blended learning.

Struggle to upskill academic staff and students

According to the findings of this study, some institutions are much less prepared for the new kind of learning, and they also struggle to upskill academic staff and students to be familiar with new technologies. This was strongly emphasised in the study conducted by Plessis *et al.* (2022).

Lack of data, Wi-Fi, and access to digital devices

Most consulted sources revealed that lack of data, Wi-Fi, and access to digital devices negatively affect the new kind of learning. As a result, Muhuro and Kang'ethe (2021) revealed that many institutions have constraints related to unstable or non-existent network coverage characteristics in rural locations, and this affects morale for the wider implementation of blended learning.

Weak goodwill and limited policy guidelines

The study revealed that weak goodwill and limited policy guidelines affect the smooth implementation of blended learning. This was also emphasised in the study conducted by Muhuro and Kang'ethe (2021).

Plausible solutions to blended learning challenges faced by rural-based institutions of higher learning

This finding suggests plausible solutions to blended learning challenges faced by rural-based institutions of higher learning.

Full access to data

The study revealed that rural lecturers and students should have access to data. This, according to the findings of the study conducted by Dube (2020) could help

both lecturers and students to engage in the blended learning process.

Taking advantage of technological development

According to the findings of the study, institutions of higher learning need to take advantage of developments in technology to provide successful blended learning. This was highly emphasised in the study conducted by Lassoued *et al.* (2020).

Provision of Wi-Fi, digital devices and data

The study discovered that the South African government should provide Wi-Fi, digital devices, and data to students and lecturers, especially from rural-based institutions. Thus, the study conducted by Olawale and Mutongoza (2021) also discovered that to promote technology-enabled learning for students, the government should bridge the digital divide that exists both in the community and in the education system.

Integrating media and technology into the curriculum

According to the findings of this study, to effectively adopt blended learning, the Ministry of Higher Education in South Africa should develop a curriculum that promotes the usage of new media technologies in teaching and learning. This was also indicated in the paper presented at the 12th Annual AISA International Interdisciplinary Conference by Sundani and Mangaka (2021).

Implementation of policy

Most consulted sources such as du Plessis *et al.* (2022) revealed that is of crucial importance to ensure that there is a policy platform for addressing challenges related to inequality, skills deficit, and the massive digital divide and that research studies should be conducted that review institutional documentation to identify how institutions made sense of the blended learning amid the Covid-19 pandemic.

Care and support to staff and students

The study revealed that institutions of higher learning should offer care and support to staff and students towards employing new educational technology for teaching and learning. This was also indicated in the study conducted by du Plessis *et al.* (2022).

Limitations of the study and future research directions

This study has been limited to recent information on experiences and challenges of blended learning by rural-based institutions of higher learning in South Africa amid Covid-19. Therefore, more studies should be conducted in this area to bring more solutions to challenges affecting the adoption of blended learning to enhance and improve effective teaching and learning amid and post-Covid-19 in South Africa.

CONCLUSION

In conclusion, as indicated in the findings, blended learning develops understanding through discussions among students and lecturers and promotes flexible learning and enables access to a wide range of educational resources. On the other hand, this study acknowledged that students in rural areas were excluded from teaching and learning due to challenges related to resource constraints such as lack of internet access, provision of Wi-Fi, and technological devices that could effectively assist them to pursue their studies amid Covid-19.

Therefore, to mitigate blended learning challenges experienced by rural-based institutions of higher learning, it was strongly emphasised that Wi-Fi, data, access to technological devices, and

implementation of policies that are in line with the curriculum, among others, are necessary to complete the transition to this kind of new learning in South Africa.

RECOMMENDATIONS OF THE STUDY

This study highlights the experiences and challenges of blended learning by rural-based institutions of higher learning in South Africa amid Covid-19, and the adoption of blended learning to improve teaching and learning amid Covid-19.

Following the above results and discussions, therefore, the study came forth with the following recommendations:

- Since most universities adopted blended learning, the Ministry of Higher Education should provide students and lecturers with modern devices (tablets and laptops) and unlimited data to ensure accessibility to blended learning in rural-based institutions of higher learning.
- Rural-based institutions of higher learning need to continuously seek ways to enhance blended learning even beyond Covid-19, i.e. workshops and training for students and lecturers to flex their digital skills. For example, lecturers need to have basic computing skills, electronic presentation skills, internet navigation skills, and networking and collaboration skills, among others.
- Rural-based institutions and lecturers need to liaise with other institutions that have already implemented blended learning to benchmark how they have adopted blended learning and its effectiveness in modern education since blended learning is the way forward.
- Education researchers and policymakers should conduct research on blended learning and implement policies that could advance the pedagogical skills of students and lecturers in rural-based institutions of higher learning.
- Government and education leaders in South Africa should swiftly and decisively design a blended learning plan aimed at supporting rural-based institutions of higher learning aimed at recovering learning losses experienced due to the outbreak of Covid-19.
- There is a need for efforts and commitment in the field of integrating technology within rural-based institutions of higher learning to develop and adopt blended learning following the adoption of this teaching method.

REFERENCES

Bouman, K. (2012). R*etention of learning: Student-led classrooms or traditional classrooms?* Masters Dissertation. Minnesota: Southwest Minnesota State University. Available from https://www.smsu.edu/resources/webspaces/graduatestudies/learningcommunity/Research%20Papers/KimBoumanPierreLC%20.pdf

Creswell, J.W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches, 4th ed.* California: SAGE Publications, Inc.

Dube, B. (2020). Rural online learning in the context of Covid-19 in South Africa: Evoking an inclusive education approach. *Multidisciplinary Journal of Educational Research*, 10(2): 135–157.

du Plessis, M., Jansen 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(7): 1–17.

Etikan, I., Musa, S.A. & Alkassim, R.S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1): 1–4.

Fevale, T., Soro, F., Trevisan M., Drago, I. & Mellia, M. (2020). *Campus traffic and e-learning.* Available: from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7204766/. [March 08, 2022].

Heinze, A. & Procter, C. (2007). Use of conversation theory to underpin blended Learning. *International Journal of Teaching and Case Studies*, 1: 108–120.

Ibrahim, A.M. (2012). Thematic analysis: A critical review of its process and evaluation. *West East Journal of Social Sciences*, 1(1): 39–47.

Kumar, R. (2011). *Research methodology: A step-by-step guide for beginners, 3rd ed.* London: SAGE Publications, Ltd.

Lassoued, Z., Alhendawi, M. & Bashitialshaaer, R. (2020). An exploratory study of the obstacles for achieving quality in distance learning during the Covid-19 pandemic. *Educ. Sci*, 10(232).

Laurillard, D. (2002). *Rethinking university teaching: A framework for the effective use of educational technology*. London: Routledge/Falmer.

Leavy, P. (2017). *Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches.* New York: The Guilford Press.

Ma'arop, A.H. & Embi, M.A. (2015). *Implementation of blended learning in higher learning institution: A review literature. International Education Studies.* Available from: http://dx.doi.org/10.5539/ies.v9n3p4 accessed 08/03/2022. [March 08, 2022].

Marwala, T. (2021). *Leading in the 21st century: The call for a new type of African leader*. Bryanston: Tracey McDonald Publishers.

Mhlanga, D. (2021). The fourth industrial revolution and Covid-19 pandemic in South Africa: The opportunities and challenges of introducing blended learning in education. *Journal of African Education (JAE)*, 2(2): 15–42.

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.

Olawale, E. & Mutongoza, B. (2021). *Digital transformation in higher education institutions: Issues of functionality amid the Covid-19 pandemic*. Available from: https://www.researchgate.net/publication/355873995_DIGITAL_TRANSFORMATION_IN_HIGHER_EDUCATION_INSTITUTIONS_ISSUES_OF_FUNCTIONALITY_AMID_THE_COVID-19_PANDEMIC/link/61823db6a767a03c14e8b1d9/download. [March 06, 2022].

Perumal, N., Pillay, R., Zimba, Z.F., Sithole, M., van der Westhuizen, M., Khosa, P., Nomngcoyiya, T., Mokone, M. & September, U. (2021). Autoethnographic view of South African social work educators during the Covid-19 pandemic: Highlighting social (in)justice. *Social Work/Maatskaplike Werk*, 54(4): 392–406.

Siddaway, A.P., Wood, A.M. & Hedges, L.V. (2019). How to do a systematic review: A best practice guide to conducting and reporting narrative

reviews, meta-analyses, and meta-syntheses. *Annual Review of Psychology*, 70.

Silverman, D. (2000). *Doing qualitative research: A practical handbook*. California: Sage.

Sundani, N.D. & Mangaka A.C. (2021). Solutions to challenges affecting provision of teaching and learning in higher education through new media technologies in the era of Covid-19: A South African perspective. Paper presented at the 12th Annual AISA International Interdisciplinary Conference (Online): 24 to 27 November 2021. Nairobi, Multimedia University of Kenya and AISA.

UNESCO. (2021). Education: *From disruption to recovery*. Available from: https://en.unesco.org/covid19/educationresponse. [April 24, 2022].

Volchenkova, K.N. & Bryan, A. (2016). Blended learning: definition, models, implications for higher education. *Bulletin of the South Ural State University. Ser. Education. Educational Sciences*, 8(2): 24–30.

Wang, X., Hassan A.B., Pyng, H.S. & Ye, H. (2022). Exploring the influence of teacher-student interaction strength, interaction time, interaction distance, and interaction content on international student satisfaction with online courses. *International Journal of Learning, Teaching and Educational Research*, 2(2): 380–396.

World Health Organisation. (2021). *Coronavirus*. Available from: https://www.who.int/health-topics/coronavirus#tab=tab_1. [March 06, 2022].