

Digital Inequality in Rural and Urban settings: Challenges of Education and Information in South African Youth Context

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Abstract: South Africa is experiencing the sting of Information and Communications Technologies (ICTs) that result in digital inequality; thus, it impairs the efforts in a quest to deal with socio-economic issues, particularly quality of education. ICTs in the twenty first century are perceived as necessary tools to enhance the speed of information dissemination and communication among youth. ICTs provide necessary information that can lead to edification of skills and knowledge in different communities, predominantly in rural areas. Therefore, this paper argues that lack of ICTs in the context of digital inequality, particularly in relative majority of rural areas, impairs the speed at which the process of bridging the educational gap between rural and urban areas should occur. Thus, lack of access to ICTs and usage increase the existing digital inequality gap in education between rural and urban areas. The purpose of this paper is to engage ICTs focusing on digital inequality in education in a South African youth context. Theoretically, the paper intends to explore factors in education that contribute to the gap between rural and urban areas in respect of ICTs. The paper concludes that ICTs are the carriers of all sorts of information serving different purposes.

Keywords: ICTs, education, information, digital inequality, South Africa

Introduction

In the advent of democracy, the South Africans have and are still facing socio-economic challenges, where there is lack of quality education, social exclusion and inequality that are dire and unabated. Within the context of education, digital inequality poses as one of the factors, among others, that affect the quality thereof. South Africa is experiencing the sting of lack of ensuring equal Information and Communications Technologies (ICTs), predominantly in remote rural areas (Ntolwana, 2013; Chigona, Chigona, Kayongo & Kausa, 2010). Thus, it impairs the efforts in a quest to deal with socio-economic issues holistically, particularly quality of education. Therefore, that results in digital inequality; ultimately affecting the quality of education and success of young people employment and being well informed about issues that are affecting them; acquiring skills, information and knowledge is one amongst the other. DiMaggio and Hargittai (2001) define digital inequality as a result that is portrayed between the haves and the have-nots, segregated by the split measures for access when one needs to make use of technologies. Digital inequality is also defined as not only differences in

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terms of access but also inequality between individuals with proper internet access (Robinson, Cotten, Ono, Quan-Haase, Mesch, Chen, Schulz, Hale & Stern, 2015). Basson, Goetz & Tustin (2012) perceive digital inequality as a gap that exists within the society between those who have the capacity to completely use ICTs for their benefit and for those who do not have or have but unable to use them. Van Dijk (2012) distinguished the dimensions of digital inequality focused on usage, skill, access together with motivation and the aim. In essence, the definitions of digital inequality complement the argument of this paper, looking at access to information, acquiring of employment and achieving quality of education. Thus, the usage, access and skill are highlighted in this paper to portray the gap between rural and urban areas in respect of digital inequality.

The process of addressing socio-economic challenges involves the application of communication technologies in the modern era. Accordingly, digital skills are inadequate as levelled with the skills of using and managing hardware and software (Dijk, 2002). The paper looks at the opportunities youth can take advantage of when they have skills and access to technological resources. The paper emphasises more on the quality of education and how lack of resources, skills and usage can have an impact on their education; and how that can limit youth to participate fully in some of the various sectors of society. Digital inequality amongst the youth is accepted to be an element that frequently prevents them to reach their potential (Czerniewicz & Brown, 2010). In this information age, innovative ways of doing things like learning are discovered daily through research and access to information (Czerniewicz & Brown, 2010). It is expected for the youth to be using the ICTs for connecting with peers from other side of their countries, being familiar with new methods of how business is done or even getting to know the norms of other people living in different states from where we are situated (Czerniewicz & Brown, 2010). The success thereof, is often associated with the cognitive part of access to ICTs; having digital skills will help one to access information through alternate formats or strategies such as, digit format, braille or mental mapping and use the hardware (Hargittai & Hinnant, 2008; Chigona *et al.*, 2010). ICTs in the twenty first century are perceived as necessary tools to enhance the speed of information dissemination and communication among youth; and provide access to relevant digital educational services (Chigona *et al.*, 2010). ICTs provide necessary information that can lead to edification of skills and knowledge in different communities, predominantly in rural areas.

Paper Framework and Method

This paper assembles theoretical/desktop data that is available in respect of digital inequality in rural and urban areas, particularly focusing on youth; that is, to arrive at a summative notion in terms of the premise of the argument of the paper. Data were gathered through using extensive literature and internet searches. The opinions of other scholars across the issues of digital inequality are included to substantiate the argument of the paper. The conceptual framework of the paper is solely relying on literature to support the argument thereof. Literature review revealed data that is based on the following categories:

- Issues of digital inequality in terms of gadgets and skills of utilization that are based on the have and have not's.
- Lack of access to digital repositories and internet to gather information.
- Factors that instigate digital inequality.

Several studies that focused on digital equality guided the work and argument of the paper (DiMaggio, Hargittai, Celeste & Shafer, 2004; Oydemi, 2012; Van Dijk, 2012; Robinson *et.al*, 2015). Thus, scholars have provided the analyses that radiate the distinction between the rural and urban youth in terms of skills, knowledge and access to information among others. The concept digital inequality concerning rural and urban areas provides the analyses and results that determine the challenges of education and access to information in the context of South African youth.

Digital inequality among South African youth

Youngsters seem to be early adopters of technologies and some have the skills to make use of such technologies (Barkker & De Vreese, 2011). Most youth use technologies as their basic form of communicating and remaining connected with the people close to them (Barkker & De Vreese, 2011). This section intends to highlight the extent at which youth have access to digital technologies in and around the areas where they live. However, the section focuses solely on digital inequality in education and access to information as the contributing factors to digital inequality but not limited to other aspects.

Digital inequality in education

Having little or no access to technology can limit young people into finding and exploring information related to education. Thus, education can be distinctive among youth because of digital inequality. For example, Czerniewicz & Brown (2010) purposefully selected two students, classified as part of the digital elite (a digital native) and a digital stranger (had very little experience of ICTs). Furthermore, the experiences of the students who are both at higher institutions but have different experiences of technologies can portray an educational gap due to lack of skill (Czerniewicz & Brown, 2010). In the study, it emerged that the student who came from a moderate-richer family background had more experience of technology and had easy access to them than the other student who have just been exposed to the modern technology just a year before varsity (Czerniewicz & Brown, 2010). This means that even in terms of the skills level, there will be a great variance. Student from poor backgrounds cannot have access to these technologies as much as they want and that limits them to reach their potential (Robinson *et.al*, 2015). The student with less access will not be able to pursue other educational interests on the internet due to limited time allocated at the computer centre. Therefore, that highlights the fact that having access to internet through cell phones, personal computer *inter alia* at home as well is advantageous.

Research by Herselman & Britton (2002) investigated the nature of digital divide focusing on the native viewpoint. The study was conducted at four schools and one adult education centre in South Africa

regarding access to ICTs (Herselman& Britton, 2002). Information required was achieved through answering of questionnaires by Grade 12 learners (Herselman& Britton, 2002). Among other findings, the results showed that only 11.25% of all learners who lacked resources tested that they accessed a personal computer on a regular basis, whilst 21.25% used one a few times with 60% of learners who had never used a computer before(Herselman& Britton, 2002). The study further showed that only 5% had frequent access to the internet and 22% of them had seen it a few times, while 73% had no idea of what the internet are(Herselman& Britton, 2002).

As internet is a very scarce and useful resource, it is very important for youth in education to have as it can provide with meaningful information that will help them excel in their grades and have better knowledge and understanding of things. Presently, cell phones appeared to have enormous potential to provide the internet at regulated charges which are affordable to most people. Youth Research Unit at the University of South Africa (UNISA) conducted a survey to show how cell phones are predominant among high school learners of south Africa. Survey revealed that 98% of high school learners in different schools were in possession of a cell phone. Robinson (2012) estimates in South Africa, there is roughly about 12 million WAP-enabled of cell phone utilizers. Additionally, a study by youth marketing agencies (Student Village and Interact RDT) further attested that 78% of SA pupils have entrance to internet through using ofcell-phones (Czerniewicz, 2011). Cell phoneassists in bridging the gap that relates to lack of internet among youth and it poses to be one of the most affordable means to access internet conveniently. Halewood & Kenny (2008) suggest that broadcast technologies are useful tools in formal and continuing education and the internet may play a key role in vocational and further education.

Limited or lack of access to the internet indeed poses a disadvantage to those affected; in this case, the most affected group will be disadvantaged rural people. Oyedemi (2012) postulates that students coming from families earning high incomes tend to ensure access to internet at householdas compared to students from families earning low income who have the limited access. This echoes the fact that students as of families earning low incomes might rely on using computer repositories frequently to access the internet because of not having them at home. As a result, if computer centres closes for holidays, recess, and/or for other purposes,they often affected and forced go to internet cafés to access information and do school work. Unlike youth from high income families, they have a wide range of options available to access the internet for educational purposes. For example, they have a privilege of using their cell phones or personal computer at home to access internet for educational purposes.

Access to information

Writings on internet usage and youth commitmentthat focuses on online updateingestion and access to information are no exception (Hargittai&Hinnant, 2008; Ekström&Östman, 2015). New media tools and technology are swiftly becomingmain mechanism for conveyingcourtesy to the matters of civicdistress and access to info isabout quality of education (Middaugh, 2012). According to Zickuhr

(2010) whether there is a discovery and distribution of information, structure and retaining social networks, sharing view, or accruing money, digital technologies are more frequent tool that enables students and unemployed youth to explore opportunities in education and searching for employment. In essence, the digital technology provides people with information easily through tools such as computers that connects to internet. The internet is an interactive space where large files of information are uploaded for the consumption of the user (Lenhart, Purcell, Smith & Zickuhr, 2010). However, accessibility of these resources can be costly for most of the people who cannot afford to use them (Batane, 2013). As a result, mobile digital libraries can bridge the gap thereof. It becomes important for the user to scrutinize the information found on the internet before they decide to use it or not. Anyone who has the capabilities can upload what have been accessed through internet. Though, information pursuing and news ingestion is nowadays brought to people by digital technologies. Other practices of the internet such as social relations and participation in other sorts of user-generated content provide youth skills that are vital for fruitful socialization into vigorous methods of citizenship (Bakker & De Vreese, 2011).

Factors that contributes to digital educational gap in urban and rural areas

Race

When putting race under analysis, it is important also to look at how digital inequality affect individuals based on it. Oyedemi (2015) shows evidence that in South Africa, race in most cases influences the design of admission to technology and it determines the discrepancies in computers available to use and internet access in the household. African pupils are less privileged to access computers at home with only relative minority having desktop computer, individual laptop or both. However, White students are in possession of desktop computer at home, an individual laptop or both (Oyedemi, 2012). Considering those who do not have access to computers at home, African students stood at a staggering 47%, with Coloureds at 5.3% and white students at only 1.7%. With respect to the internet accessibility, 76.9% of African pupils do not access internet in their households as compared to only 11.4% of white students who does not have it (Oyedemi, 2015). This has led to more African student relying on computer centre or repositories to access the internet and computer.

Gender

Gender too has an impact on whether one is affected by the digital inequality or not because it also considered in the demographics. About 60% of schoolgirls and 60.3% of schoolboys regularly utilise computer labs on campus to access internet (Oyedemi, 2012). Nonetheless, only 32.1% of schoolboys do not have a computer at home whereas 40.4% of female students reported that they do not have computers at home (Oyedemi, 2012). Respectively, 65.4% of schoolboys do not have household internet access related to 61.5% of schoolgirls; whereas 52.3% of schoolgirls access an internet frequently using cell phones as equated to 41% of schoolboys accessing internet using cell phones (Oyedemi, 2012).

Geographical Location

Pupils who live in rural areas are most likely to be underprivileged when it comes to access to technology. Oyedemi (2012) revealed that 66.7% of pupils who reside in rural areas have no access to home computers, compared to 13.9% that reside in urban areas. Pertaining access to internet, 60.9% of students residing in cities access the internet at home as compared to 16.3% of persons residing in rural areas (Oyedemi, 2012). Therefore, learners residing in rural areas are likely to count on internet that is provided on campus than learners from the cities/urban areas (Oyedemi, 2012). The findings further show that 66.5% of students in rural areas utilize computer repositories more frequently to access internet as equated to 46.9% of students coming from the city and urban areas (Oyedemi, 2012). Consequently, 87.1% of pupils in urban areas access internet even during recess, whereas 49% of learners in rural areas have no access to internet during recess (Oyedemi, 2012). Moreover, 60% of pupils residing in cities/urban areas access internet from their homes while others access it from friends' places, parents' works and can go to computer centres when schools are closed (Oyedemi, 2012). Access to information by people coming from the rural and urban areas is different and is often determined by their geographical location. In this context, the geographical location is in respect of relative majority of rural areas that are non-electrified as well as electrified urban and some rural areas. Thus, it creates a gap in urban and rural areas as well as becomes more problematic mostly for those living in those rural areas in accessing information. Considering the aforementioned, the reluctance of computer academies and repositories to reach rural people is delayed due to lack of electricity in some rural areas. As a result, rural people are unable to acquire digital skills to use technology.

Skills inequalities

Digital skills are important to get one ahead in terms of using the new ICTs and understanding how they should be handled. The rates at which education and skills are developed have gradually improved but this seems not to influence the rate of rural skilled youth as compared to urban youth. Dijk (2002) defines digital skills merely as not the skill to manoeuvre computers and network connections, however as the skill to search, select, process and smear information from sources. It is the capability to utilize information strategically to advance one's status in the public; these are referred to as skills that are instrumental, informational and strategic (Van Dijk, 2012; Molefi, 2015). In South Africa, the skills gap is juxtaposed with educational qualifications, concentrating more on young people (Molefi, 2015). It is an imbalance showing lack of skills development among the youth, particularly young people in rural areas. This raises a question that does higher institutions and technical institutions offer technological skills to students or not? It becomes a very huge issue when one begins to separate the youth unemployment in terms of those who have skills and qualifications but still are unemployed together with those who do not. Ntolwana (2013) studied skills inequalities with the purpose of understanding the level of skills shortages around the under developed areas of the Eastern Cape to apprise helpful measures. Findings reflected that there is lack of basic ICTs skills

among the participants with contributing factors changing from absence of knowledge around ICT vocations, to absence of access to ICT tools (Ntolwana, 2013).

Usage inequality

Having no access, lacking skills and the incorrect usage of the ICTs would lead to the negative impact of the digital inequality on youth in many ways. Hargittai & Hinnant (2008) articulated that empirical tests on usage inequality have been identified in social demographic features that limit ICT access and usage. The aspect of usage is one of the essential elements to be considered by the users of the ICTs for accessing educational content. The ability to use a range of programmes, applications and internet protocols is very important as well. According to Oyedemi (2015), previous studies focused more on the physical access of ICTs and put less attention on the patterns of usage inequality whereas present studies explore a range of inequality in designs of usage and skills. This indicates that their level of usage will be different from someone who has been using these technologies for quite some time. Being able to use computer application can be useful when one needs to manipulate some information for personal benefit. Daily usage of the internet enhances collective capacities to acquire and store information, search through high volumes of information and retrieving instantly (Robinson *et al.*, 2015). It expands opportunities to access information, education, decent occupations; and, creating new premeditated platform for discussion of issues that directly affects the society (DiMaggio & Hargittai, 2001). As a result, people in rural areas are forced to travel lengthy distances to access basic and other services such as the library and internet café (Raju & Raju, 2010). Additionally, they are unable to use digital technologies for educational purpose.

Approaches to address digital inequality

To bridge digital inequality, it is essential to consider the following discussions. The level of ICTs amongst school learners began improving in 2010 through the initiatives such as iSchoolAfrica, Thutong Education Portal and Mindset network (Cortoos, Jeans & Levec, 2015). iSchoolAfrica is an Apple project that supports young people with hardware and software in each participation (Cortoos *et al.*, 2015). The success of these projections however, requires the ICT skill of learners in schools to be at a certain level. These projects are implemented at Gauteng, North West, Eastern Cape and Limpopo provinces respectively. It is therefore ironic that such kinds of initiatives are implemented in other provinces not considering them as the approach to the whole provinces of South Africa. This is with the fact that South Africa is still a developing country that has relative majority of rural areas (Raju & Raju, 2010).

Another intervention to assist in bridging digital inequality and bringing ICT services is the establishment of Universal Service and Access Agency of South Africa (USAASA). It is a government entity owned by the state which has been implemented through the Electronic Communications Act, no 36 of 2005, to ensure that everyone living in rural or urban areas can connect, explore, speak and study using ICT's. USAASA is a fast placement project that is planned to permit sector to publicly bid for grants to deploy public access of technologies (USAASA, 2016). Thus, addressing the issues of

disparity and inconsistency of digital inequality, the agency aims at engaging in a process of evolving a national strategy on access to digital services (USAASA, 2016). USAASA guarantees the suitable identification of the needs in rural areas, underdeveloped, under-served and un-served areas, considering the levels of affordability (USAASA, 2016). It proposed a model that is appropriate enough to ensure both basic and advanced ICTs services are available, accessible and affordable to all people in South Africa (USAASA, 2016). It is a great and innovative approach which gives hope for South Africans but limited to the specific areas.

There are other portions of the South African country that can be categorised as developing areas and other parts that can be categorised as developed areas (Raju & Raju, 2010). There is an excess of information and resources in the developed areas while in developing areas there is a shortage thereof (Raju & Raju, 2010). As a result, libraries should have a role to play to mediate and provide information in that regard. There is no adequate access to information in the minority sector of South Africa; the challenge is how to manage and where to provide information (Raju & Raju, 2010). In the early years, public libraries were perceived as the pivotal role players in balancing access to computer and internet (Becker, Crandall, Fisher, Kinney, Landry & Rocha, 2010). When the use of public computers and internet capabilities are put under an evaluation, they demonstrate that people belonging to groups characterised as digitally disadvantaged are more likely to utilize computers in libraries more regularly than privileged (Becker *et.al*, 2010). There are still extensive discrepancies among library systems even when there is availability; however, access on its own is not enough to preserve inequities amongst numerous demographic groups (Becker *et.al*, 2010). Kinney (2010) addressed the importance of internet for public libraries, in respect of impacts on the public, predominantly the digitally disadvantaged. The author analysed changes of library systems based on growth of public terminals which is a served sections of diverse degree in respect of the socio-economic issues between the non-white and non-English-speaking households (Kinney, 2010). Kinney (2010) used census database to assess library efforts to bridge the digital inequality. As a result, there is a disparity when it comes to number of public computers available looking at incomes (Becker *et.al*, 2010; Kinney, 2010). In essence, it is alleged that the low income utilizes public computers as compared to the high earning income.

In the Western Cape, access to public libraries is said to be progressing very well. Currently, there is an initiative called Smart Cape which intends to offer computers and free internet access to Cape Town citizens (City of Cape Town (CCT), 2016). This programme was implemented to equip public library with internet linked terminals, for users to conduct research, access and send e-mails, and apply for jobs online (CCT, 2016). The city is having 101 libraries, 2 satellite libraries and a traveling library service (CCT, 2016). Services provided are lending books and access to digital resources, magazines and journals, programmes in data retrieval skills, lifelong learning and storytelling (CCT, 2016). Additionally, city libraries serve as cultural cores and locations for activities and events within the community (CCT, 2016). In Free State, Mzansi Libraries Online project was launched by the Department of Arts and Culture in 2015 in partnership with the Bill and Melinda Gates

Foundation and the National Library of South Africa offer computer equipment to libraries throughout the country (SANews.gov.za, 2015). The project aimed at improving quality of libraries and access to information services for the South African (Kinney, 2010; SANews.gov.za, 2015). The initiative intends to impart citizens with knowledge that can assist in the meaningful participation in the democratic era. Notably, each library received 20 computers, 10 tablets, 10 electronic readers, one document scanner and a room for public use (SANews.gov.za, 2015). To eliminate digital inequality, it is important to establish how much access do young people have to the internet and what exactly do they like using it for. In a study which was done in Botswana, it emerged that student's access internet largely for communiqué purposes and entertainment, then school work and lastly for other uses (Batane, 2013). Therefore, there is a need for initiatives to urge young people to priorities educational content when it comes to utilization of internet.

Discussion

Through literature analytical review, the paper discovered that relative majority of scholars paid less attention on the issue of ICT centres such computer labs and digital repositories in terms of availability and access. For case in point, some scholars have provided the analyses that highlight the distinction of rural and urban youth in terms of skills, knowledge and access to information without considering ICT centres thereof. Conversely, the issue of ICT centres is a major aspect that reflects the problem of digital inequality between rural and urban settings amongst youth. The results thereof, show a gap based on education and access to information; evidently, that is perceived through lack of ICT centres and/or gadgets. Accordingly, that is with the fact that most urban households are perceived to be high and middle-income earners as compared to rural households. Therefore, high or middle-income household can possess gadgets or home computers for children to do school related activities and other purposes.

Based on literature, the paper discovered that issues of digital inequality are in terms of lack of access to ICT tools, in most cases if not all, gadgets are highlighted as the main issue in that regard. Moreover, for some who are in possession of those gadgets there is an inept in respect of utilization. Notably, that led to the paper interrogating the haves and have nots based on digital inequality. Furthermore, the dichotomy considering urban and rural areas in terms of digital inequality radiate that underprivileged rural areas have limited digital repositories or do not have repositories at all and internet to gather information as compared with urban areas. Thus, title and the crux of the paper have been formulated looking at the factors that instigate and exacerbate digital inequality between rural and urban areas. Factors such as race, gender, geographical location and skills inequality among others reflected to be the dire concerns in most of the rural youth. Overall, the concept digital inequality provides analyses and results that determine the challenges of education and access to information in the context of South African youth. Hence, the paper is adamant to the fact that digital inequality contributes to problems in education and access to information for South African youth.

Conclusion

The discussions above support the idea that digital inequality amongst youth has a significant impact on their personal educational growth. The quality of education youth receives will be affected by the digital inequality. Thus, the quality of education that can be determined by the accessibility of digital resources can have permanent consequences to the youth who does not have access. This shows just how digital inequality can affect the future of the youth, as they do not have access to the resources that can assist to enhance their quality of education. The examples given show how the use and access to ICTs can bring positive results for the youth in a developing country such as South Africa. One important thing that emerged from the literature is how ICTs can be used by youth to participate at various levels. The potential of ICTs has been perceived as one of the curriculum delivery through technologies for a success. The paper highlighted that the use of internet requires a platform where an internet user will be able to share their information. Websites are no longer the only platforms where users exchange information but there are also social media where data are shared among users easily. Social media make it easy for youth to participate and make their voices and opinions heard. With the use of social media, they can now share information and participate in the interactive groups/chats for educational purposes.

Recommendations

- The education system should embrace ICTs in all diverse groups and locations to produce exceedingly skilled persons to bridge digital inequality.
- All South African rural areas should be considered when establishing the approaches to provide young people with repositories and skills of ICTs.
- There should be adequate government interventions or donors to fund ICTs projects to accommodate disadvantaged communities; for computer repositories in schools and community libraries.
- The South Africa's universities and colleges graduates should be imparted with skills and knowledge of ICTs to meet the demand of technology in the present dispensation and in the future.

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