Multicultural Education

HOW DIGITAL DIVIDE LINGERS ON IN SOUTH AFRICAN HIGHER EDUCATION: LIVED EXPERIENCES OF RURAL STUDENTS DURING THE COVID-19 PANDEMIC

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A B S T R A C T

The present research delves into the actualities of the digital divide concerning the access of rural students to online teaching and learning amidst the COVID-19 pandemic lockdown, specifically among students residing in rural areas of South Africa. The data utilised in this study were obtained via a semi-structured interview guide, which was administered telephonically to a sample of twenty students. These students were purposively selected as they were based in deep rural parts of the KwaZulu-Natal communities during the lockdown. The audio-recorded interviews were thematically analysed and interpretively interpreted. The participants who lived in Manguzi, KwaNongoma, Mtubamtuba, and Ulundi shared their lived experiences of learning during the pandemic. The study adopted transformative theory as its theoretical framework. Findings revealed that students in selected rural parts of the KwaZulu-Natal were not satisfied with online learning, due to several challenges they faced. The participants identified their inability to actively participate in their university's Learning Management System (Moodle). While the issue of poor network service resulted from the mobile service providers' failure to allow them easy access to Moodle, among others. Hence, this study recommends the provision of personal laptops to all rural students, while data subscriptions based on the effective mobile service providers in students' localities should be provided to students.

A R T I C L E I N F O

1.   INTRODUCTION

The advent of COVID-19 prompted educational institutions to suspend conventional classroom teaching and learning methods. Consequently, the delivery of education shifted to an online platform, thereby emphasising the pre-existing digital divide prevalent in numerous developing African countries. According to the RSA Constitution (1996), Section 29 explicitly recognises education as an essential human right for all citizens of South Africa. Mutongoreya (2020) further admits that the right to education is a fundamental right. The concept referred to as 'parity of participation' denotes the government's obligation to provide all eligible citizens with equal opportunities to access quality education (Fraser, 2012). Mutongoreya (2020) concurs that the entitlement of citizens to education has persistently been infringed upon by diverse factors that foster the digital divide, particularly considering the global COVID-19 pandemic. The onset of the COVID-19 pandemic prompted nations to implement lockdown measures as a means of mitigating the transmission of this highly infectious disease.

Thus, the education system was significantly affected, as all activities became suspended due to people's restrictions to their homes. The traditional classrooms for teaching and learning were discontinued. According to

Burgess and Sievertsen's (2020) findings, educational institutions worldwide have experienced significant setbacks because of the abrupt disruption of learning and assessment activities, leading to the cancellation or postponement of numerous public assessments. Due to the closure of schools and the confinement of students to their homes, the imperative to preserve the academic calendar prompted the implementation of online instruction and learning as a substitute method of delivering the curriculum. Consequently, numerous urban schools have adopted online teaching and learning methodologies. However, students residing in rural areas encountered difficulties in accessing online learning activities owing to their unique circumstances. Several challenging factors persist in promoting the digital divide among rural students. These include inadequate learning infrastructure, power outages or lack of access to electricity, insufficient personal laptops, inadequate network service from service providers, and limited ICT skills.

Although urban students may not encounter the same difficulties as their rural counterparts, it is important to note that the latter are at a disadvantage when it comes to engaging in online learning. This elucidates the actualities of the digital divide that exists between rural and urban areas, as well as between socioeconomically disadvantaged and advantaged populations. Hall (2019) asserts that a significant proportion of students in South African universities located in rural areas originate from rural communities that face difficulties in accessing basic amenities. The term "rurality" refers to human settlements that primarily engage in agricultural practices and experience insufficient access to basic amenities and infrastructure. A rural area can be defined as a geographically isolated region situated in diversely and sparsely populated areas (Cristobal-Fransi, Ferrer-Rosell, & Daries, 2020). According to Avila and Gasperini (2005), it appears that individuals residing in rural areas lack sufficient access to socio-economic amenities such as quality education, adequate healthcare facilities, efficient transportation, and reliable electricity. Avila and Gasperini (2005) suggest that individuals residing in rural areas encounter several constraints that prompt them to adopt a nomadic lifestyle. According to Cristobal-Fransi et al. (2020), South African rural regions are predominantly distinguished by a deficiency of sustainable technological-based social and economic pursuits.

According to Hall's (2019) research, the total number of rural schools in South Africa is 11252, encompassing the entire nation. The educational system comprises 3060 secondary schools and 8192 elementary schools. KwaZulu-Natal accommodates a significant number of rural students within the nation and boasts the highest child population. As per Hall's (2019) findings, the rural classification applies to 2.6 million children, which accounts for 62% of the child population in KwaZulu-Natal. In another report, the World Bank (2018) reports that 33% of South Africans may be classified as rural. Notwithstanding the substantial student populace in rural regions, the South African government, across different tiers, has encountered challenges in furnishing quality education and facilitating the provision of facilities that can augment the quality of education (Du Plessis & Mestry, 2019). Francis and Webster (2019) characterise South Africa as a paradoxical nation, in which disparities persist.

Amidst the pandemic, the conventional classroom teaching and learning methods that rural students were accustomed to were no longer viable. Instead, a shift towards complete online teaching and learning was necessitated, facilitated by the utilisation of learning management systems such as Moodle. The exclusive utilisation of Moodle as a learning management system has regrettably resulted in the hindrance of access to educational activities for numerous students residing in rural areas. It can be observed that students residing in urban localities had greater opportunities to access educational resources for learning purposes. According to Ebrahim, Ahmed, Gozzer, Schlagenhauf, and Memish (2020), the implementation of lockdown measures in South Africa resulted in economic challenges for numerous households, particularly those residing in rural areas who face difficulties in procuring the necessary resources to engage in online learning activities. Considering this objective, students residing in rural areas were found to be lacking a viable strategy for engaging in online educational pursuits amidst the COVID-19 pandemic-induced lockdown. The present study posits that the COVID-19 pandemic has brought to light the realities of the digital divide that is prevalent in the South African higher education system.

The formulation of strategies aimed at mitigating the effects of COVID-19 ought to encompass measures that address the impediments faced by rural students in accessing online learning during the pandemic. According to Nkoane (2010), the efficacy of online teaching and learning for rural students is impeded by various factors such as insufficient access to electricity, substandard network connectivity, and inadequate computer proficiency. According to Du Plessis and Mestry (2019), it is imperative to develop diverse approaches aimed at enhancing the accessibility of online education for students residing in rural areas. Enhancing the accessibility of online learning activities for rural students is crucial for the advancement of South African human capital and the promotion of a more promising academic future.

The objective of this study is to investigate the digital divide that is present in the context of online learning

amidst the COVID-19 lockdown. According to Shibeshi's (2006) argument, it is imperative to provide solutions that address the issue of rural students' access to online learning. This research provides a distinctive emphasis on the experiential aspects of the digital divide within rural student populations, as they endeavour to engage with online learning amidst the COVID-19 lockdown. According to Fraser (2012:42), justice is considered the primary virtue as it is imperative to eliminate institutionalised injustice to establish a foundation for the development of other societal and individual virtues. The COVID-19 pandemic has brought to light the existence of a digital divide in a rural university in South Africa, as students have encountered challenges in accessing online learning. This study investigates the phenomenon of the digital divide in the context of higher education, with a particular emphasis on the COVID-19 pandemic and its impact on rural university students.

2.   THEORETICAL FRAMEWORK

To examine the digital divide that rural students face and how it affects their learning outcomes, this study uses transformation theory as a theoretical framework. The focus is on exploring the lived experiences of these students concerning this phenomenon. The theory of transformation posits fundamental principles for effecting change in educational contexts. This statement denotes the underlying justification for the aforementioned theory in comprehending the first-hand encounters of rural students with online learning amidst the COVID-19 outbreak in South Africa. Mezirow proposed the theory of transformation in 1994 for adult education. The statement posits that transformation theory is a comprehensive and universal model that encompasses the generic structures, elements, and processes of adult learning. The theoretical assumptions are based on constructivism, a philosophical perspective that emphasises the significance of learners' interpretation and reinterpretation of their sensory experiences in the process of meaning-making and learning. (Mezirow, 1994:222).

The theoretical framework explains the significant transformation from the conventional face-to-face to online approaches to learning during the pandemic. The concept of online learning pertains to the provision of educational opportunities through diverse online platforms and technologies, which are made available to students. The aforementioned alteration has the potential to impact the academic pursuits of students in both favourable and unfavourable ways. The implementation of online-only teaching and learning activities by universities during the lockdown allowed for the provision of borderless and unrestricted learning experiences that were convenient for students. The concept of online learning as a transformation pertains to the process of empowering individuals to liberate themselves from unexamined modes of thinking that hinder effective decision-making and performance. The concept also involves a utopian society consisting of knowledgeable communities of learners who are actively involved in an ongoing collaborative investigation aimed at ascertaining the truth or reaching a provisional optimal decision regarding alternative beliefs. The formation of a community is strengthened by the presence of empathetic solidarity, which is dedicated to the implementation of participatory democracy in social and political contexts. This is achieved using critical reflection, and the community collectively engages in reflective action to ensure that local institutions, organisations, and their practises are responsive to the human needs of those they serve (Mezirow, 1998).

Mezirow (1998) posits that the application of transformation theory in online learning endeavours within higher education institutions facilitates a comprehensive understanding of the transformative framework in education. According to Cranton's (1994) theory, there is an emphasis on producing thorough and detailed accounts of students' abilities to create, modify, and authenticate knowledge gained from online learning encounters. Mezirow (1998) asserts that transformative learning occurs when students engage in online experiences to comprehend, interpret, articulate, or generate meanings related to problem-solving, as opposed to the conventional method of in-person learning. The pedagogical approach involves prompting students to engage in critical reflection on their learning experiences to derive meaningful, transformative insights. According to Mezirow's (1994) assertion, students can validate their novel perspectives by generating fresh knowledge within their discourse. These constructs are three according to Mezirow (1998:20), which are "centrality of experience, critical reflection, and rational discourse". Taylor (1998) asserts that students can construct or deconstruct learning experiences socially. According to Taylor (1998), individuals engage in critical self-reflection to assess the integrity of their assumptions and beliefs based on prior experiences. This reflective process is crucial for transforming one's meaning structures, leading to a perspective transformation. Their approach to critically reflect on discourses "where experience is reflected upon and assumptions and beliefs are questioned, and where meaning schemes and meaning structures are ultimately transformed" (Taylor, 1998: 17–18).

The primary objective of transformative learning is to equip students with the necessary skills to engage in logical and reasoned discussions (Evans & Nation, 1993). As per the assertions made by Evans and Nation (1993:91), the concept of students' empowerment encompasses three fundamental notions, namely the idea of exercising choice, having control over one's life, and liberation from cognitive frameworks that have restricted both choice and control for the individual in question. Consequently, students undergo a transformation process

as they are empowered to become mature and autonomous learners. According to Mezirow (1994), the fundamental aim of adult education is to facilitate transformative learning, which seeks to cultivate critical thinking skills and motivate learners to make autonomous contributions to discourses, rather than passively accepting the perspectives or viewpoints of others. Mezirow (1994) posits that transformative learning engenders critical reflection, validation, and action in students about their beliefs, interpretations, values, emotions, and cognitive processes. The Fourth Industrial Revolution has led to the integration of learning technologies into the education system, making it imperative for students to adopt a new culture of teaching and learning. Coppola et al. (2002) and Lee and Tsai (2010) have observed that the integration of learning technologies in modern teaching and learning methods poses various challenges to students' presumptions, convictions, construals, assessments, and anticipations.

Consequently, the incorporation of a transformative learning framework in this research aims to conceptualise students as mature learners who possess the ability to comprehend and modify online learning frameworks to facilitate their critical analysis of discourses and implementation of acquired knowledge (Taylor, 1998). The current body of literature regarding transformative online teaching is constrained in its examination of the reflective capacity of students in developing a comprehensive understanding of online learning and in their ability to disseminate their findings through peer-reviewed channels (Kreber & Kanuka, 2006: 122). The present investigation aims to examine the viewpoints of rural university students in South Africa regarding the implementation of online pedagogy amidst the COVID-19 lockdown. Additionally, the study employs transformation theory to analyse the students' experiences. The phenomenon under consideration is underpinned by three fundamental premises. The first assertion made is that students residing in rural areas exhibit characteristics of active adult learners. Secondly, it posits that the process of transformative learning is contingent upon engaging in critical reflection. Finally, it is proposed that the transformation of students can be attained using pedagogical inquiry utilising learning technologies. This study examines the available evidence regarding the presence or absence of transformative premises related to the digital divide, which restricts the technological learning competencies of rural students. The transformative theory is explained in the following diagram.

Fig 1: The phases in transformative theory (Adapted from Brock, 2010).
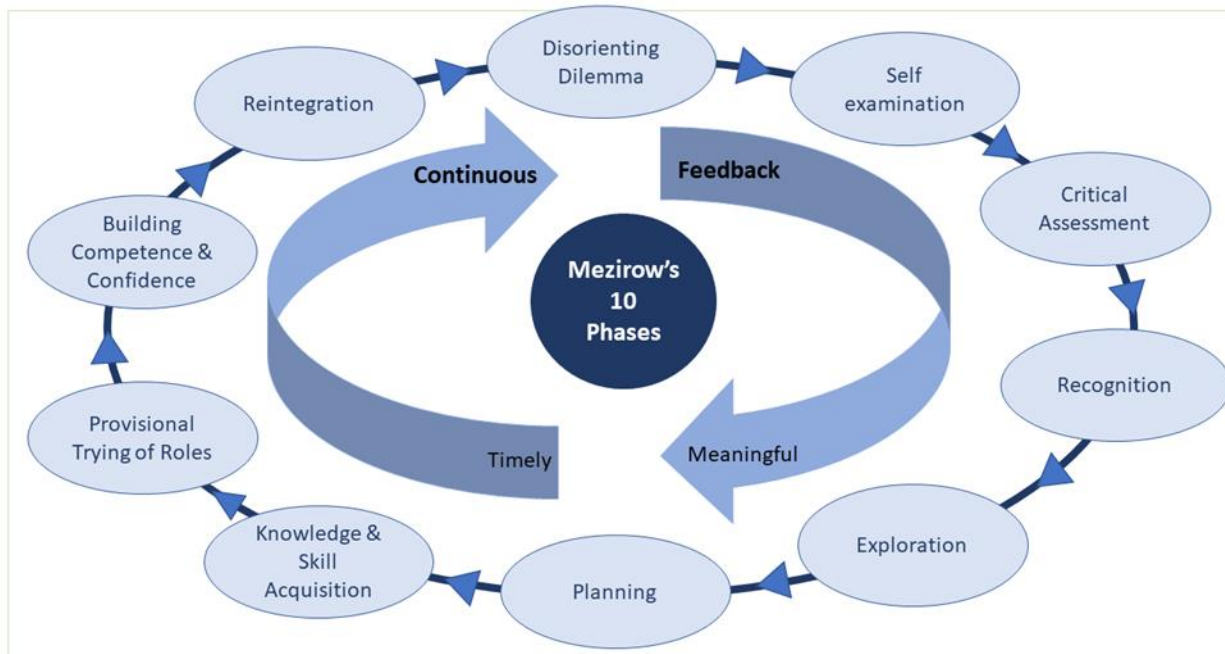
According to Mezirow, the process of transformation typically involves a sequence of stages wherein the clarification of meaning occurs in some form or another. A perplexing situation that causes confusion and disorientation. Thus, self-reflection is accompanied by emotions of guilt or shame. The diagram explains various aspects related to personal transformation and development. It emphasises the importance of critically assessing one's epistemic, sociocultural, or psychic assumptions and recognising that the process of change is shared by others who have undergone similar experiences. The diagram also highlights the significance of exploring options for new roles, relationships, and actions and planning a course of action accordingly. It further emphasises the acquisition of knowledge.

The initial stage involved a perplexing predicament. The aforementioned predicament embodies the initial among three pivotal motifs of Mezirow's Transformative Learning Theory, namely, experience. Doug encountered an experience that was incongruent with his preconceived meaning structure, leading to a state of disorienting dilemma. Individuals tend to refrain from transformative learning if their experiences can be assimilated into their pre-existing meaning structures. The aforementioned predicaments may be classified as either epochal, occurring suddenly and significantly, akin to Doug's "Ah-ha" or "lights-on" experience, or incremental, characterised by a gradual realisation over time of a disparity between our system of meaning and the surrounding environment. The subsequent two stages hold significant value as integral components of the second theme of the theory, which is critical reflection. Following a disorienting dilemma, which involves a self-examination accompanied by feelings of guilt or shame, as well as a critical assessment of epistemic, sociocultural, or psychic assumptions, Doug underwent a period of discomfort about his epistemology. He subsequently engaged in a review of its validity, considering his recent experience on the walk. Thus, the third stage embodies the third thematic element of the theory, namely, rational discourse. Collaborating with peers to investigate the recently identified incongruity between one's assumptions and the surrounding context. The following academic paraphrase is proposed:

➢ the acknowledgement of the universality of personal dissatisfaction and the transformative process, and the realisation that others have undergone a similar transition.
➢ Investigation of alternative possibilities for novel roles, connections, and behaviours.
➢ Through his interactions with his cohort, Doug was able to examine his sense of not fitting in, and to consider that competition may not always be the optimal strategy for achieving success, while also contemplating other potential roles or approaches.

The process of formulating a strategic plan involves acquiring the requisite knowledge and competencies essential for the successful implementation of the plan. The process of attempting new roles, developing proficiency and self-assurance in novel roles and relationships, and reintegrating into one's life based on personal perspectives is referred to as provision. The various stages of the Technology Learning Team (TLT) process were discernible in Doug's learning trajectory, as he effectively formulated a strategy for executing a course of action by providing support to the less proficient members of the team. The individual in question obtained knowledge and expertise for his strategy by engaging in continuous discussions with his group regarding the respectful identification of the needs of other members. In addition to simply walking with slower group members, he experimented with various approaches to assume these new roles. The individual initiated the provision of assistance with the proper techniques for packing tents and loading backpacks to achieve optimal weight distribution. Over time, the individual developed a sense of self-assurance in his capacity to provide support to others in a courteous manner and incorporate them into his social interactions. The individual in question received reprimands for his tendency to be domineering and interfere with others' autonomy. However, he gradually developed a more equitable approach to interpersonal interactions, striking a balance between his competitive drive and the need to avoid patronising others. This transformation occurred over the course of a hiking expedition and his final year of university studies.

3. LITERATURE REVIEW

The term "online learning" encompasses all methods of accessing educational opportunities through digital means, without the need for in-person interaction with instructors. This mode of education is also referred to as "distance learning" and has been discussed in various academic sources, such as Adarkwah (2020), Dube (2020), Pete and Soko (2020), and UNESCO (2020). The realm of online education can be classified into three distinct classifications: hybrid or blended learning, fully online learning, and traditional face-to-face learning. The differentiation between fully online learning activities and hybrid or blended learning lies in the fact that the former pertains to learning activities that are solely accessible through the Internet, whereas the latter entails a fusion of conventional in-person classroom sessions and online learning activities that are enabled by learning technologies (Kubuku, Ochieng & Wausi, 2020). The effectiveness of online education is attributed to its capacity to offer learners convenient and unrestricted entry to educational materials, regardless of their location. According to Mhlanga and Moloi (2020) and Motala and Menon (2020), the implementation of this approach in universities is not only cost-effective but also enhances the provision of high-quality education to students.

The adoption of online learning by numerous universities in developed countries such as Canada, the United States, the United Kingdom, Australia, and others has been motivated by significant factors such as reducing the escalating cost of the education system and enhancing accessibility to learning for students without geographical or other constraints (Dube, 2020). The implementation of online learning has been identified as a viable strategy for mitigating the escalating expenses associated with providing educational opportunities to a geographically diverse student population, in contrast to conventional in-person classroom instruction (Pete & Soko, 2020;

UNESCO, 2020; World Bank, 2020). Moreover, the utilisation of online education enables educational institutions with constrained physical classroom capacities to extend their educational outreach beyond geographical boundaries. According to Robinson and Rusznyak (2020), the objectives of online learning are to offer learners unbounded and unrestrained entry to education within their preferred environments. Scholarly sources indicate that online learning has been shown to improve students' critical thinking abilities and promote self-reflection on discourse, which differs from traditional face-to-face learning methods. This is because online learning necessitates the development of diverse pedagogies (Owusu-Fordjour, Koomson & Hanson, 2020; UNESCO, 2020; Zimba, Khosa, & Pillay, 2021). According to Dube (2020), the utilisation of online teaching enables the transformation of conventional teaching roles into an online setting, wherein educators establish roles that facilitate efficacious and purposeful learning encounters. The aforementioned roles serve the purpose of facilitating interactivity in online learning environments between educators and learners through diverse methodologies (Cristobal-Fransi, Monegut-Salla, Ferre-Rosella & Daries, 2020).

The responsibilities of instructors in the delivery of online teaching and learning encompass technical, social, managerial, and pedagogical roles, as outlined by Adarkwah (2020). Specifically, teachers play a crucial role in facilitating the learning process in this context. According to Mhlanga and Moloi (2020), educators employ online discussions to foster learning experiences, promote teamwork, organise discussion designs, and provide technological environments for their students. The widespread integration of educational technologies in the academic sphere has resulted in a notable transformation of the pedagogical duties of educators, particularly considering the COVID-19 outbreak, as online learning has become increasingly prevalent. According to UNESCO's (2020) classification, the responsibilities of teachers in the context of online teaching and learning can be divided into three main categories: the creation and arrangement of instructional materials, the facilitation of learning discussions, and the provision of instructional guidance. According to Zimba et al (2021: 5), the demonstration of teachers' pedagogical abilities is evident in their capacity to plan, guide, and directly teach cognitive and social processes that lead to the achievement of personally significant and educationally valuable learning outcomes.

According to Hedding et al. (2020), the pedagogical skills possessed by teachers are commonly referred to as their teaching presence. These skills have a notable impact on students' perceptions or understanding of satisfaction, learning, and sense of community. The concept of teaching presence pertains to the ability of educators to establish communities of inquiry that foster both social and cognitive presence among students. This involves facilitating active participation in online learning by tasking students with responsibilities. According to Ilonga, Ashipala, and Tomas (2020), the pedagogical duties of teachers are of utmost importance in online learning settings, encompassing cognitive, affective, and managerial aspects. The cognitive roles of educators facilitate their ability to engage in learning activities with their students and demonstrate a comprehensive understanding of cognitive processes such as information retention, critical thinking, and mental operations. The individual's affective function empowers them to create a range of instruments that facilitate students' expression of varied emotions and the cultivation of diverse interpersonal connections, both within themselves and between students and educators. Ultimately, the managerial function establishes and furnishes educators with a diverse array of resources to oversee their pupils and ensure requisite levels of attentiveness.

The provision of online learning to students necessitates that teachers adopt various situational roles, including those of a researcher, content facilitator, process facilitator, advisor/counsellor, designer, technologist, assessor, manager, and administrator. Educators possess the ability to modify these functions in varying circumstances throughout the virtual academic experience of their pupils. According to Dube (2020), the COVID-19 pandemic prompted numerous developing nations, including South Africa, to extensively adopt online learning.

4. METHODOLOGY

The present research, which is interpretivist in nature, utilised a qualitative methodology and employed a semi-structured interview technique to elicit data from a sample of 20 participants who were purposefully selected from the rural settlements of Mtubamtuba, KwaNongoma, Manguzi, and Ulundi in the KwaZulu-Natal province. The study involved the selection of participants who were students at a rural university located in the KwaZulu-Natal province of South Africa. According to Creswell (2014), these participants were chosen to share insights into their lived experiences through a semi-structured telephone interview. The study adhered to ethical procedures before, during, and after its implementation. Before the commencement of the study, all participants were provided with a comprehensive overview of the research and were apprised of the voluntary nature of their participation, with the option to withdraw at any point. The participants appropriately filled out informed consent forms.

The interviews were recorded in audio format with the participants' consent, subsequently transcribed, and the transcripts verified by the participants. The transcripts were subjected to coding of comparable ideas or expressions, which led to the identification of themes to present and discuss the findings, as per the methodology proposed by Braun and Clarke (2006). The utilisation of pseudonyms in the dissemination of quotations from study participants is implemented as a measure to ensure the preservation of their anonymity and confidentiality (Kumah, 2014). The study involved a sample of participants from four distinct locations, namely Mtubamtuba (M1 to M5), Manguzi (MA1, MA2, MA3, MA4, MA5), Nongoma (N1 to N5), and Ulundi (UL1, UL2, UL3, UL4, UL5).

5.   FINDINGS AND DISCUSSIONS

Sequel to the interviews with the purposively selected participants from 4 different rural communities in KZN, audio-recorded interviews were analysed thematically, with the systematic generation of themes. These generated themes are presented as follows:

Online learning as a tool during the COVID-19

The COVID-19 pandemic necessitated a shift towards online learning due to the limitations of traditional face-to-face teaching methods employed by educational institutions. Most of the respondents acknowledged the transition towards online learning implemented by the educational system. Participant UL2 conveyed apprehension regarding the utilisation of online learning platforms, despite the fact that it was presented as a favourable solution. The individual stated, "We were apprised that our educational pursuits will henceforth be conducted through online means as a result of the Corona pandemic." The individual expressed apprehension regarding the challenges that may arise in pursuing further academic endeavours.

Participants N1 and N3 expressed concerns regarding his ability to adapt to the implementation of a fully online format.

"Eish! I have concerns regarding the adoption of online learning as a full-time alternative to on-campus education, particularly upon hearing that we may no longer be able to attend classes in person. The individual resides in a rural locality where obtaining a communication network is often challenging. This is indicated by their statement, (N1).

"I stay in a rural area where it is difficult to get network for communication most times" (N3).

Some of the participants expressed their thoughts on the matter, stating that upon hearing the announcement that in-person classes would not resume and online classes would be utilised to complete the academic year, they recognised the inevitability of the situation. Despite potential difficulties faced by those residing in rural areas, the participants acknowledged the lack of control over the decision.

The study's results indicated that students gained knowledge of online learning as a viable substitute for traditional in-person teaching and learning. The utilisation of online platforms for providing comprehensive learning experiences has emerged as a crucial measure for rescuing the global education system (Cristobal-Fransi, Montegut-Salla, Ferre-Rosella & Daries, 2020; Owusu-Fordjour, Koomson & Hanson, 2020; UNESCO, 2020; World Bank, 2020). According to Dube's (2020) research, online learning is not a novel concept for certain South African students who have experienced blended learning. However, due to the pandemic, it has become the new standard without equal access for all students. According to Zimba, Khosa, and Pillay (2021), the implementation of online learning has been utilised as a measure to mitigate the transmission of Covid-19, while also serving as a means to facilitate the ongoing process of education through its transformative potential (Mezirow, 1994). Online learning can provide students with the opportunity to engage in educational experiences from the convenience of their residences, thereby offering a range of benefits. Kubuku, Ochieng, and Wausi (2020) conducted a longitudinal study in Kenya, which found that while online learning offers the advantage of providing flexible learning experiences to students in various locations, students residing in rural communities are often unable to benefit fully. According to Mezirow (1994), the process of transformation is often accompanied by a range of changes that can have both positive and negative implications for society. The uneven and significant impact of transformation suggests that changes may not be universally embraced.

Inadequate provision of network services in rural regions

Most of the participants highlighted poor networks as one of the main challenges to their access to online teaching and learning during the pandemic. The pandemic has created an unusual normal lifestyle that people have adapted to. One of which is the full use of online teaching and learning for students during the COVID-19 period. However, rural students are disadvantaged by the poor network that does not allow students from rural communities to benefit from learning experiences compared to students in urban communities. One of the study's participants, identified as MA3, attributed the digital divide to inadequate network infrastructure, stating that the

rural location of their university and the diverse rural backgrounds of the student population in KwaZulu-Natal contribute to this issue.

"Adoption of online teaching and learning as a full approach is challenging to us. We have missed so many assessments which are online because we have a poor network from the network service providers" (MA3).

Another participant had this to say:

"As a student in the deepest rural community of Kwa-Nongoma, I am really worried about my education now, because I know the network is very bad here. Occasionally, there are instances where I am unable to receive phone calls for extended periods, ranging from several hours to an entire day. Now, the same network affects data for internet browsing. I have been struggling with that!" (N1).

Students especially from various deep rural areas experience a problem with a service network in accessing learning materials online. Similarly, M5 added:

"Eish! We are facing a serious challenge, as much as we want to participate in all activities, we are sometimes left behind due to our inability to access this thing of online learning. I stay at the outskirt of Mtuba, where networks are bad in our location".

According to M5, only students residing in urban areas have access to reliable communication infrastructures.

While another participant further emphasised that online learning has been utilised in conjunction with traditional face-to-face instruction and is not a novel concept.

"At the university, we are provided with computer labs with good internet. The institution offers wireless internet connectivity that can be accessed at any given time for mobile devices such as smartphones and laptops. Currently, there is a challenge being faced with regards to inadequate network connectivity in rural areas" (N3).

The Internet is critical to online learning, and it provides access to online learning activities. According to the World Bank (2020), adequate access to high-quality networks in educational technologies can significantly enhance students' learning outcomes through online learning activities. This statement suggests that consistent engagement with online educational activities is necessary for students to attain proficiency and expertise. The inability of rural students to have equal access to education is a deprivation of their right to education (Adarkwah, 2020). According to Mhlanga and Moloi (2020), students residing in several rural communities are deprived of consistent access to online learning opportunities. According to Du Preez and Le Grange (2020), the utilisation of online learning in response to the COVID-19 pandemic has resulted in a digital divide that disproportionately affects students residing in rural areas. These students are hindered by a range of network-related challenges, which ultimately undermine the promotion of social justice in education. The aforementioned statement suggests that ensuring equitable access to education for all students in both rural and urban areas poses a significant challenge to social justice, as students residing in rural areas face numerous obstacles in accessing online learning. According to Mezirow's (1994) assertions, transformation theory advocates for the complete inclusion of all parties involved in the process of education transformation, as their participation can either facilitate or impede the transformation. According to Motala and Menon (2020), the scarcity of technological resources in rural regions poses significant challenges to the implementation and acceptance of educational technologies, particularly in the context of the COVID-19 outbreak in South Africa. According to Kubuku, Ochieng, and Wausi (2020), several rural regions lack the necessary technological infrastructures to establish a reliable internet network.

Lack of personal laptops for remote education

Findings indicated students' lack of learning technologies (personal laptops, smartphones), that can be used for online learning activities. Participant N2 expressed several difficulties, stating that despite their willingness to engage in online learning, they face financial constraints that prevent them from acquiring the necessary technology such as laptops or smartphones to access the online learning platform.

"We are from poor homes that cannot afford to buy these things. And the university has not provided us with laptops. We seriously do not know what will become of this academic year because of this COVID-19" (N2).

Participant UL1 added:

"It is the lack of laptops that is limiting us from online learning. Our phones cannot do much work like that of laptops, in the university we use computers in the computer labs to assist ourselves but now, we cannot even access the university. What are the methods for accessing education? The first-year students are greatly affected because we have never owned laptops before, we were expected to be supplied in the university before the pandemic. So, many of us are cut off from online learning now" (UL1).

The challenges of the first-year rural student were also explained further:

"Before I got an offer to the university, I was told that the university will provide us with laptops as first-year students. But this never happened before the COVID-19 pandemic lockdown. And now, online learning is the news, how do we feature in these now? I cannot afford to buy a laptop and even my phone is a small phone that cannot access too much from the internet" (MA5).

The lockdown has presented a challenging learning environment for students hailing from rural regions of South Africa. The Fourth Industrial Revolution improves the delivery of curriculum within the education system by enabling equitable access to online learning opportunities for all students, regardless of their location or available resources (World Bank, 2020). According to Robinson and Rusznyak (2020), it is imperative to ensure that all students have access to consistent learning opportunities, regardless of their geographic locations. Dube (2020) argues that a significant proportion of students residing in diverse rural areas of South Africa face relative disadvantages in terms of accessing online learning opportunities owing to inadequate resources. Ilonga, Ashipala, and Tomas (2020) contend that there is a significant digital divide among students based on various factors such as socioeconomic status, geographic location, academic performance, and level of parental education. The shift from traditional face-to-face instructional methods to a completely online mode of instruction has had a significant impact on the education sector worldwide, as noted by Mezirow (1994). The utilisation of diverse learning technologies is a prevalent practice among students, as it enables them to acquire comprehensive knowledge, skills, and concepts that facilitate a transformative learning experience.

Insufficient or deficient computer proficiency among rural students

Most respondents indicated that a significant proportion of rural students face challenges in accessing online learning resources due to their inadequate proficiency in the requisite technological competencies. Participant UL3 acknowledged the presence of various learning applications in the realm of online education. However, they expressed their inability to access or delve into these online learning applications.

"As a novice in the academic setting, I lack proficiency in computer usage. The educational institution situated in a rural area lacked the aforementioned resource for its students. I started learning computers when I started university, we had not even spent two weeks when the lockdown started" (UL3).

According to UL3, the utilisation of a computer for online learning is ineffective. An additional participant expressed the following sentiment:

"During my secondary education, there was a lack of computer education." Therefore, we are unable to operate computers. I was relying on the university to train us for online learning" (MA2).

The current situation of online learning, according to Participant MA2, has left individuals feeling powerless. One of the participants also emphasised the importance of computer literacy to fully utilise the module's online learning materials. Therefore, our abilities as students from rural areas are not capable of being improved. According to M1, online learning innovations were not adequately addressed during high school education in rural areas.

According to the World Bank (2020), to accommodate participants who may lack computer skills in the context of online learning, it is suggested that a blended learning approach be adopted. This approach, which combines traditional face-to-face instruction with online learning, is considered to be particularly effective during times of pandemic, such as the current COVID-19 era. Accessing and accepting online instructional approaches and tools may pose a challenge for students from developing countries, particularly those residing in rural areas with limited computer knowledge or skills (World Bank, 2020). According to Zimba et al (2021), it appears that a significant number of rural students have been adversely affected by the COVID-19 pandemic. This is due to the numerous obstacles they encounter, which impede their ability to participate in online educational activities. According to the World Bank (2020), a significant number of high schools do not possess adequate computer facilities to equip students with the necessary skills for various online learning endeavours. According to Ajani and Gamede (2020), consistent training is imperative for the education system to augment the proficiency and expertise of individuals involved in education, particularly in the implementation of educational technologies. According to Mezirow's (1994) proposition, the incorporation of computer or information and communication technology (ICT) in the educational process is a transformative practice that alters the delivery of curriculum and provides students with exposure to global perspectives. The process of integration also facilitates the development of critical thinking abilities, which empowers students to create significant educational opportunities by considering a variety of perspectives. Adarkwah (2020) asserts that technical knowledge proficiency is a critical factor in enhancing students' computer skills. The deficiency of essential computer skills among rural students can be attributed to inadequate computer education during their high school years, as suggested by Motala and Menon (2020). Du Preez and Le Grange (2020) argue that the absence of computer resources in rural high schools is a manifestation of social injustice, which results in a disparity in computer literacy between rural and urban learners. While urban students have access to learning technologies and computer skills, their rural counterparts are deprived of such opportunities.

High cost of data bundles

The participants indicated the cost of data subscriptions is expensive and was a significant obstacle among rural students, even when they own smartphones or laptops that can be utilised for online learning activities. The participant identified as UL5 reported possessing a smartphone that is utilised to engage with social media platforms such as WhatsApp and other similar applications. Notwithstanding the suboptimal network

connectivity, my data allocation depletes rapidly, and the associated costs are exorbitant. According to UL5, an increase in time allocation may be necessary for the implementation of active online learning activities.

An additional participant also reported:

The cost of data bundle subscriptions is prohibitively high for individuals seeking to consistently engage in online learning activities. A subset of our familial network, who possess the capacity to provide us with assistance, have experienced unemployment because of the COVID-19 pandemic-induced confinement measures. Currently, we lack the necessary resources. Some of us do not have financial aid such as NSFAS or other forms of bursaries to facilitate our pursuit of education (N6).

Another respondent expressed that they reside with their indigent grandmother who is dependent on a grant.

"The grant provided is insufficient to adequately meet our needs. It would be inappropriate for me to request financial assistance from the indigent woman to procure costly data, which I require periodically" (M1).

According to M1, their ability to participate in online learning did not meet their initial expectations. The results obtained from the participants indicated that certain students residing in rural areas have refrained from participating in online learning activities owing to the exorbitant expenses associated with data subscriptions. The exorbitant expenses associated with data usage pose a hindrance to equitable educational opportunities for students residing in rural areas. According to Dube (2020), the socioeconomic standing of parents can either facilitate or impede students' ability to obtain a high-quality education. This suggests that students hailing from working-class households can obtain essential educational materials and resources, whereas those from unemployed households are only able to acquire a limited amount of such materials with the aid of educational grants.

The results obtained from the study indicate that rural students have been marginalised from engaging in various online learning activities owing to their financial incapacity to bear the exorbitant expenses associated with internet subscriptions. This aligns with the findings of Zimba et al (2021), which suggest that while ICT has brought about significant improvements in the education sector, it has also led to a significant digital divide among students from varying socio-economic backgrounds in many developing nations. According to Adarkwah (2020), the exorbitant expenses associated with internet data usage serve as a hindrance to achieving equitable access to education in African nations that are advocating for blended learning. According to UNESCO (2020), it is recommended to allocate adequate resources to facilitate online learning for all students amidst the COVID-19 outbreak. This aligns with the stance of the World Bank (2020) that the government and Non-Governmental Organisations should provide subsidies for learning resources to ensure that rural students in developing nations are not excluded from online learning opportunities during the pandemic. According to Mhlanga and Moloi (2020), the absence of essential resources and support from the government or stakeholders may result in a dearth of consistent and sufficient learning opportunities for numerous rural students. This statement suggests that the desired changes may not manifest in rural students unless there is equitable treatment across higher education establishments in South Africa. According to Dube (2020), online education has resulted in the structural exclusion of certain rural students in schools. Ilonga, Ashipala, and Tomas (2020) assert that the exorbitant expense of data subscriptions is a cause for concern among rural students. According to Robinson and Rusznyak's (2020) findings, a significant proportion of students residing in rural areas come from poor backgrounds, which constrains their ability to access the internet consistently unless they receive assistance. Owusu et al (2020) conducted a study in Ghana that indicated that the ability of rural-based students to access online learning during the pandemic era was hindered by the exorbitant cost of internet subscriptions. Dube (2020) provides a rationale for the economic challenges faced by rural families as a result of job losses caused by the COVID-19 pandemic. These challenges have made it challenging for parents or guardians to afford costly data regularly. In contrast, Kubuku and colleagues (2020) assert that the elevated expenses associated with data subscriptions have hindered the ability of rural students to engage in online learning.

6. RECOMMENDATIONS

The provision of sufficient access to online learning is of utmost importance for the delivery of curriculum amidst the COVID-19 pandemic, to sustain and facilitate teaching and learning despite the limitations imposed by social distancing measures. Consequently, the investigation proposes the subsequent course of action:

Universities should make efforts to assist students from rural areas by providing them with personal laptops and monthly data subscriptions. The establishment of partnerships with multinational corporations, non-governmental organisations, and other relevant stakeholders, either through lease or credit facilities, can facilitate the realisation of these objectives. Additionally, it is recommended that internet service providers should be incentivized, to offer internet bundle packages for rural students at reduced rates as part of their Community Social Responsibilities (CSR).

It is suggested that non-governmental organisations, religious institutions, corporations, and relevant governmental entities could be incentivized to provide financial support or donations for personal laptops and

data subscriptions for students residing in rural areas. The Department of Basic Education can offer ICT training to rural students through local high schools in rural communities, in partnership with ICT companies, albeit on a limited scale. Companies can furnish educational materials that may serve as a form of initial training, commonly referred to as "boot training," for students residing in rural areas. The training programme is designed to augment the aptitude of rural students in accessing and utilising online educational resources. The training programme aims to enable rural students to optimise their utilisation of various mobile devices such as smartphones, tablets, and conventional phones to access online educational resources.

It is recommended that community libraries equipped with internet cafés be established in all communities as a means of promoting access to online resources for students who may not have the financial means to utilise public internet cafés. It is recommended that cafés be permitted to extend their operating hours during the lockdown period, provided that they comply rigorously with all COVID-19 health regulations. The implementation of these measures will facilitate the promotion of social justice within the education system. Therefore, mitigating the disparity in access to digital resources between urban and rural students amidst the pandemic era. On the other hand, it is imperative to guarantee that students residing in rural areas are not marginalised from the provision of online education, thereby fostering a sense of inclusivity.

7.   CONCLUSIONS

Upon reflection of the varied results, the research has determined that the implementation of online learning as a means of delivering curricula in response to the COVID-19 pandemic, which prohibits large gatherings for any purpose, has presented numerous obstacles for students residing in rural areas. This phenomenon has been identified as the 'new normal' in higher education. Rural students are experiencing exclusion from effective participation in online learning activities, indicating a digital divide between them and their urban counterparts. This divide can be viewed as a lack of social justice in education. The inability to afford data subscriptions and lack of personal laptops pose significant challenges to the realisation of their right to education. The individual's assertions regarding the digital divide within the education system can be attributed to their experiences during high school. Specifically, they had no opportunity to engage with computer technology due to a lack of ICT resources in their rural high schools. Consequently, their deficiency in computer literacy and aptitude impedes their ability to engage with remote educational opportunities during the current pandemic climate. The individuals' disadvantaged socio-economic backgrounds have hindered their enthusiasm to acquire computer literacy during their high school years and persist into their university education, due to insufficient and inconsistent access to online learning resources. Hence, universities must extend assistance to rural students to facilitate their access to online education amidst the COVID-19 crisis.

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