THE COVID-19 PANDEMIC: SHIFTING FROM CONVENTIONAL CLASSROOM LEARNING TO ONLINE LEARNING IN SOUTH AFRICA'S HIGHER EDUCATION

Mncedisi Christian Maphalala
Centre for Excellence in Learning and Teaching (CELT) Durban University of Technology Durban, South Africa

Oluwatoyin Ayodele Ajani
Centre for Excellence in Learning and Teaching (CELT) Durban University of Technology Durban, South Africa

ABSTRACT

The advent of the COVID-19 pandemic on a global scale has had a significant impact on all aspects of human activities. The integration of digital technologies has led to a substantial transformation of the worldwide education system. The primary objective of this investigation was to examine the transition from traditional face-to-face instruction to virtual instruction in South African institutions of higher learning amidst the COVID-19 pandemic. The research utilised content analysis to conduct a scoping review of existing literature pertaining to the COVID-19 pandemic. The research investigated the effects of the COVID-19 pandemic on tertiary education establishments in the Republic of South Africa. The study reviewed journal articles and book chapters focused on the shift from conventional classroom learning to online learning in South Africa's Higher Education to answer two research questions raised in the study. To ensure an in-depth search, the researcher searched 67 journals articles and identified 58 reports/studies satisfying the inclusion criteria. The findings of the analysis of these studies highlighted that the educational establishments were not adequately equipped for the abrupt shift from traditional face-to-face instruction to remote digital learning. Despite the expeditious efforts made by numerous institutions of higher education to incorporate online learning into their curricula, several obstacles were encountered during this technological shift towards the perpetuation of educational instruction. Consequently, it is recommended that institutions provide sufficient learning technologies, consistent internet data subscriptions for students, and technical support for lecturers to improve the effectiveness of online learning. On the other hand, the research has demonstrated that educational establishments have undergone a significant transformation from traditional in-person instructional settings to virtual learning environments.

Introduction.

The abrupt onset of the COVID-19 pandemic on a global scale has resulted in significant alterations to human existence and lifestyles. The global pandemic necessitated the closure of numerous public venues and institutions, as well as the implementation of regulations governing public gatherings, to mitigate the spread of the virus (Dube, 2020). The education sector experienced a significant impact as disruptions to school systems occurred globally, leading to the initial suspension of learning activities

(Maringe, 2020). On the 23rd of March 2020, President Cyril Ramaphosa declared a "total lockdown" in South Africa, which was consistent with measures taken by other countries worldwide (Dube, 2020). This total lockdown forbade movement and social gathering of any form, with human movement restricted. Consequently, the imposition of restrictions compelled educational institutions nationwide to abruptly cease traditional teaching and learning activities and transition to online learning platforms (Ajani, 2021). The adoption of online learning approaches by higher education institutions in South Africa was consistent with the directives issued by the Minister of Higher Education. The aim was to mitigate the impact of the pandemic-induced total lockdown on the education system and to align with the global trend of continuing learning activities through alternative measures. (Dube, 2020).

The sudden emergence of the pandemic prompted the need to embrace and maximize alternative pedagogies to the usual generational face-to-face classroom teaching and learning in South Africa (Motala, 2020; Mahlaba, 2020; Ajani, 2021), thereby moving learning to virtual in many higher education institutions as reported globally (Pravat, 2020).

The pandemic outbreak prompted stakeholders to reconsider and revamp the methods of delivering instruction and evaluating students. The COVID-19 pandemic forced higher education institutions to incorporate a range of online platforms and learning technologies into their teaching and learning practises. This has facilitated the continuation of the academic calendar and enabled these institutions to fulfil their functional goals and societal responsibilities. However, the transition to online learning posed a challenge for numerous students as they struggled to adapt to the new learning environment, as noted by Landa, Zhou, and Marongwe (2021). Ramrathan (2021) posits that the implementation of online learning has disproportionately affected rural students, who face significant challenges in adapting to the new mode of instruction due to their limited knowledge and skills in utilising online teaching, learning, and assessment tools.

COVID-19 has reshaped education systems in many ways, as both lecturers and students have witnessed a shift in teaching and learning activities from the usual conventional classroom practices to virtual classrooms, with access to learning experiences at the comfort of their homes and their own learning pace (Hall et al., 2020). According to Dick et al. (2020), virtual learning has been designed to facilitate interaction between students and instructors. However, it should be noted that the effectiveness and frequency of consultations may not be as optimal as those conducted in person. The COVID-19 pandemic has had a notable effect on educational institutions, with the emergence of online and distance learning models providing diverse platforms for improving work-integrated learning. Learning platforms have been utilised to facilitate the swift and substantial integration of novel online methodologies. Various learning technologies have been integrated into higher education teaching, learning and assessments. Before COVID-19, many institutions in Africa were used to traditional or blended teaching and learning approaches. However, with the forced online learning platforms on South Africa's institutions of learning as only approaches to curriculum delivery and assessment, the digital divide became wider.

Higher Education Institutions (HEIs) experienced sudden changes that made work and learning to be remote during the pandemic lockdowns. Several innovative approaches to teaching and learning in higher education are promoted to support learning and assessment practices. According to Dean and Campbell (2020), the COVID-19 pandemic has restricted the ability of many educational institutions, particularly those in developing nations, to conduct in-person classroom activities involving large groups of students. The continuation of various lockdown measures enhances evolving susceptibilities in education systems and promotes the effective maximisation of online learning for a flexible and robust education system during the pandemic. According to Koumpouras and Helfgott (2020), the COVID-19 pandemic has resulted in the adoption of online classes as a prominent feature of higher education. Extant studies affirm that learning technologies have been dependable and made learning accessible to students in most developed countries at their various locations (Dube, 2020; Maringe, 2020; Ajani, 2021; Gamede, Ajani & Afolabi, 2021). However, the question is, "what are the realities and challenges of online learning in South Africa as a paradigm shift from conventional classroom practices?" It can be inferred that the COVID-19 pandemic has introduced a novel standard for dispensing curricula in tertiary educational establishments, utilising diverse digital platforms.

The present investigation delved into diverse existing literature to contribute to the ongoing discussion on e-learning in the South African milieu and to assert the influence of the COVID-19 outbreak on tertiary education establishments. This research elucidates diverse pedagogical, epistemological, and evaluative principles that have been impacted by the COVID-19 pandemic in higher education institutions. Notwithstanding the existence of diverse virtual platforms for students, the presence of several inadequacies in online education highlights the necessity for stakeholders to enhance resources that can facilitate efficient online pedagogy and learning in the context of the COVID-19 pandemic. The present investigation was directed by the following aims:

1. To explore how COVID-19 has impacted teaching and learning in South Africa's Higher Education.

2. To establish the transformation of the institutions from conventional classrooms to online classrooms.

Methodology.

The present investigation employed an interpretive approach utilising qualitative methodology to examine a range of extant scholarly literature. Consequently, the methodology of content analysis was utilised to examine all pertinent articles that were obtained. According to Luo (2021:1), content analysis is a research methodology that is employed to detect patterns in documented communication. Content analysis is a research methodology that facilitates access to many articles for data collection purposes. According to Luo's (2021) assertion, content analysis lacks a uniform analytical approach.

The methodology employed in this study was content analysis in the form of a scoping review. This approach enabled the researcher to identify a gap in the current phenomenon, which requires further investigation in the available literature. This research examines the transition from traditional in-person classroom instruction to remote online learning in South Africa's higher education system, focusing on the social implications of this shift during the COVID-19 pandemic. Prior to the onset of the pandemic, traditional in-person instruction was the predominant mode of teaching and learning in South Africa. Therefore, the adoption of technological devices and proficiency in computer literacy for educational purposes has become a prevailing standard. This study's methodology involved the implementation of content analysis, which was based on a review process that underwent five systematic phases. According to Tinoca et al. (2022), the research process involves several phases, including the identification of relevant studies, identification of research questions, selection of studies, data charting and collation, summarization, and reporting of results. The researcher was guided by the research objective to explore articles from various sources such as Scopus and Web of Science. The search encompassed articles pertaining to the online transformation of educational systems, with a particular emphasis on South Africa in the context of the COVID-19 pandemic. Articles that lacked these specific keywords were excluded from consideration. The study conducted by Luo (2021) involved a thorough review process of the articles, resulting in the identification of shared concepts for the purpose of presenting and discussing the findings. This study reviewed journal articles and book chapters focused on the shift from conventional classroom learning to online learning in South Africa's Higher Education to answer two research questions raised in the study. To ensure in-depth search, the researcher searched 67 journals articles and identified 58 reports/studies satisfying the inclusion criteria and generating five themes.

The Findings and Discussion.
Teaching and learning during the COVID-19 pandemic.

In many regions of Africa, the predominant mode of instruction has been the conventional approach of utilising traditional face-to-face classroom teaching. The emergence of the COVID-19 pandemic has resulted in a transition from conventional classroom teaching to exclusive online instruction. The COVID-19 pandemic has brought about a significant transformation in the delivery of instruction within higher education institutions, resulting in a revolutionary shift that has redefined the global higher education landscape. Dube (2020) posits that the global outbreak of COVID-19 necessitated the implementation of diverse e-learning platforms by higher education establishments to facilitate remote teaching and learning endeavours. The transition from conventional classroom teaching approaches to the utilisation of online learning for imparting curricular material signifies a noteworthy

shift in paradigm. Amidst the COVID-19 pandemic, South African higher education institutions underwent a significant transformation towards becoming academic spaces that embrace digital technologies. The purpose of this initiative was to facilitate educational opportunities for students by delivering diverse programmes through online modalities and platforms. Notwithstanding, Maringe (2020) asserts that these educational establishments were either deficient in the required infrastructure or had insufficient resources to cater to the requirements of remote learning.

Prior to the outbreak of the COVID-19 pandemic, certain institutions of higher education had already implemented online pedagogy, thereby equipping themselves with the necessary tools to facilitate remote teaching and learning in response to the pandemic's emergence in South Africa. Despite the lockdown measures imposed by the pandemic, higher education institutions have been able to sustain their teaching and learning activities by implementing online instructional modalities. This alternative approach to curriculum delivery has enabled these institutions to continue their educational operations amidst the pandemic. Therefore, the conventional mode of in-person classroom instruction and education was disrupted due to the complete lockdown of the premises (Dube, 2020).

Online learning is the pedagogical approach that involves the utilisation of internet-connected technological devices, such as computers and smartphones, to facilitate teaching and learning. UNESCO (2020) has recognised several online learning systems, including WeChat, Moodle, Blackboard, Microsoft Teams, Google Classroom, TronClass, Google Meet, Zoom, and Canvas. Online learning provides an opportunity for both academic staff and students to expand their knowledge and develop new skills. According to Ouma (2021), providing academic staff and students with the requisite knowledge and competencies to utilise information technology for enhancing academic performance and fostering students' motivation to participate in online learning is recommended.

The COVID-19 pandemic has underscored the significance of interpersonal relationships and creativity in the modern teaching and learning milieu, as noted by Alvarez, Jr. (2020). Technology has facilitated the introduction of novel approaches to teaching and learning. In the context of rapidly transitioning higher education institutions to online teaching and learning, lecturers demonstrate proficiency in facilitating pedagogical processes through various means. According to Ali (2020), there is a need to prioritise the exploration of alternative teaching methodologies and the provision of support for students in achieving stable employment. One of the primary benefits of online learning is the ability for students to conveniently access educational resources from their own homes. This suggests that students engage in learning without direct interaction with instructors, which contrasts with traditional in-person classroom instruction. The acquisition of knowledge through the online modality is characterised by a self-directed or self-regulated approach on the part of the students. Prior to the pandemic, certain educational institutions integrated traditional classroom instruction with online learning, commonly referred to as hybrid or blended learning. Research has demonstrated that this blended approach is more efficacious in the realm of education (Rashid & Yadav, 2020).

The delivery of curriculum through a range of learning technologies and online platforms entails the utilisation of a variety of learning tools, such as Interactive Blackboard, Google Meet, Zoom, YouTube, Microsoft Teams, Zoom, and Google Meet. The aforementioned platforms are utilised for dispensing educational content and evaluations and have notably enhanced pedagogy and scholarship. Thus, the COVID-19 pandemic has brought online learning to the forefront, gaining prominence among students in South Africa, irrespective of their socioeconomic status. Students enrolled in historically disadvantaged universities are required to adapt to online learning as opposed to the conventional classroom practices to which they were accustomed. However, online instruction exhibits certain inadequacies. Ali (2020) identifies several challenges associated with online learning, including insufficient computer proficiency among students and some instructors, limited access to resources in students' homes, and suboptimal learning environments at home. Koumpouras and Helfgott (2020) argue that certain characteristics of traditional classroom learning are not replicated in online classes. Some of the challenges associated with online learning include inadequate opportunities for students to interact with their instructors, a lack of monitored in-class exercises, limited critical discussions, insufficient consultations between students and instructors, and a reduced ability to promptly establish students' capabilities compared to face-to-face classes. According to Dick et al. (2020), online instruction may

not be as effective as in-person classes due to the challenge of ensuring the integrity of assessments, as proctoring exams and tests can be difficult in an online setting.

According to Dhawan's (2020) assertion, the insufficiency of resources in numerous higher education institutions has impeded the facilitation of online teaching, learning, and assessment, thereby hindering the efficacy of the academic staff and students' learning experience. Many higher education institutions in developing countries encounter difficulties in transitioning from traditional classroom-based instruction to online delivery due to limited resources and inadequate expertise. Academic institutions that lack sufficient infrastructure are facing ongoing challenges in the realm of online education. Furthermore, Mathivanan et al. (2021) assert that adequate internet infrastructure is imperative for uploading and accessing digital learning materials and assessments in higher education institutions. Despite the existing constraints, the current circumstances necessitate prompt measures to ensure that the academic pursuits of students remain unaffected. Ajani (2021) argues that to optimise online teaching and learning, it is imperative to establish a robust information communication technology (ICT) support system for students. The utilisation of ICT as a pedagogical tool for academic courses in higher education institutions has been rapidly accelerated in numerous South African institutions during the COVID-19 pandemic, as evidenced by van Schalkwyk's (2021) observations.

Academic Staff's Response to online teaching.

The COVID-19 pandemic has necessitated academic staff members in various institutions to adopt a critical approach towards the effective delivery of digital curriculum, as noted by Ali (2020). This suggests that the proficiency of individuals in utilising computers and their attitudes towards online education play a crucial role in the successful integration of information and communication technology (ICT) in the educational process. According to Pravat (2020), a significant number of lecturers, particularly those in rural universities, possess insufficient and irrelevant expertise in information and communication technology (ICT), which is essential for proficient online instruction. According to a study conducted by Mseleku (2020), only a quarter of lecturers possess the requisite knowledge and skills to effectively deliver curricula via diverse Moodle learning platforms. Moodle is a widely recognised educational platform that has received significant endorsement as a learning management system by numerous universities. According to Ajani (2021), lecturers encounter difficulties providing online learning and assessments due to insufficient skills. Additionally, they face challenges in utilising various platforms to cater to the diverse social backgrounds of their students. Gamede, Ajani, and Afolabi (2021) assert that the students' inclination towards online teaching and learning is a significant determinant of their preparedness to learn. The availability of online learning for students is contingent upon various factors such as their geographical location, access to learning technologies, internet connectivity, and other related considerations.

In a dynamic educational landscape, it is imperative for academic personnel to accord the utmost importance to the needs of students. By implementing this approach, it will facilitate active participation and effective acquisition of knowledge in both teaching and learning processes. Tadesse and Muluye (2020) suggest that academic personnel should consider integrating contemporary mobile technologies as it can facilitate students' access to a uniform curriculum. The task of academic personnel is often challenging. Academic experts encounter challenges while working remotely due to insufficient resources to facilitate effective online instruction, education, and assessment. According to Mseleku (2020), it is imperative that the children of academic professionals who are also parents have access to identical resources, such as computers and IT equipment, in their homes. Amidst the ongoing COVID-19 pandemic, evaluating proficiency levels has become a challenging task. However, various methods such as multiple-choice assessments, oral examinations, and simulation-based evaluations could potentially be employed for this purpose. The COVID-19 pandemic presented academic staff with numerous challenges, however, it also served as a catalyst for the development of digital literacy among both academic staff and students.

Impact of online learning on the academic system.

The integration of diverse educational technologies into the academic landscape has revolutionised pedagogy and learning, ushering in the Fourth Industrial Revolution era. In this context, lecturers have moved beyond traditional reliance on printed materials and books, and instead utilise a range of information and communication technology (ICT) tools to underscore the significance of the

technological age (Mahaye, 2020). The adoption of diverse technological tools and platforms has marked a significant shift in higher education institutions from traditional face-to-face instruction to technology-mediated curricula. According to Sintema (2020), the transition from traditional classroom teaching to online curriculum delivery has been a challenge for many developing countries. This is attributed to the scarcity of resources and computer literacy required for effective online teaching and learning. The COVID-19 pandemic has led to a significant rise in online education across various global institutions. This has resulted in the mandatory shift of teaching and learning to online platforms, irrespective of the geographical location of the institutions (Hodges et al., 2020; Morgan, 2020; Molise & Dube, 2020). The COVID-19 pandemic has led to a widespread adoption of online learning, which has resulted in a shift towards self-directed learning by students. Consequently, the traditional role of lecturers as the primary source of knowledge has been diminished, and students are now presented with opportunities to construct their own knowledge. According to Mahlaba (2020:123), it is argued that students should not be reliant on their teachers for their learning in a permanent manner, as teachers may not always be available to facilitate learning.

The outbreak of COVID-19 compelled higher education establishments to transition to online learning, thereby transferring the primary information source from instructors to students, who were tasked with seeking out information to facilitate knowledge construction and assuming accountability for their own learning (Kopish & Marques, 2020). Several scholarly investigations contend that academic achievement is enhanced by self-directed learning among students (Khiat, 2017; Tekkol & Demirel, 2018; Mahlaba, 2020). According to Hedding et al. (2020:1), the transition to online teaching and learning necessitates the use of technology-based tools that promote a shift from rote learning to problem-solving, critical thinking, and applied understanding. This shift is facilitated by a holistic and integrated approach, as traditional assessment techniques are deemed inadequate in the online learning environment. Due to the substantial influence of COVID-19 on the educational system, the adoption of online teaching and learning has become a necessity for higher education students to adhere to their academic timetables. Therefore, many higher education institutions have adopted online learning as a means of mitigating the impact of the COVID-19 pandemic on education. According to Pokhrel and Chhetri (2021), a limitation of online learning and teaching is the inability to conduct certain scientific laboratory testing and research work. The aforementioned circumstance poses a difficulty for students in accomplishing their laboratory-based research assignments. Furthermore, due to the COVID-19 pandemic, most assessments that were originally planned to be administered extramurally have been postponed, while all internally administered assessments have been annulled. The cancellation of assessments has had a detrimental impact on students' learning, as evidenced by the magnitude effect. While there may be variations in the internal assessment procedures adopted by various academic institutions, delaying external assessment can have a significant impact on a student's academic progress and prospects (Pravat, 2020).

The primary challenge lies in the difficulty that students encounter when transitioning from conventional classroom-based instruction to online learning. Given that many students are currently situated at home, a significant amount of their time is dedicated to completing household tasks, thereby limiting the amount of time available for academic pursuits. According to the findings of Dick et al. (2020), traditional face-to-face learning is preferred over online learning due to the difficulties associated with the latter, such as technical issues with online platforms. Pokhrel and Chhetri (2021) contended that certain scientific subjects, particularly those pertaining to mathematics, physics, and biology, are unsuitable for online pedagogy in a comparable manner. The assertion posits that conducting fieldwork is a prerequisite for this research, a task that is seldom accomplished through online means. Singh and Thurman (2019) contend that despite the increasing prevalence of online learning and instruction, many students still exhibit a preference for traditional classroom-based instruction with face-to-face interaction. The notion posits that face-to-face pedagogy within the confines of a classroom setting facilitates opportunities for pupils to engage in dialogue with their lecturers and peers. Consequently, despite its potential as a feasible substitute for conventional face-to-face teaching, online education has limitations that can adversely affect post-secondary students.

The advent of the COVID-19 pandemic necessitated a paradigm shift in pedagogical practises, prompting lecturers and students alike to adapt to novel modes of instruction and acquisition in

anticipation of future educational exigencies. According to the World Economic Forum's report in 2020, online learning has demonstrated the potential for personalised education that addresses the unique needs of individual students. Additionally, lecturers can be innovative in their instructional methods, indicating a significant shift in the traditional education paradigm. Online education offers the advantage of accessibility to a vast number of students, regardless of their location, surpassing the convenience of traditional classroom instruction. Innovative classroom teaching and learning have revolutionised education worldwide, providing a convenient approach to the process. Ramrathan (2021) concurs that online learning will persist as the primary mode of higher education delivery, even in the aftermath of the COVID-19 pandemic. On the other hand, the COVID-19 pandemic resulted in widespread implementation and utilisation of diverse educational technologies for in-person instruction in numerous institutions of higher learning throughout South Africa. Consequently, students and scholars were compelled to acquire essential computer/ICT competencies to proficiently utilise the aforementioned technologies.

The realities and challenges of the COVID-19 pandemic on higher education

The COVID-19 pandemic and subsequent lockdowns in various regions of the world have driven a paradigm shift in the education system's approach to teaching and learning. The imposition of restrictions on social gatherings resulted in the closure of educational establishments. According to Morgan (2020), e-learning has emerged as a viable alternative for delivering curricula in higher education institutions worldwide. The delivery of curricula in South African higher education institutions has become uncertain due to the challenges posed by face-to-face teaching and learning. However, the adoption of online platforms has enabled the continuation of academic calendars (van Schalkwyk, 2021). The outbreak of the pandemic has resulted in a significant impact on social lives and the education system. Consequently, remote learning and teaching have become prevalent among students and lecturers, as stated by Mothala and Menon (2020). According to Jimola and Ofodu (2021), traditional face-to-face classroom practices that were commonly utilised in many developing nations are no longer feasible. Consequently, virtual classrooms have become the primary mode of instruction and evaluation for both students and instructors. According to Mavundla and Mgutshini (2021), the adoption of virtual classrooms represents a significant shift in the educational landscape, requiring both students and instructors to adapt accordingly.

Mhlanga and Moloi (2020:8) assert that 'the current shift in education marks the initial phase of a transition towards the fourth industrial revolution (4IR), characterised by a predominantly digital learning environment with limited opportunities for in-person interaction'. The COVID-19 pandemic has resulted in a paradigm shift in the education system regarding teaching and learning. The swift transition to virtual classrooms posed significant challenges for numerous higher education institutions in South Africa, resulting in delays and unpreparedness (Mahlaba, 2020). The universities made their curriculum delivery more accessible to students by utilising internet-based information and communication technology tools and platforms. However, according to Landa, Zhou, and Marongwe (2021), a significant proportion of students enrolled in rural universities encounter obstacles that impede their ability to effectively engage with online learning. According to Huber and Helm (2020), the implementation of the Fourth Industrial Revolution (4IR) in higher education underscores the presence of a digital divide within a nation's educational system, particularly in developing nations. According to Ajani (2021), the digital divide is a significant issue that is particularly evident among students residing in rural and urban areas of South African communities.

The global COVID-19 pandemic has had a significant impact on educational systems worldwide. Several studies have identified various shortcomings in the implementation of online learning. These include the limited proficiency of academic staff in utilising online platforms (Ouma, 2021), the unequal distribution of information among students (Osman, 2020), the unfavourable learning conditions experienced by some students at home (Tadesse & Muluye, 2020), and the inability of online platforms to perform certain academic functions (Tadesse & Muluye, 2020). Pokhrel and Chhetri (2021) have also highlighted these deficiencies in their research. Furthermore, the absence of a communal atmosphere in online classes curtails the efficacy of online learning and teaching, thereby restricting students' prospects for social interaction. According to Rashid and Yadav (2020), individuals who are unable to engage in self-directed learning without the guidance of instructors may encounter difficulties in their daily lives.

As a result of the limitations of remote learning and instruction amidst the COVID-19 pandemic, it is probable that students' academic achievements will diminish due to a decrease in the quantity of time devoted to studying. Furthermore, the inability of students to seek guidance from their instructors when encountering difficulties comprehending a concept will inevitably hinder their learning capacity.

Prava (2020) has identified many ways in which COVID-19 affects the education of students in higher education. These include the following:

- The restriction of national borders by countries has decreased the number of students engaging in cross-border migration. As a result, virtual international conferences are conducted through online platforms such as webinars.

- The phenomenon in question results in disparities among students, thereby exacerbating the gap between those hailing from affluent and underprivileged families. Unlike their less affluent peers, students from wealthy backgrounds have the financial means to procure a high-speed internet connection.

- In anticipation of potential uncertainties, there is a possibility of a surge in the requirement for online instruction and education.

- The resultant approach will entail a fusion of traditional face-to-face and digital pedagogical methodologies.

- To adhere to the social distancing measures necessitated by the COVID-19 pandemic, it is imperative to encourage the adoption of open and distance learning.

To enhance the efficacy of online teaching and learning, it is imperative to bring about gradual transformations in the attitudes of lecturers and students across diverse academic institutions, thereby fostering a culture that embraces the optimal utilisation of various technological tools for online pedagogy. The South African constitution's principles of social justice, equity, and access to education are not being fully realised in the higher education system due to the digital divide and insufficient resources, particularly for students residing in rural areas (Mhlanga & Moloi, 2020). According to Maringe (2020: 1), it is imperative to examine and address the exacerbation of inequalities among disadvantaged students to prevent the potential loss of progress that has already been made. In a similar vein, Dube (2020: 1) asserts that rural students encounter unparalleled difficulties when adapting to a novel way of life and education. According to Dube's (2020) research, which involved primary and secondary school students as participants, the results can be extrapolated to university students residing in rural areas with limited resources. According to Dube (2020), Ajani (2021), and Ajani & Gamede (2021), it has been asserted that a significant number of first-year students hailing from rural high schools possess inadequate ICT experience and training, which could potentially hinder their ability to derive benefits from online learning. The abrupt surge in the adoption of online learning by South African higher education institutions has resulted in a significant disadvantage for most rural students who are unable to access learning content online or participate effectively in online assessments due to a lack of essential resources such as laptops and computer skills (Ajani, 2020; Mukuna & Aloka, 2020). The phenomenon described engenders disparities within the education system and places numerous rural students at a disadvantage, causing them emotional strain in their efforts to engage with online learning (Jimola & Ofodu, 2021).

According to Ajani (2020), a significant proportion of students enrolled in public universities in South Africa receive various forms of bursaries. The bursaries provided cover various expenses such as accommodation, tuition fees, feeding allowance, and stationeries, which are tailored to the social backgrounds of the recipients (Beaunoyer et al., 2020; Masutha, 2020). The closure of higher education institutions has been observed to have an impact on their resources and emotional support, as noted by Masutha and Naidoo (2021) and Odeku (2021). The COVID-19 pandemic exacerbates pre-existing social disparities and inequities that were initially established by the apartheid education system. Ramrathan (2021) highlights that student in several historically disadvantaged universities in South Africa encounter insufficient access to online learning, which results in their exclusion from effectively participating in online learning.

According to Morgan's (2020) perspective, Table 1 presents a range of learning resources, digital platforms, and educational applications that are designed to support the continuity of learning. According to Mhlanga and Moloi (2020), the utilisation of these platforms fosters social interactions

and facilitates student support amidst the lockdown. A variety of virtual platforms from Table 1 are adopted by numerous universities situated in rural areas for the purpose of delivering their curriculum.

Table 1. Online learning platforms (*Adopted from Mhlanga and Moloi, 2020*).

Online Platforms	Descriptions
Microsoft Teams	• Chat, video calls, Audio calls, and other collaboration features • This is used for online discussions or meetings by lecturers and students.
Google Meet	• Video meeting recordings and screen sharing • It is used for online discussions by lecturers and students.
Online (Websites)	• Students learn independently at home
Blackboard (Collaborate)	• Live contact, screen sharing or whiteboard instruction, and breakout rooms. • used for online interactions between students and lecturers.
Zoom	• Webinars, chat, collaboration, breakout rooms, and video and audio conferencing • Applied to online exchanges between lecturers and students.
Skype	• Calls with speak video and audio chat and collaboration tools are used by lecturers and students for online discussions
WhatsApp	• Lecturers and students employ video and audio communication tools that incorporate talk, chat, and collaborative features for online discussions. These tools facilitate collaborative learning in which students actively engage in.

The employment of diverse platforms, as outlined in Table 1 by numerous higher education institutions in South Africa, guarantees the uninterrupted provision of educational instruction and acquisition amidst the pandemic, as reported by Dipa (2020). Therefore, a range of these platforms offer alternatives for lecturers to select suitable methods to effectively engage with all students. The current global health crisis has brought to the forefront the importance of assessing the preparedness of universities in terms of their Information and Communication Technology (ICT) infrastructure for facilitating effective teaching and learning. The platforms reveal a dearth of resources and technical proficiency among students in conventional or historically marginalised South African higher education institutions, with the rural-urban digital divide becoming apparent (Gamede, Ajani & Afolabi, 2021). Mahlaba (2020) posits that the Fourth Industrial Revolution (4IR) was initially ushered in by the integration of information and communication technology (ICT) into the global education system. This integration involved the digitization of learning materials and a reduction in physical classroom instruction. The utilisation of diverse Fourth Industrial Revolution (4IR) technologies has enabled numerous higher education institutions in developed nations to transition seamlessly to fully online modes of instruction (Landa, Zhou & Marongwe, 2021). Ramrathan (2021) notes that global institutions employ various strategies to cater to the diverse needs of both students and instructors in accessing and disseminating educational materials.

The current trend towards online learning on a global scale has resulted in increased pressure on higher education institutions in South Africa to adopt and encourage the use of online learning platforms among their students. This can be achieved by leveraging some of the platforms outlined in Table 1. According to Morgan (2020), these platforms facilitate the delivery of conventional in-person pedagogy by enabling exclusive online interactions between lecturers and students. Various approaches were employed by educational institutions to ensure the continuity of online instruction and learning. The assessment of virtual instruction, conversely, exposes that a notable deficiency that impacts the calibre of pedagogy is academic dishonesty among pupils. During the COVID-19 pandemic, South African students exhibited this display. The subsequent section will address the issue of academic dishonesty.

Encouragement of examination malpractices among students.

Prior studies on online curriculum delivery advocate for the establishment of cooperative virtual learning communities, wherein students can participate in educational pursuits in a dynamic and ongoing manner (Espasa & Meneses, 2010; Kuo et al., 2014). The collaborative participation of students in online learning activities is a crucial factor in their academic success and acquisition of knowledge. This is due to the fact that students acquire valuable skills in teamwork and group commitment through such activities. Notwithstanding, the diverse modes of collaborative endeavour among pupils have persisted to be misused as pupils engage in collaborative cheating. According to Cross (1998:4), learning communities can be defined as a collection of individuals who participate in intellectual discourse for the purpose of learning. The COVID-19 pandemic has prompted a shift towards online teaching and learning in many educational institutions. As a result, students have increasingly turned to social instant messaging applications, such as WhatsApp and Telegram, as a means of exchanging and sharing assessment answers. The phenomenon of students sharing assignments and assessments in the context of online learning and assessments has been found to exacerbate instances of academic dishonesty and associated issues that pose a threat to the integrity of education (Mavundla & Mgutshini, 2021; Rahim, 2020). According to Lowenthal and Snelson (2017), the aforementioned source is relevant to the topic at hand.

The use of the platform by students to exchange information about assessments has led to instances of academic dishonesty during said assessments. Online assessments lack the supervision that is typically present in traditional classroom settings. According to Church and de Oliveira (2013), WhatsApp is a notable communication tool that offers the benefit of facilitating the instantaneous exchange of messages between individuals or groups (Adedoyin & Soykan, 2020). Due to the nature of online learning activities and assessments being conducted remotely, the ability of facilitators and examiners to monitor and supervise students is limited. Consequently, the regulation and control of cheating becomes a challenging task. The paradigm shift in South Africa's higher education has resulted in a range of opportunities for students to engage in online learning, self-regulated learning experiences, and knowledge construction. However, it is important to note that this shift has also led to the potential for unethical behaviours that may result in malpractices in assessing. Table 1 presented above illustrates a range of digital platforms that have been incorporated into the educational process to facilitate the shift from traditional face-to-face instruction to online instruction. These platforms explicate the optimal utilisation of diverse learning technologies for pedagogical purposes.

Conclusion.

The COVID-19 pandemic has brought about a novel transformation in the educational sector, wherein the mode of instruction and acquisition has shifted towards an online format. Amidst the pandemic, South African students have demonstrated a favourable disposition towards change by embracing diverse and readily available modes or channels for acquiring educational instruction, knowledge acquisition, and evaluation. Undoubtedly, the encounters with online learning will equip higher education establishments for the academic evaluations that are to ensue in the aftermath of the pandemic. Direct experiences can serve as a catalyst for educational institutions and stakeholders to engage in meticulous planning that is flexible enough to accommodate unforeseen changes in the educational terrain. The successful integration of diverse learning technologies in the classroom can provide students with increased opportunities to explore, learn, and optimise the skills essential for the 21st century. The COVID-19 pandemic has led to a significant shift from blended learning to exclusively online learning on a global scale. In response to this transition, South Africa's higher education system has undergone modifications to enable curriculum delivery through diverse platforms. The readiness and preparedness of South African higher education institutions to integrate 4IR into their pedagogical approaches have been exemplified by the COVID-19 pandemic. Due to the pandemic, numerous establishments were compelled to expeditiously adapt to the novel state of affairs. Numerous academic institutions have successfully transitioned from conventional pedagogical approaches, with all relevant educational parties offering requisite assistance to students in acclimatising to novel teaching and learning techniques. In the Fourth Industrial Revolution (4IR) era, conventional educational institutions have been compelled to shift from traditional physical classrooms to online classrooms, where students engage in collaborative interactions. The prevalence of online learning has caused the shift. Nevertheless, the alteration has impacted the calibre of education as students currently employ diverse approaches to

facilitate examination misconduct, such as academic fraudulence or other forms of unethical behaviour while undertaking virtual assessments.

Implications of the study.

The extant literature indicates that online learning has emerged as a viable alternative to traditional classroom instruction in light of the COVID-19 pandemic. Diverse digital platforms are utilised to provide educational and evaluative resources to students. Notwithstanding, the studies that were reviewed posit that additional endeavours are necessary to promote or optimise the efficacy of online learning. This research advocates for the conversion of diverse educational materials or tertiary-level curricula into digital modalities that can cater to educational requirements and offer ease of accessibility to all students. It is recommended that technical support be provided to academic staff to facilitate their students' engagement with diverse global learning platforms. This will offer diverse prospects for optimising the online learning and teaching system. It is recommended that educational platforms be expanded to facilitate optimal parental engagement within the education system. The COVID-19 pandemic has engendered novel pedagogical methodologies, diverse viewpoints, and nascent trends that warrant perpetuation in the aftermath of the pandemic. The COVID-19 pandemic has facilitated the exposure of numerous rural students across various higher education institutions to Information and Communication Technology (ICT). It is imperative that measures are taken to promote the continuation of this trend. The acceleration of ICT skills is imperative to optimise the utilisation of digital technologies in the realm of education. It is recommended that universities implement a structured and sufficient programme for educating both instructors and students on digital technologies. The issue of inadequate ICT resources among students presents a challenge that must be tackled to enhance their competencies and assessment outcomes. Therefore, it is recommended that students be equipped with laptops, smartphones, and internet data subscriptions. It is recommended that universities develop online invigilation strategies to monitor and deter unethical conduct by students during assessments. It is imperative that governmental bodies and other relevant stakeholders extend their support to all higher education institutions, enabling them to furnish sufficient infrastructural resources that can facilitate access to online educational activities.

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