RESEARCH ARTICLE

Digital Inequalities in Rural Schools in South Africa

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Abstract:

It has been argued that advancements in digitalisation and enhancement of digital development could be beneficial for rural schools. However, digital inequalities persist and affect schools located in rural contexts since little attention has been paid to the specific conditions these schools find themselves in when facing continuous digital developments.

This paper aims at revealing the facts related to the status of the digital inequalities in schools located in rural contexts in South Africa. Data was collected by means of the desktop research, whereby researchers reviewed existing literature pertaining to digital inequalities in schools located in rural areas in South Africa, in Namibia and in some developed countries for cross referencing and triangulation purposes.

After review of data from secondary sources, the study found out that lack of digital literacy on the side of teachers in schools located in rural contexts can lead to accessibility and knowledge differences among learners and furthermore it was found that the Information and Communications Technology (ICT) equipment and digital literacy training in these schools are very much dependent on luck: learners depend on the socioeconomic status of their respective rural schools. Considering the prevailing circumstances, through this paper it is recommended that there is a need for the state to invest in necessary infrastructure namely the ICT sector to provide for the driving of digital transformation and facilitate skills development programmes for teachers to ensure that they have the needed skills to utilise modern technology more effectively.

Introduction

ICT is widespread across all nations and the education sector. The introduction of ICT in education has been identified with various applications, with choices of application ranging from the combination of context of use, the possible technologies to select, and the instructional moment in which it could be used. This is a global phenomenon. According to Voogt (2008: 118), the general use of ICT is expressed through national policies and categorised into the social rationale (preparation of students for their place in society) vocational rationale (giving students appropriate skills for future jobs) and pedagogical rationale (enhancement of teaching and learning and using computers).

For decades rural schools in South Africa have struggled with challenges that stem from their marginalised context such as the lack of classrooms, poor access to services such as water, electricity, and landline telephones (Adukaite, Van Zyl, Er & Cantoni, 2017; Du Plessis and Mestry, 2019). Lately, digital developments present new challenges for schools located in rural areas in South Africa. To enable these schools to face these the challenges, existing rural–urban digital inequalities must be addressed. Schools located in rural areas in South Africa are disadvantaged regarding the internet connectivity at place. In terms of internet usage, Blank et al. (2018) show that demographic variables play a crucial role in rural–urban differences. One such variable is in levels of schooling experienced by rural populations. Since the level of education can have an impact on digital inequalities, the integration of ICT equipment and digital literacy training in rural schools is an important topic. These challenges and possible solutions have been discussed in literature nationally and internationally, yet these studies exclude how schools located in rural areas, especially in South Africa, are affected and deal with digital developments. Since rural areas are often slower in adopting digital literacy developments, a special interest of this study is to take a closer look at schools located in rural areas..

This paper therefore adopts a transdisciplinary approach to provide an overview of the educational landscape and the status of digital developments in schools located in rural contexts in South Africa. For comparability reasons, the study will also include the literature from Namibia and some developed countries for cross referencing and triangulation purposes. This overview has been created through a systematic literature review, based on key themes drawn from the debates on digital developments in relation to rural development. The research question addressed by this systematic literature review is:

What is the nature of digital inequalities within the schools located in rural contexts in South Africa?

By answering this question, it is hoped that the paper will contribute to the future research agenda and will provide recommendations for future policy to contribute towards bridging the spatial digital divide between the urban and the rural schools in South Africa.

Definition of operational concepts

In this paper, the literature review works on things that are characterised by a rich blend of concepts and terms. Some of these terms are field-specific, whereas others are more policy-specific. To prevent confusion over different terms, this section provides some clarity on the terms that are used in this study and what these terms broadly refer to.

Rural schools

Duma (2018) describes rural schools as schools located in the outskirts of the country. Gardiner (2008) attests that in South Africa, some authors use the concept synonymously with the concept of farm schools. According to Sipple, et al. (2019: 260), rural schools have features such as distance to towns; poor topography about conditions of roads, bridges to school; limited access to information technology; poor access to services and facilities such electricity, water, and sanitation; and limited or no access to lifelong learning services; etc.

Gardiner (2008) confirms that in South Africa rural schools are characterized by challenges such as high dropout rates, poor classroom infrastructure, shortages of qualified teachers and shortages of teaching and learning materials.

Digital developments

Digital development is concerned with issues related to the access and use of information and communication technology (ICT). According to Hennessy, et al. (2010), ICTs which include internet, PCs, and mobile devices such as mobile phones, tablets, and laptops, are used in schools with the objective improving teaching and learning materials. In this paper, the terms digital developments are used to refer to societal development related to digitalisation that takes place in rural schools. Secker (2008) posits that ICTs are proposed as tools to assist in reducing the digital divide, especially in education where they can, among other things, provide access to secondary learning materials with hard-copy textbooks still being the recommended primary sources (Sipple, et al. 2019).

Digital literacy

Martin and Grudziecki (2006) describe digital literacy as going beyond digital competences and skills. This is confirmed by Secker (2018) as he acknowledges that digital literacy is a widely used term which includes digital skills, computer literacy, functional skills as well as critical thinking and search skills. In this article the term 'digital literacy' is used to refer to the features of rural schoolteachers and learners that help them to make effective use of digital developments and tools in teaching and learning.

2.4 Digital Inequalities

Digital inequalities replicate the notion of social inequalities, in which access, in this instance to technology such as the internet, is limited or constrained in

certain population groups (Oyedemi, 2012). According to Rundel and Salemink (2021), this challenge is among different demographics from varying socio-economic backgrounds. Digital inequalities include expensive smartphones, high data prices and low connectivity bandwidth.

In this paper, digital inequalities refer to the lack of access to computers, the internet, reliable internet, and other modern technology as many South African rural school's lacks, not just access to the internet, but also access to digital devices that would enable them to work remotely and continue with teaching and learning aspects via online channels (Du Plessis & Mestry, 2019).

ICT equipment

ICT equipment refers to materials that are needed to conduct digital activities. According to Hennessy, et al. (2010), Information Communication and Technology (ICT) refers to computer technology, multimedia, and networking, including the Internet. This definition is extended by Kozma (2005),) as he states that ICT equipment includes digital infrastructures like computers, laptops, printers, scanners, software programs, data projectors, and interactive teaching box. According to Meyers, et al. (2013), Information and Communication Technology includes products that store, process, transmit, convert, duplicate, or receive electronic information. Examples are software applications and operating systems; web-based information and applications such as distance learning; telephones and other telecommunications products; video equipment and multimedia products that may be distributed on videotapes, CDs, DVDs, email, or the World Wide Web; office products such as photocopiers and fax machines; calculators; and computer hardware. Electronic textbooks, instructional software, email, chat, and distance learning programs are also exampling of ICT. According to Kozma (2008), ICT offers the potential to restructure organisations, promote collaboration and make education widely available.

Methodology

The methodology employed for this paper is described according to the following layout:

Research design

The purpose of this study was to develop an understanding of nature of digital inequalities in schools located in rural contexts in South Africa and identify gaps in existing data requiring further research. In executing this purpose, desk research was used. Kumar (2016) posits that the desk research is a research method that involves using already existing data. Existing data is summarized and collated to increase the overall effectiveness of research. This research includes research material published in research reports and similar documents.

Data collection methods

In this study, the Desk Research Methodology was used. As depicted by name Desk Research is the research technique which is mainly acquired by sitting at a desk. This research is basically involved in collecting data from existing resources

hence it is often considered a low-cost technique as compared to field research. The researchers had to employ desk research steps to ensure that secondary information selected is in avoidance of the duplication of studies already conducted by ensuring that before beginning desk research, the researchers identified the topic that needed to be researched and once that's done, the research attributes and its purpose were listed. The information sources that would provide the relevant data and information applicable to our research was narrowed down. The collected data was combined and compared to avoid any duplication and was assembled into a usable format. In conclusion, the collected data was analysed and identified to ensure that research questions are answered.

The researchers opted for this research methodology. According to O'Leary (2014), the Desk research is a quick process as data is already available as there are many sources from which relevant data can be collected and used, unlike primary research, where data needs to collect from scratch, as opposed to primary research, desk research is fast and easy. It aims at gaining a broader understanding of subject matter, this research is based on tried and tested data, which is previously analysed and filtered, and it is a less expensive and less time-consuming process as data required is easily available and doesn't cost much if extracted from authentic sources. A minimum expenditure is associated to obtain data. Information related to digital inequalities in rural schools in South Africa, in Namibia and in some developed countries for cross referencing and triangulation purposes was obtained from the desk research,

In this study, the researchers used two platforms to dig for information, namely Online Desk Research and Government published data. Robson (2013) asserts that there is incredible amount of data available online and subsequently, he advises researchers to be information specific while fetching out this information as there are billions of pages available on internet. In this paper, the researchers used two approaches for sifting out the relevant information from internet. One was directly browsing the specific information on ICT education and rural education websites and extracting the information out of these sites. Secondly, using the various search engines like www.google.com, www.yahoo.com, www.infoseek.go.com, www.altavista.com etc, for modulated searching. The important aspect here was to refine the searching techniques in such a way that results are promising and relevant. The researchers also sourced information from the Government published data as the governments usually publish data related to social, financial, educational, and economical aspects. This data is available online and can be used in the research process. The descriptive method was adopted to compile the content-based data and present the report of the study

An overview of relatable literature on digital developments in rural schools

Digital developments in South African rural schools

Few international studies have been found indicating that there are differences between urban and rural schools in terms of digital development education landscape. According to Arnold, et al. (2005), schools in rural areas are faced by diverse challenges with the potential to negatively affect successful teaching and learning, hence learners learning within the schools in rural contexts in areas of sub-Saharan African countries, including South Africa are at great risk of failure

and school drop-out as their parents cannot afford to provide the basic needs for them. These difficulties deprive rural schools of essential services due to the location of their residence, which makes the provision of requisite resources and facilities almost impossible to them.

Du Plessis and Mestry (2019) posit that one of the greatest challenges South Africa faces is rural poverty and education. They attest that rural schools face several challenges that are unique to their environment such theinsufficient funding from the state, a lack of resources, underqualified teachers, and multi-grade teaching are some of the barriers to effective education and these challenges can be attributed to numerous sources, from within school structures and from the external environment, including local communities and education authorities. Du Plessis and Mestry (2019) further on confirm that after many years of democracy in South Africa, educational standards and learner performance in rural schooling has shown little improvement.

This is further corroborated by Pillay (2021) when she describes the infrastructure of the South African rural and poor urban schools. She states that the quality of schooling is one of the prime examples of inequality in South Africa where education facilities are very different in private schools or those government schools attended by white children compared to rural and other schools attended predominantly by black African children, with the latter generally very under-resourced. This situation had been noted earlier by Gardiner (2008) that many rural schools were dilapidated with broken desks and windows, inadequate sanitation, and many were unsafe environments for learning. Du Plessis and Mestry (2019) mention that although there has been some improvement over the years, significant deficits remain.

Du Plessis and Mestry (2019) noted that, in addition to the basic infrastructural problems such as electricity, water and sanitation, provincial governments were unable to provide rural schools with the needed financial support to provide quality education. Duma (2018) asserts that the 1996 South African Constitution dictates that all South African learners should have access to the same quality of learning and teaching, similar facilities, and equal educational opportunities, this is however not the case as most rural education problems are linked to socio-economic factors such as poverty and unemployment, which have a direct influence on the quality of education that is available to children in rural schools.

Pillay (2021) further contends that it is not surprising that South Africa is lagging in digital transformation, while it is centering itself around the fourth industrial revolution (4IR) regarding the application of digital technologies. For South Africa to achieve the benefits of the 4IR, it needs to place its emphasis on building citizens' optimism through providing access to, and the skills to operate, digital technologies (Du Plessis & Mestry,2019). South Africa has policies aimed at boosting the adoption and use of ICTs in education. South Africa Connect, the country's national broadband policy of 2013, mandates the introduction of a broadband connection to every primary school and secondary school as part of an initiative to ensure the countrywide availability of broadband internet access by the year 2030. The South Africa Connect policy positions the enhancement of teachers' internet connectivity as necessary to support access to, and the use of, learning materials that can enhance learning in classrooms and foster the development of students' digital skills. Waller and Maxwell (2017) argue that even though South Africa has this good ICT policy, it has however has still fallen behind.

South Africa has also created a world class research and education network known as the South African National Research Network that provides gigabit per second networking to all South African institutions of higher learning as well as national research facilities. The network has been central to the digitalization of higher education (Du Plessis and Mestry, 2019). Waller and Maxwell (2017) attest that the South African rural schools suffer from shortages of teachers with ICT skills hence South Africa has initiated projects that provide teachers with ICTs to assist them with teaching and to increase their ICT knowledge and skills. South Africa published 'The South Africa Connect policy' in 2013. This policy is driven by the Department of Communications and Digital Technologies (DCDT) which advocates for a digital society characterised by widespread ICT knowledge and use for individuals, communities, organisations, and the society (Salemink, et al. 2017). Digital education modalities, through innovations such as the internet, tablets, digital academic content on tablets, and mobile services, are positioned as offering hope to the nation towards attaining improved economic and social development through digital education. South Africa Connect seeks to operationalise elements of South Africa's National Development Plan that provides a vision for the eradication of poverty in South Africa by the year 2030 (Pillay,2021).

Malecki (2003) attests that for years rural communities have been struggling to keep up with developments in digital connectivity. Porter et al. (2016) contend that accessing the INTERNET through telephone lines is only one of several technologies available in most rural areas; cable Internet, fibre optics and mobile broadband are widely available, except in rural areas. According to Stockdale and MacLeod (2013), the differences between the urban areas and rural areas result in a spatial digital divide. On the same note, Malecki (2003) mentions the lack of availability of, and thus access to, data infrastructure and its high costs in the broader context of a general lack of service provision in rural areas as compared to urban areas, as the cause of digital inequalities.

According to Statistics South Africa (DSSA, 2020), few South African households have consistent access to the internet. When Covid-19 hard lockdown began at the end of March,2020 in South Africa, the education sector had to stop all face-to-face activities and find new ways to continue educating South Africa's more than 13-million school learners and 1.8-million tertiary students. Mhlanga and Moloi (2020) confirm that during the outbreak of this pandemic, the Departments of Education was faced with the near impossible task of continuing the academic year. They state that most private schools and private universities instantly moved their teaching and learning online, with minimal disruption and highlighted the fact that urban public-school learners and private university students were slightly better as they got service from radio or television broadcasts, or textbooks and worksheets distributed to them, which was not the case for rural schools. Shikalepo (2020) posits those learners in schools within rural contexts have the lowest access to internet at home. The level of learning in schools located in rural contexts stands in stark contrast to that of learners in urban schools, where the move to online learning causes less academic disruption. While some urban learners were fortunate enough to be able to access online learning platforms through the government and private funders for smartphones, tablets, or laptops and in some cases even free data, some parents from schools located in rural contexts had to spend their hard-earned cash on buying smartphones for their children.

Eberhard, et al. (2017) confirm that learners from schools located in rural contexts are not only digitally illiterate, but also functionally illiterate because of

their poor basic reading skills. Providing the technological tools to schools located in rural contexts is a critical step, but if the learner has never used the internet, or has not been taught the necessary skills to find, evaluate or create information, a technological tool becomes one more obstacle in the learning process. Waller and Maxwell (2017) note that there are ways in which teachers from schools located in rural contexts can develop digital literacy skills, using the minimal access to digital resources they do have at their disposal, for example cell phones, for instance in the higher grades, rural educators can allow learners to use cell phones to do internet searches in class, while teaching them how to evaluate and question the results to differentiate between trustworthy and untrustworthy sources. A major underlying contributor to limited digital literacy is that that although South Africa has 11 official languages, only English academic content is widely available online.

Herselman (2003), however, notes that there are few pockets of ICT intervention in certain schools located in rural contexts in South Africa such as the SchoolNet programme in Mpumalanga Province and a possible web portal for rural schools. The SchoolNet programme was established to coordinate the linking of South African schools to the Internet. This is not very effective in schools located in rural contexts since some of the rural areas do not have electricity. Herselman (2003 states that some organisations have come out with possible solution in uplifting rural schools. In her study, Herselman (2003) mentions that there is a project known as 'Learn-O-Vision' that was developed by D. Oosthuizen to provide rural schools with all the facilities of a first-rate educational institution. This project offers teaching staff a solar-powered computer system, television, video machine, writing and flannel board in a portable and secure box which can be placed in all rural schools. The Learn-O-Vision unit will eventually give rural schools access to the Internet and can assist in bringing quality education to rural scholars if it can be adopted by all provinces.

Digital developments in rural schools in Namibia

Ngololo (2010) maintains that many governments in the developing countries across the world have invested a lot of resources in information and communication technology (ICT) development with an aim to has followed suit. This is confirmed by Matengu (2011) as he states that in 1993, the Ministry of Education in Namibia produced an educational brief "Towards Education for All" to guide educational development in the country, in which three important goals were emphasised namely, access, equity and equality. Achieving these in education was challenge for the government, as they required all schools to have the same resources, including well-qualified teachers and well-equipped laboratories. However, Clegg (2004) noted that rural schools did not have the necessary infrastructure and modern equipment, for various reasons.

To redress the challenges of inequity, the Government introduced ICT to the education system in 1999, whose primary objective was to enhance the teaching and learning of Mathematics, Science and English as critical subjects (Ngololo et al., 2012). The National ICT Policy for Education was adopted in 2005, it was developed to enhance the use and development of ICT in the delivery of education and training. Matengu (2011) further on posits that the National Education Technology Service and Support Centre (NETSS) was established to assemble and deploy ICT in schools. To enhance efficiency, the XNET

Development Trust was formed to address issues of providing reliable and cost-effective Internet connectivity.

Ngololo et al. (2012) asseverate that the national policy further aims to prepare all Namibia's learners, students, teachers, and communities for the world economy. The policy has the following goals: producing ICT literate citizens who can use computers and other technologies to search for and receive information, producing people capable of working and participating in the new economies and societies arising from ICT and related developments, levering ICT to assist and facilitate learning for the benefit of all learners and teachers across the curriculum and broadening access to quality educational services for learners at all levels of the education system.

In addition, the Training and Usage Support Working Group was also established to aid in the form of training to school principals and teachers to develop all the suitable ICT skills necessary to fostering the effective use of technology in educational administration, teaching and learning, and assessment. The working group fulfils this major role by coordinating trainings in ICT literacy and integration for all teachers.

In 2006, according to Matengu (2011) the National ICT Policy Implementation Plan kick started in rural schools where teaching has been proven difficult. The focus was on rural schools because it had been observed that ICT use and pedagogical use in rural schools was low due to lack of professional development courses, pedagogical support, and lack of ICT related resources.

Highlights of digital developments in rural schools in selected developed countries

Within the context of developed countries, numerous research studies report on distinct variations in terms of digital enthrallment or upturns especially between rural and urban schools. While some schools in these countries indicated robust digital development, others attested to it being lethargic. Differently, early research had reported on digital usage in rural education to have shown mixed results, but as time went by it started yielding beneficial effects especially when it was appropriately targeted to the needs of remote communities.

Nam and Pardo (2011) relate that, within the developed countries most schools in their rural and remote communities reported on digital development as having a range of potential benefits for the delivery of education and training. In compliance to the latter, in Canada several key potential benefits particular to rural and remote communities have been identified by researchers. Howell and O' Donnell (2017) asserts that, digital gadgets proved to be helpful to students as it enabled rural and remote schools to offer a broader range of courses and learning options than would otherwise be possible. Howell and O' Donnell (2017) elaborated that, things such as internet chat rooms, when appropriately targeted, provided rural students with additional opportunities for informal learning and collaboration with their peers in other schools. Thus, overcoming the implications of inherently small class sizes in rural schools (Howell & O' Donnell, 2017). Similar sentiments were shared in a different context, which is in the rural communities of Jiangdong District in Ningbo City, in China where digital development was accredited for enabling Primary schools to extend their teaching capacity to include higher grades (Li & Ranieri, 2010). Thereby reducing the need for students to relocate to other communities to obtain their secondary

school education (Li & Ranieri, 2010). Notably, digital development has also been reported in Germany to be especially useful in delivering higher level maths courses to students (Wastiau, Kearney, Quittre, Van de Gaer & Monseur, 2013)

Digital development was not only beneficial to some schools in the rural areas. However, the communities in which these schools were situated, were also said to benefit from the digital development in the area. The creation of ICT infrastructure allowed schools to become technical resource centres for the entire community (Nam & Pardo, 2011). The availability of digital platforms helped communities to attract and keep professionals, such as health care workers and teachers, who required ongoing training and learning opportunities as these platforms provided support that was required in their training (Jamtsho & Bullen, 2007). Digital development also aided in overcoming the effects of distance by enabling communities to mobilize their intellectual and cultural capital and to share it with other communities (Jamtsho & Bullen, 2007). In compliance, a study that was conducted by Herreid and Schiller (2013) in a small rural school in the United Kingdom, reported that most teachers were confident that due to the technological development in their school, their students could take courses online, study what interested them and got prerequisites for college or university. Teachers elucidated that, before online courses were offered, some students would have to attend a high school that was 1-2 hours away from their homes and they did not have high speed access at home, so they completed eLearning assignments during class time (Herreid & Schiller, 2013).

Rao (2010) attest that a learner from one of the Chinese rural community schools indicated that high-speed internet would have been very valuable in their school, but their school did not have that at all. Furthermore, the learner stated that the computer skills of the older teachers were very limited, to an extent that when he went to university, his research skills were limited to searching the Yahoo website and waiting at least 10 minutes to find a not-so-scholarly article to use as evidence in a project (Rao, 2010). In support of the slow technological development outlined by the Chinese student, rural and remote communities reported to facing challenges with respect to adopting digital developments in education. The first challenge related to infrastructure, as rural areas tended to lag urban areas in terms of getting their schools upgraded to broadband internet access and in terms of home computer use. In accordance, a study on digital development in rural Newfoundland schools, in Canada, conducted by Brown, Handrigan, Stone and Downey (2002), reported that government programmes which supported service delivery were scarce, yet they could have been essential let alone preferable in the provision of technicians to support schools. Meaning that schools were not adequately equipped with technological gadgets and on guidance on how to operate these. Singleton, Longley, Allen and O' Brien (2011) accorded that, ensuring compatibility and connectivity of systems, and having a reliable high-speed network was also essential to providing digital development - based educational content, especially if rural schools are to provide students better-than-basic digital skills training. In agreement, Grimes, (2000) argued that once digital systems are in place, uptake may suffer in rural and remote communities for other reasons. Without active support and training/mentoring for teachers on digital's use in the classroom, digital tools can go under-utilized, especially where teachers have other competing demands on their time (Grimes, 2000). Professionals who require ongoing education must also have the necessary resources to be freed up from their day-to-day duties to participate in training, and to have the ability to travel for complementary in-person training (Bubb & Early, 2007). Wang and Wellman, (2010) also aver that, once in place digital-

based learning is generally received positively by rural students and community members, especially as they become more familiar with the systems. In essence, this includes First Nations communities, where aboriginal youth have shown themselves to be very receptive to adopting digitals (McLeman, Foy, & Clark, 2010).

Results and discussion

This study was conducted to examine the digital inequalities in schools located in the contexts of rural areas in South Africa. In the study, it was found that digital inequalities persist and affect schools located in rural areas. In South Africa these schools are faced with numerous challenges, such as unstable electricity, high dropout rates, poor classroom infrastructure, shortages of qualified teachers and shortages of teaching and learning materials (Pillay, 2021). The study elaborated that ICT resources are difficult to obtain in rural communities, hence schools located in rural areas do not have the luxury of having ICT equipment. It can also be mentioned that learners from disadvantaged socioeconomic families tend to show reservations towards computers. As they have fewer opportunities to interact with digital devices at home. This, according to Mestry and Ndhlovu (2014) impacts on the role of schools, which are responsible for both showing learners how to use ICT equipment cautiously, while also teaching them economically valuable skills such as coding.

The study also revealed that one of the greatest challenges South Africa faces is rural poverty thus education in schools located in rural areas face challenges that are unique to their environment such as the insufficient funding from the state, a lack of resources and multi-grade teaching which are barriers to effective education (Du Plessis & Mestry, 2019).

In Namibia, the study elaborated that the National ICT Policy for Education was developed to assemble and deploy ICT in all schools. It is mentioned that the focus was on rural schools because it had been observed that ICT use and pedagogical use in rural schools was low due to lack of professional development courses, pedagogical support, and lack of ICT related resources (Matengu, 2011).

The study also showed that most teachers in schools located in rural contexts do not have advanced digital skills and the risk exists that they use ICT equipment for the sake of technology without exploring its full potential, for example, to meet a range of different learner needs. It is therefore important to note that a lack of digital literacy on the side of the teachers can lead to accessibility and knowledge differences among learners. This is confirmed by Rao (2010) as he states that in China the computer skills of the rural older teachers are very limited, to an extent that when students go to university, their research skills are limited to searching the websites and to find scholarly articles to use.

The study concludes that South Africa has ICT policies such as South Africa Connect Policy that intends to ensure the availability of internet access to all schools. It was also established that there are few pockets of ICT intervention programmes for schools located in rural contexts in South Africa such as the SchoolNet programme which was established to coordinate the linking of South African schools to the Internet and a possible web portal for rural schools. The study also found out that there is an organisation that established a project known as 'Learn-O-Vision' which provides rural schools with all the facilities of a

first-rate educational institution. This project offers teaching staff a solar-powered computer system, television, video machine, writing and flannel board in a portable and secure box which can be placed in all rural schools (Herselman, 2003).

Recommendations

Based on the abovementioned discussions and findings, some recommendations for closing the gaps of digital inequalities in schools located within the rural contexts in South Africa is that the state should offer support on a long-term basis for such schools to be able to upgrade and maintain equipment, linking to the issue with the speed and continuity of digital developments raised throughout this study. The state should furthermore initiate skills development programmes for teachers in these schools to ensure that they acquire the needed skills to utilise modern technology more effectively. The state should also explore training possibilities for parents, and adults in general, to improve their digital literacy and foster awareness of digital developments. The state should invest in necessary infrastructure namely the Information and Communications Technology (ICT) sector to provide for the driving digital transformation to enhance digital access to rural communities. The state needs to invest in a low-cost, high-speed, and universally accessible data transmission infrastructure and put in place the regulatory framework to support systems for secure but low-cost e-transactions. In conclusion, universities and teacher training institutions should have ICT embedded in their teacher education programmes so that all teachers are equipped and comfortable with the latest technology when they start their teaching career.

Conclusion

This article shared the status of digital developments in schools located in rural contexts in South Africa. This paper focused on numerous challenges faced by these schools such as poor electrical reticulation and communications, insufficient funding from the state high dropout rates, poor classroom infrastructure, shortages of teachers with digital literacy skills. Many of South Africa's rural areas exist below subsistence levels and remain impoverished because they have no access to basic infrastructure essential for digital development. Therefore, this study has put forward recommendations for closing the gaps of digital inequalities in schools located within the rural contexts such calling for the state to sufficient financial support, initiate skills development programmes for teachers and invest in rural ICT infrastructure.

The value of the study is critically important to the future success of learners in schools located in rural areas. All South African irrespective of demographics need to understand the rapid evolution of ICT. This understanding needs to take shape within the context of the realities of the country in terms of information literacy. This study concludes by stating that it is important to address the growing functional illiteracy that disempowers rural people from living effectively in a modern South African society.

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