



Adapting Education amidst Crisis: The Rise of E-Learning during the COVID-19 Pandemic in Rural KwaZulu-Natal High Schools

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Abstract

Since the inception of COVID-19 pandemic, e-learning has emerged as a global platform for teaching and learning in all spheres of education. This has significantly enhanced digital learning in various schools. However, in South Africa, e-learning inequalities persist and affect various rural schools because little attention is given to rural based schools. This study investigates the challenges faced by rural schools in iLembe district in Mandeni circuit in embracing e-learning. This article uses a qualitative approach, with a case study serving as the primary research design. Using the ADDIE Model as a framework, the research analyses barriers such as resource limitations, inadequate infrastructure, and a lack of digital skills among educators, which severely hindered e-learning implementation. Findings reveal that since the COVID-19 pandemic, many rural schools in South Africa could not continue with their traditional learning. The findings highlighted that the learners and teachers in these under-resourced schools in iLembe district in Mandeni circuit struggled to adapt to online platforms, citing issues such as connectivity problems, inadequate e-learning tools, and insufficient ICT skills. Moreover, socio-economic disparities compounded these challenges, with many students lacking personal devices and internet access at home. This article concludes by confirming that for e-learning to be successful, teachers should have included some cooperative learning techniques. These included allowing students to have small group discussions during lessons and utilising the break-out rooms in teaching software. This study contributes to understanding the unique e-learning challenges in rural contexts and offers actionable strategies for more inclusive digital education solutions.

Keywords

COVID-19, Digital Literacy, E-Learning, Infrastructure, Rural Schools

1. Introduction

Before the inception of the COVID-19 pandemic, there has been ongoing belief that the fourth industrial revolution has become the main driving force in improving education worldwide (Agbehadji, et.al, 2021; Awotunde, et.al, 2023; Ehiane, et.al, 2024; Xulu, 2023; Yende, 2021). This was supported by Yende (2021) who mentions that the fourth industrial revolution (4IR) is a significant new social phenomenon that has the power to change people and communities globally in ways that have never been seen before. The Internet of Things, robotics, artificial intelligence (AI), big data, quantum, and introducing interfaces between physical and cyber systems are some of the elements that make it up (Rashid & Kausik, 2024). Nwosu, et.al (2023) mention that implementing the 4IR in the higher education system will strengthen the networks and bonds among urban and rural institutions in South Africa, leading to social cohesion. Today, education institutions face a world that has been transformed by digital technology (Yende, 2021).

However, Xulu (2023) points out that the outbreak of the coronavirus (COVID-19) pandemic has wreaked severe devastation in all sectors worldwide, including the educational sector. This virus outbreak was originally discovered in Wuhan, China, in December 2019 and quickly spread throughout the world, according to confirmation from the World Health Organisation (WHO) (Aliyyah et al., 2020; Xulu, 2023). Even though COVID-19 spread quickly over the world, it was clear that a high infection rate had a significant negative influence on many Asian countries (Sahu, 2020). Millions of schools around the world were compelled by this virus to adopt new teaching and learning strategies to stop the virus from spreading and protect students, instructors, and other pertinent parties (Lizcanol, et.al, 2020). The greatest way to

guarantee that education is not jeopardised while safety precautions are implemented is to quickly switch to e-learning when schools are closed (Essadi, 2021). This was supported by Yende et.al (2023) who mention the early 2020 new coronavirus pandemic brought about a rapid shift from traditional to online schooling, which caught most rural schools in developing nations in Africa and around the world off guard. This issue also affected rural schools in the KwaZulu-Natal (KZN) province of South Africa. High school SMT and students from under-resourced schools in distant KZN had a significant hurdle during COVID-19: they had to meet all the demands of e-learning to stop the virus's spread (Pillay, 2022; Xulu, 2023).

Many studies have examined the impact of the pandemic on education, particularly in terms of e-learning (Maatuk, et.al, 2022; Pillay, 2022; Xulu, 2023; Yende, et.al, 2023). For instance, Yende and Madolo (2023) speak about the challenges faced by rural schools in implementing e-learning, Olanrewaju, et.al (2021) point out that e-learning is frequently seen as a means of bridging the digital gap between rural and urban areas in order to improve educational credentials, ensure lifelong learning, share knowledge, and help address social and economic issues as well as poverty. Research has highlighted e-learning's advantages, such as flexibility and accessibility, along with its challenges, including the digital divide and decreased student engagement (e.g., Aliyyah et al., 2020; Sahu, 2020).

While existing research extensively covers the transition to online learning, gaps remain in understanding the long-term impacts of e-learning on educational quality, student engagement, and teacher-student interactions. Additionally, studies often overlook the experiences of students and educators in underserved communities, who may lack the resources to benefit fully from e-learning. This article aims to address the gaps identified, focusing on the pandemic's role in accelerating the integration of e-learning and its implications for future educational practices. By examining how educators and students adapted to these challenges, this article seeks to provide insights into enhancing e-learning's effectiveness and accessibility for all learners.

2. Literature Review

2.1 Traditional vs E-Learning Method

Several scholars have agreed that there are advantages and disadvantages of traditional and e-learning methods (Xulu, 2023; Yende, 2021). For instance, some studies compare the two approaches, carefully analysing their respective pros and cons, while others investigate which method proves more effective and is better received by students (Agbehadji, et.al, 2021; Awotunde, et.al, 2023; Ehiane, et.al, 2024). E-learning provides the opportunity to gain experience and information electronically, such as but not limited to online courses, online discussion forums, and video conferencing since it uses electronic devices (Bognar, 2016). E-learning is more learner-centred, flexible and amplifies the comprehensiveness of learning through various techniques (Olanrewaju, et.al, 2021). E-learning provides learners of all ages with unmatched flexibility and convenience in the fast-paced world of today. With eLearning, you may study whenever and wherever you want. The location flexibility of eLearning is one of its main benefits (Kumari, et.al, 2021). Anywhere in the world, you can access educational resources with just an internet connection. Studying can be done while travelling or in the comfort of your own home.

While traditional classroom instruction allows students to interact with teachers and peers in person, online learning gives them more freedom and convenience. Ultimately, the decision between the two boils down to personal needs and tastes. Yet, in the current digital era, combining aspects of both approaches can produce a comprehensive educational program that serves students of all backgrounds. The secret to success and personal development is constant learning, regardless of the approach you take (Mncube, Olawale & Hendricks, 2019).

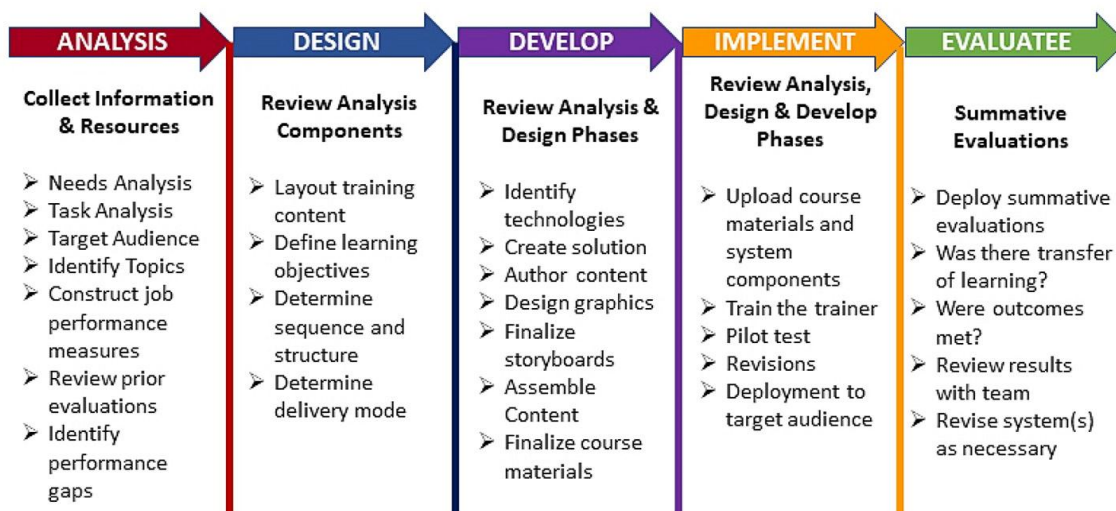
2.1 Significance of E-Learning during COVID -19

According to earlier studies by Yende et.al (2023) and Xulu (2023), COVID-19 has put a great deal of strain on the department of education because it forced many schools worldwide to quickly implement e-learning and take preventative measures to protect their students, teachers, and all school governing bodies. During the COVID-19 pandemic, the main goal of e-learning was to basically guarantee that social distancing was successful (Aliyyah et al., 2020). Consequently, the closure of schools did not halt teaching and learning but rather transformed it by replacing face-to-face instruction with an e-learning system. Students were no longer able to engage in traditional in-person learning while attending school but were still able to continue their studies through online platforms (Zarei & Mohammadi, 2022). This transition aimed not only to preserve educational continuity but also to enhance learning outcomes during a time of unprecedented disruption.

3. Theoretical Framework: The ADDIE Model

In this article, the ADDIE model was used as a fundamental theory. The ADDIE instructional design is frequently used to create training materials and create courses. The U.S. Army's Centre for Educational Technology at Florida State University developed the idea in 1975. The U.S. Armed Forces modified the ADDIE training paradigm shortly after it was adopted (Branson et al., 1975). Adeoye, et.al (2024) and Sial, et.al (2024) assert that ADDIE is a top learning development model for instructional design, which encompasses the entire process of creating, refining, and delivering educational materials. Organisations frequently utilise the concept to create training and learning and development initiatives. According to Culatta and Kearsley (2018), the ADDIE model is currently a widely accepted, structured, and

methodical strategy for creating dynamic, adaptable, and successful training. The framework is divided into five stages: analysing information to determine learning objectives and the needs of students and the organisation; designing media, instructional strategies, and assessments based on the analysis phase; creating instructional materials based on the design phase; delivering the materials to students; assessing the training or instruction's efficacy; and making revisions for future use. This approach, which is used for performance-based learning, has been described as systemic, cybernetic, interconnected, synergistic, and systematic (Culatta and Kearsley, 2018; Sial, et.al 2024).



Source: Adapted from Branson *et al.* (1975)

In the Analysis phase, educators assess the needs of students and other stakeholders, identifying specific learning objectives and outcomes. Following this, the Design phase involves creating a structured plan for instruction and presentation, ensuring content aligns with the identified goals. The Development phase is focused on producing and refining educational materials based on the design specifications (Culatta and Kearsley, 2018; Sial, et.al 2024). The Implementation phase involves putting the plan into action, conducting the lessons, and facilitating the activities designed for student engagement. Finally, the Evaluation phase assesses the effectiveness of the instructional materials and methods, using feedback to improve future teaching.

The Analysis phase is particularly valuable in rural e-learning settings, as it enables educators to understand the unique challenges and needs of rural students, such as access to technology and resources. In the Design and Development phases, the model provides a blueprint for creating instructional strategies that address these specific needs, focusing on relevant content and engaging methods that enhance learning (Culatta and Kearsley, 2018; Sial, et.al 2024). The Implementation phase then facilitates the effective delivery of these strategies, ensuring that instructional activities are accessible and achievable for students with varying resources. Finally, the Evaluation phase allows for an ongoing review of the materials and methods, fostering improvements based on actual student performance and feedback.

The selection of the ADDIE model is further justified by its emphasis on developing Higher Order Thinking Skills (H.O.T.S), which are critical for students to engage deeply with content in online environments. By following the ADDIE model, educators can design structured, engaging learning experiences that enable rural students to acquire these skills and achieve meaningful learning outcomes, despite the limitations they may face (). This adaptability and focus on continuous improvement make the ADDIE model a fitting theoretical framework for examining e-learning in rural schools.

4. Methodology

This article uses a qualitative approach, with a case study serving as the primary research design. This article's case study sought to give readers a thorough grasp of the attitudes, perceptions, experiences, and difficulties in e-learning that SMT and individual high school students in KwaZulu-Natal, South Africa, faced during COVID-19. According to Bougie and Sekaran (2019), a research design is a plan for gathering, evaluating, and analysing data based on the research questions of a given study.

A non-probability sampling technique was adopted using purposive sampling to choose the participants. For many participants and the researchers, the purposive sampling design was thought to be more practical (Merriam & Tisdell, 2009). High school students in grades 11 and 12 in KwaZulu-Natal region, South Africa, and rural SMT were the study's primary subjects. In terms of expenditures, KZN seemed appropriate and practical for both participants and researchers because the researchers live there. To ensure an appropriate and equitable sample size for a thorough examination and analysis of the study topics, the number of participants from under-resourced and marginalised schools was restricted to 56, which included 10 SMT members, 22 students from grade 11, and 24 from grade 12.

Semi-structured interviews were used to conduct in-depth, one-on-one interviews as part of the case study's data collection process. The researchers were able to talk with the interviewees about their answers because to the semi-structured interviews (Merriam 2009). The researchers used audio recordings throughout the interviews and took notes on a notepad, which were subsequently transcribed and stored securely. The duration of each interview was roughly forty to fifty minutes. To get reliable results, an examination of academic literature—including articles, theses, and other pertinent documents—was also considered essential.

The researchers used a triangulation technique to maintain the case study's data quality. To properly eliminate criticism and dispute regarding bias, singularity, and subjective observatory research, triangulation is crucial for ensuring that the case study data is validated and cross-examined.

Data analysis was done using a thematic method. According to Braun and Clarke (2023), thematic analysis requires six important steps: getting to know the data; creating preliminary codes; looking for themes; evaluating the themes; redefining and identifying the themes; and creating the report. The researchers' discoveries, which turn unprocessed data into new information, were produced with the use of the theme analysis. The researchers were able to obtain accurate results and interpret and present the study findings in specific, well-developed themes thanks to the thematic analysis.

5. Ethical Clearance

The participants in the study were told about the nature and objective of the research and provided letters of consent. The study participants signed an informed consent form after being promised that their confidentiality, privacy, and anonymity would be strictly maintained. Lastly, each participant gave their consent to participate.

5.1 Contextualising the Findings of this Article

In this study, the attitudes, perceptions, difficulties, and experiences of KZN rural high school SMT and students with e-learning during COVID-19 were examined. Studies examining the difficulties students have and their experiences with e-learning in the educational field have multiplied dramatically. However, students attending higher education institutions were the focus of many of these investigations. However, it focusses somewhat on the basic education provided by rural schools. In certain colleges, students found it difficult to do basic tasks including sharing screens for presentations, login into classes, and uploading and submitting their work online, according to most of the e-learning research (Kumar & Bajpai, 2015; Pham & Huynh, 2018). According to the study's findings, a significant contributing factor to students' inability to complete tasks was that most rural high schools had not previously and during COVID-19 successfully implemented e-learning for a variety of reasons, including unfavourable working conditions that were out of their control.

It is important to note that all the high school learners that participated in the study were referred to as "respondents" (R). The five principals were assigned codes P1 through P5, the two deputy principals were assigned codes DP1 and DP2, and the three Heads of Departments (HoDs) were assigned codes H1 through H3.

5.2 Lack of Resources

The research conducted discovered that schools in rural areas have fewer resources and are more impoverished. The findings also showed how difficult it was for educators and students from these targeted schools to successfully use e-learning while under lockdown during COVID-19. For instance, the following response were found:

“Former model C schools were operational; all classes were successfully conducted online while almost all schools in rural areas were completely closed”. This principal continued and said, *“The primary reason was that our schools lack proper resources”* (P1).

When some HoDs were asked to share their opinions on the same issue, one said

Few motivated teachers had to improvise and create WhatsApp groups for their learners where they would send notes and tasks, but it was always a challenge when learners had to submit the work due to lack of internet.

Similar responses were given by other students, who said that it was extremely difficult to be a student in a South African school with few resources during COVID-19. They lost a lot of time for instruction and learning and had trouble reaching deadlines for submissions:

“It is very true that it was always chaotic during submission dates. I remember one day I had to submit, and I could not because my mother had gone to town with her cellphone”. (R7)

Furthermore, learners further mentioned that:

“It was extremely hard to keep up with the schedule and not easy to meet submissions deadlines”. (R25) *“I am glad now that things have slightly changed, we are now allowed to bring our cellphones at school to search for schoolwork related information since our school doesn't provide us with laptops and internet”*. (R4)

On the other hand, another participant from the same school had a different opinion of the school's mobile policy from the one mentioned above:

“Some students do not use their cellphones for schoolwork, they use them for their personal purposes. I see this as a distraction that will cause more harm than good in our school's performance”. (R31)

When teachers attempted to narrow the educational gap with the limited resources at their disposal, poverty resulting from the high unemployment rate in rural areas was a major factor in the failure of e-learning. Lumadi (2020) backed this position by pointing out that the main issues in society are connected to the disparity in the curriculum. Developing strategies to reduce these disparities is crucial. This is interesting since students need high-quality education, which is essential for a secure future. In a big way, equality in the curriculum will ensure that everyone has a better place in society. During South Africa's apartheid era, white people possessed almost all political authority, while other "races" were virtually shut out of the political sphere (Lumadi, 2020). Learners and members of the School Management Team are singing the same hymn. They were all in agreement about the problem of poverty and online education (Xulu, 2023).

5.3 Poor Infrastructure and Facilities

Many participants concurred that the quick adoption of the e-learning process has been hampered by inadequate equipment, connectivity, and rural secondary education in South Africa. Another issue was found to be the high expense of ICT infrastructure. For an example, P1 said that:

“Classrooms are in a very poor and unacceptable physical state; our classes do not have ceilings; some classes have leaking roofs when it is raining, and floors have holes. We get lots of learners sick reporting in winter because they catch cold at school. Therefore, it is always a challenge for us to strive for excellence academically as the school”.

P4 reported that:

“My office is very tiny; the deputy principal does not have an office. All Heads of Departments use one classroom as their office because we do not have decent administration blocks for SMT members”.

R44 stated that:

“We have tons of neglected basic needs that make a proper school. We do not have a security guard in our school. Therefore, even if all gadgets that support e-learning were to be provided still they would stand a 99% chance of being either stolen or vandalized. We firmly believe that KwaZulu-Natal minister of education, Mr. Kwazi Mshengu should start with the basics before addressing the issues of e-learning challenges”.

H1 said that:

“Three years back, just prior the COVID -19 outbreak we had a case where a pregnant grade 12 female student nearly lost the life of her baby when giving birth in the toilet. Yes, we cannot dispute the fact, but we cannot pretend as if that was the only problem we had to deal with. We have serious and bigger problems that have not been addressed despite the countless memorandums we have written to the Department of Education and to our unions as well as grievances sent to our different Circuit Managers”.

DP 2 mentioned that:

“I admit and take full responsibility for poor e-learning implementation in my school. However, we could not have done things otherwise. A few years back, the DoE in collaboration with Cell C donated many tables and computers for our learners but some intruders broke into our school and stole all of them because we lack proper security”. (DP2)

Participants emphasised that before discussing more complex topics like e-learning, all the Department of Education stakeholders in the province should address the issue of inadequate facilities and infrastructure in rural area schools. This was supported by Duma et.al (2021) who agreed that concern over the poor facilities in South African schools, which create dangerous conditions for educators, is growing, and the government must act quickly to remedy these problems. Proper implementations of e-learning in remote school locations may be a pipe dream if the security problem in these areas is not resolved. In KwaZulu-Natal, poor sanitation is still a dangerous problem in isolated school areas because most schools lack adequate restrooms. Some of their hole toilets are so old that they don't even have doors (Xulu, 2023).

5.4 Lack of Technology-Skilled Teachers

All the participants agreed that technology is essential for education, especially in rural schools of South Africa. However, participants concurred that there is a lack of digital literacy on the side of teachers which affects also the e-learning in rural schools. Only urban schools are witnessing the effectiveness of technology. This was supported by DP1 who mentioned that:

“2 years back, our school was donated with 30 tablets, it turned out that those gadgets had to be kept at the principal's office for a long time because we did not have teachers who showed interest in using them” (H2). School leaders believe that their teachers should have some ICT trainings. “In my department, I did nominate one teacher to try and assist others, but that was never a success because of the negative attitude teachers have towards technology and change. We call upon the department officials to organize workshops to train our teachers”.

R28 reported that:

“Our e-learning was a mess and a nightmare because most of our teachers did not know what they were doing especially the old ones. We had a horrible experience and my attitude towards it drastically changed from positive to negative”.

It is interesting to note that the majority of participants argued that because of the platforms used to provide the content, online learning was not delivered fairly. One participant thinks that without an appropriate Learning Management System (SMT) and all other e-learning-supporting technologies, e-learning is likely to fail. Reaching the desired learning outcomes of a course and boosting students' interest in online learning are the two main goals of utilising learning management systems (Panyajamorn et al., 2018; Xulu, 2023).

Furthermore, R21 said:

“We had a very bad experience with e-learning. Whatever teachers and School Management Team members did was poorly executed”.

R32 who is one former model C student said that:

“In my previous school things were different. Here we do not have Learning Management Systems in place, no live teaching software was used. The only thing they “tried” to use as WhatsApp. They could not do screen sharing; they could not monitor us during group discussions. Everything was just a disaster”.

R41 revealed that:

“If you are not on top of your game you will constantly be demotivated. That is why our teachers kept complain about our behavior and attitude. We learn this from them, when teaching us, they always skip parts they do not know, when exams come, we fail”.

Some participants offered a very different viewpoint on the same problem of the lack of technology-skilled teachers in rural schools, where the majority of participants emphasised the difficulties of being unsure of what to do, how to do it, when to do it, and trying to figure things out on their own, among other things. They reported that:

“My case was totally different; I had all personal gadgets that support e-learning and a very stable internet connection. Our rural teachers do not only lack the necessary ICT skills, but they also lack understanding of dealing with students with special needs. As a visual learner, I found it hard to comprehend the content posted in our different class groups since it was only documents and written text” (R09).

The aforementioned statement was also echoed by another participant who has exceptional educational needs. The term "Special Education Needs" describes students who struggle academically compared to their peers. For these students to understand and produce their coursework, they always need more assistance.

6. Discussions

The article sought to discuss and bring awareness about the challenges experienced by rural based high schools in KwaZulu-Natal in implementation e-learning. This article argues that South African rural schools continue to battle with electricity and communications, sufficient funding which affects the schools' infrastructure, shortages of teachers with digital literacy skills. The article highlighted that since the COVID-19 pandemic, many rural schools in South Africa could not continue with their traditional learning. The findings of this study are consistent with Xulu (2023) who mentioned that When South Africa's Covid-19 hard lockdown started at the end of March 2020, the country's education system was forced to halt all in-person instruction and come up with new ways to teach the country's 1.8 million tertiary students and more than 13 million schoolchildren. Yende, et.al ((2023) attest that the Department of Education confronted the nearly insurmountable challenge of carrying on with the academic year at the advent of this pandemic. In addition to pointing out that urban public-school students and private university students fared marginally better because they received textbooks and worksheets from radio or television broadcasts, while rural schools did not, they claim that the majority of private schools and universities immediately shifted their teaching and learning to the internet with little disruption.

The study findings highlight range of challenges faced by rural high schools in KwaZulu-Natal (KZN) with the adoption of e-learning during COVID-19, illuminating critical gaps that future research could address to bridge inequities in digital education. While much of the e-learning literature focuses on higher education, there is a notable gap in examining e-learning experiences within basic education, particularly in under-resourced rural schools (Maatuk, et.al, 2022; Pillay, 2022; Xulu, 2023; Yende, et.al, 2023). Unlike tertiary institutions, rural high schools face unique challenges that hinder the implementation of digital learning, such as inadequate infrastructure, limited resources, and a lack of skilled teachers. This finding is in line with the findings by Nhongo and Tshotsho (2021) who many KZN rural schools lack essential resources, which made online learning nearly impossible during the pandemic. Participants consistently emphasized poor physical conditions in classrooms, such as damaged ceilings, lack of sanitation, and inadequate security measures, which compounded the challenges of e-learning. Addressing the infrastructure gap in these settings is essential for any meaningful discussion on e-learning adoption also confirmed by (Xulu, 2023).

Therefore, in the Analysis phase, it identifies a lack of infrastructure and digital resources, intensified by COVID-19 (Xulu, 2023). During Design, it suggests a blended learning model, utilizing affordable, low-tech tools like WhatsApp while progressively adopting advanced platforms. The Development phase emphasizes training educators in ICT and creating accessible content for mobile platforms. Implementation calls for incremental e-learning integration, supported by teacher workshops and partnerships with NGOs. Finally, Evaluation recommends ongoing assessments of engagement, satisfaction, and learning outcomes to adapt and improve e-learning strategies effectively. This model provides a roadmap for sustainable digital education in low-resource settings.

The study reveals a severe deficit in digital literacy among rural teachers, particularly older educators who lack training in digital tools. This skill gap creates an additional barrier to successful e-learning implementation. It was also found that poverty in rural areas profoundly affects students' ability to access e-learning, from lacking devices to inconsistent internet access. This finding corroborates the results of Xulu (2023) who establishes that some learners had to rely on mobile phones shared within their families, creating disruptions in their learning. The findings of this article also highlighted issues related to students with special educational needs who found it challenging to engage with digital content that did not cater to their learning styles (e.g., visual learning) (Duma, et.al, 2021; Nhongo & Tshotsho, 2021).

7. Recommendations

Based on the abovementioned discussions and findings, this article recommends that government should create and implement e-learning pedagogically rich resources in order to facilitate the easy integration of instructional methodologies in an e-learning environment. Government should provide additional resources and tools for SEN students to ensure inclusive e-learning. Also, it is recommended that that teachers should be trained in understanding and adapting to diverse learning needs.

8. Conclusions

This study underscores the challenges that rural high schools in KwaZulu-Natal faced in implementing e-learning during the COVID-19 pandemic. The study found that class divide between rural and urban schools regarding general education development and resource supply priority was one of the challenges faced by SMT members and students in rural schools when implementing e-learning. Other difficulties they faced included a lack of focus on the buildings and infrastructure of rural schools, a shortage of ICT-trained teachers, and a disarray of priorities for funding distribution. Regretfully, they had no influence over any of these difficulties.

Furthermore, the study found that learners in rural schools face additional difficulties due to the subpar instruction they receive. All students, regardless of their background, skin colour, or school location, must have access to the high-quality education they are entitled to, according to the South African government's pledge of students' right to a good education. While e-learning expanded rapidly across educational sector, rural schools lagged due to limited resources, inadequate infrastructure, and a lack of technology-skilled educators. These constraints led to significant disparities, highlighting the digital divide between urban and rural schools and underscoring the urgent need for targeted interventions to bridge this gap. Addressing these challenges is crucial for achieving equitable education across South Africa. Through better resource allocation, infrastructure improvements, and digital literacy training for teachers, rural schools can be empowered to successfully integrate e-learning and provide quality education for all students, ultimately supporting a more inclusive and resilient education system. This article concludes by confirming that for e-learning to be successful, teachers should have included some cooperative learning techniques. These included allowing students to have small group discussions during lessons and utilising the break-out rooms in teaching software. Students may have learnt from their classmates through carefully planned and well-structured online activities, which would have greatly aided in the sharing of ideas and knowledge.

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