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CHALLENGES OF INFORMATION AND COMMUNICATION TECHNOLOGY POLICY IMPLEMENTATION IN RURAL SOUTH AFRICA

ABSTRACT

While the South African government has implemented an information and communication technology (ICT) policy to address issues of universal access and service, questions remain about the effective implementation of this policy in rural areas. This article explores the extent to which ICT policy and regulation were implemented in rural South Africa, with specific reference to the Eastern Cape province. Focus group interviews and in-depth face-to-face interviews were conducted to collect qualitative data from 28 high school learners, two local municipal mayors and two women support group leaders in the Chris Hani District Municipality. A theme analysis indicated that the Universal Service and Access Agency of South Africa (USAASA) is failing to fulfil its mandate of promoting universal access and service. It is recommended that the provincial government in the Eastern Cape design an ICT strategy for its municipalities and that there should be easy access to Thusong Service Centres in rural areas.

Keywords: information society; information and communication technology; policy; education; universal access; universal service; digital inclusion; digital literacy; Eastern Cape

INTRODUCTION AND BACKGROUND

In most rural areas, people primarily depend on agriculture for their livelihood. Access to information is thus paramount to their economic and social development. However, the apartheid-era telecommunications infrastructure in South Africa was biased in favour of white and urban areas (Braman 1998; Van Audenhove 1999; Horwitz & Currie 2007), leaving rural areas poorly connected in terms of information and communication technology (ICT). Not only does this restrict access to information, but it also restricts citizens' right to communicate and take part in democratic processes. Redressing this imbalance has become one of the focus areas of the South African government since the advent of democracy.

The country's ICT policy sets out the vision for ICT development and is associated with national development goals as set out in the National Development Plan (NDP) (Department of Public Service and Administration 2012). The aims of the NDP include eliminating poverty and reducing inequality, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leaders who work together to solve complex problems throughout society (Government Information Communication and Information System 2013). The objectives of the NDP include quality education and skills development for all South Africans by 2030. One of the milestones for the NDP includes making high-speed broadband Internet available to all citizens at competitive prices (Government Communication and Information System 2013).

Most ICT policies include telecommunication, especially telephone communication, broadcasting (mainly radio and television), and Internet-related services. The policy can be national, regional and international. Most ICT policies have common objectives, including increasing the benefits from information technology, providing ICT services at a reduced cost, and improving the quality of services and products (United Nations Economic and Social Commission for Asia and the Pacific/ESCAP 2014; 2016).

Two critical issues in ICT policy are access and civil liberties (Nicol 2003). Accessibility to ICT remains a challenge in many countries, often as a result of the price of this technology or the fact that technology is not readily available. Civil liberties include human rights, such as the right to privacy and the right to communicate. ICT policies and strategies also have to do with activities that influence the quality of life, including agriculture, education, health and culture. They can be merged into national policies, for instance, extending Internet access to rural clinics can improve the delivery of health services (Ruxwana *et al.* 2010; Naidoo & Fourie 2013).

AIM AND METHODOLOGY

The aim of this study was to investigate the extent to which South Africa's ICT policy has been implemented in rural areas through exploring the level of ICT access and use by rural women and high school learners in the Chris Hani District Municipality in Queenstown in the Eastern Cape. The study also assessed how the national ICT policy has improved access to and use of ICT by women and high school learners.

Focus group interviews and in-depth face-to-face interviews were conducted to gather data from participants, which included 28 high school learners, two local municipal mayors and two women support group leaders in the Chris Hani District Municipality. Two local municipalities in the district, Intsika-Yethu and Emalahleni, were selected based on similarities in geographical size and primary economic activities, namely subsistence farming (McCann 2005).

An interpreter assisted where participants were not comfortable with speaking English. Ethical clearance was obtained from the Department of Education and school principals before collecting data from focus groups at high schools. All participants were informed about the details of the study, as well as that they could end participation at any time without consequences. All participants used pseudonyms in order to protect their identity.

SOUTH AFRICA'S ICT POLICY FRAMEWORK

The role of ICT in rural development

South Africa's ICT policy framework is informed by various pieces of legislation, including the Electronic Communications Act of 2005, the Electronic Transactions Act of 2005, and the Broadband Policy. The Department of Communications (DoC) is the policy-maker and the Independent Communications Authority of South Africa (ICASA) is the regulator. The aim of the various policies is to address issues of accessibility, availability and affordability of ICT services in the country.

A number of development challenges face South Africa, including socio-economic inequality, high levels of poverty and an unemployment rate that stood at 27.7% in mid-2017 (Statistics South Africa 2017). The national government acknowledges that ICT plays an important role in the integration of services for the development of rural areas. It promotes the use of ICT in all sectors, including agriculture and small enterprises (Department of Communications 2011: 6). Hence, one of the DoC's main functions is developing ICT policies and accompanying legislation in order to create conditions for the accelerated and shared growth of the South African economy (*ibid.*).

Informed by the 1996 Constitution, the current South African ICT policy upholds "the idea of universal service or equitable provision of ICT services based on the principle of equality before the law, in terms of provision of telecommunication services in all areas, regardless of whether the area is urban or rural or whether the persons are poor or rich" (Lesame *et al.* 2011: 207). The Telecommunications Act of 1996, introduced through the 1996 Constitution, addresses the issues of universal access and service. The availability of ICT enables people to enjoy the benefits of technology, including e-education, e-health and various communication platforms. The aim of having a universal service policy is "linking communities and economic interest for reaping the benefits arising from the optimisation of information flows between the productive sector and the markets" (Lesame *et al.* 2011: 208).

The Electronic Communications Act of 2005

The Electronic Communications Act (ECA) of 2005 also endorses the principles of universal service and universal access. One of the objectives of the ECA is that the government has to "provide the universal provision of electronic communication networks and electronic communications services, broadcasting services and connectivity for all" (Department of Communications 2011: 7). The government, through ICASA, facilitated the licensing of Under-Served Area Licenses (USALs) to address the participation of small, medium and micro enterprises (SMMEs) in ICT markets; at the same time addressing the aim of universal access to all. This study sought to establish whether the principles of the ECA were effectively implemented in the rural Intsika-Yethu and Emalahleni local municipalities and whether local inhabitants were able to connect to the global village.

The Electronic Transactions Act of 2005

The government realised that by using electronic transactions, rural communities would be using their resources more effectively as money that would have been used for transport purposes could be channelled to other household needs. Hence, the implementation of the Electronic Transactions Act (ETA), which promotes the use of electronic transactions by small enterprises and universal access. The use of e-commerce also enables rural enterprises to expand their markets.

The Universal Service and Access Agency of South Africa (USAASA) is responsible for furthering the goal of universal access and service (Oyedemi 2009). USAASA facilitates the installation of telecentres nationally. Telecentres, or technology information centres (TICs or TSCs), provide services such as Internet access, facsimile and photocopying services, video facilities and ICT training services to rural and underserved areas (Universal Service and Access Agency of South Africa/USAASA 2008). Multi-purpose community centres also disseminate information, which is required by communities in their daily lives (Naidoo & Fourie 2013). A key issue that should be noted is that, in order to enjoy the benefit of ICT, the services should be affordable, as indicated by General Notice 987 No. 31333 which states, “affordable communications for all, citizens and businesses alike, throughout South Africa, is at the core of its vision and is the goal of its policy”.

The Broadband Policy

The United Nations' World Summit on Information Society (WSIS) resolved that ICT infrastructure is an essential foundation for the information society (Department of Communications 2010). The expansion of infrastructure is essential for the provision of content and services. In 2007, the South African government approved the building of an information society (Department of Communications 2010). The South African National Broadband Policy was gazetted in July 2010. The Policy focuses “on increasing the accessibility, availability, affordability and usage of Broadband services throughout South Africa” (Department of Communications 2010: 6).

Broadband services promote economic growth, for instance, by reducing the cost of communication. Increased access to information can also make it easier for SMMEs to promote and sell their products and services (Sekeleni 2015). Broadband services also promote social benefits, such as improved quality of education and improved quality and access to health services.

However, affordability remains an issue of concern, especially in the rural areas that formed part of this study. The Intsika-Yethu Local Municipality is one of the poorest municipalities in the Eastern Cape, with 25 043 households experiencing chronic hunger. The Chris Hani District Municipality as a whole has a high malnutrition and hunger index (Chris Hani District Municipality 2012-2017). Poor households therefore are forced to spend the bulk of their income on food, rather than on ICT services. Furthermore, there is a high dependency on grants and remittances as the main source of household income due to the high unemployment rate.

Broadband infrastructure is critical in achieving digital inclusion, enabling universal, sustainable and affordable access to ICTs, and providing connectivity and access to remote and marginalised areas (Department of Communications 2010: 4). The 2011 Census results indicated that 64.8% of households had no access to the Internet.

In an effort to analyse the impact of ICT programmes nationally, the DoC launched the South Africa e-Barometer in August 2011. This measures the progress of the national ICT uptake and use (Government Communication and Information System 2013).

RESULTS AND DISCUSSION

As mentioned earlier, the aim of this study was to explore and assess how South Africa's ICT policy has been implemented in rural areas, specifically for the benefit of women and learners. In this section, the research findings are discussed at the hand of themes drawn from the data.

Theme 1: Knowledge of ICT

This theme sought to bring to light the level of ICT knowledge among Emalahleni and Intsika-Yethu women. The level of awareness of ICT affects the uptake and usage of ICT in a community. From the in-depth interviews conducted, it emerged that most women in the two municipalities are aware of different types of ICT, but knowledge of utilisation is limited in both municipalities. Respondent 3, a women support group leader from Emalahleni, mentioned that women in agriculture and development projects, such as poultry, catering and piggery, mainly use mobile phones, which allows instant communication. However, not everyone owns a mobile phone. Communication usually centres on the women's projects, such as catering. However, they cannot access the Internet, which is required to access market information for their produce. Some of the women from both municipalities lack ICT skills to search, select and process information. According to the research findings, some women lack basic literacy skills, an aspect that municipal training programmes do not address. Most of the respondents also lack strategic skills, that is, the ability to use a computer and network sources to improve one's position in society. According to Respondent 1, a government leader from Intsika-Yethu:

"Those who have access to these resources do not know how to fully utilise these resources, they have a challenge of lack of the background knowledge on how the ICT infrastructure can assist them."

This was echoed by Respondent 4, a government leader from Emalahleni:

"Most women afford the cell phone for making calls and SMS, very few people are able to use the Internet."

It emerged from the interviews that the Thusong Service Centre/TSC situated in Cofimvaba only offers ICT services, but not ICT skills training. In Emalahleni, the ICT container was not yet operational at the time of the study; thus, there was no ICT skills training offered in the municipality. It should be noted that an ICT hub is now operational in Emalahleni.

According to Respondent 1, Intsika-Yethu sought to find six people who could present ICT skills training to other people in the municipality, but only three were available:

“The concept of ICT is fairly new and is not moving as fast as one would wish; there is not much that is being done by those with access to promote the use of ICT to other women who are not well-versed on the use of ICT, so it is moving very slowly to transfer the usage of ICT skill”.

There are no programmes in either municipality to assist women in obtaining ICT skills. The digital skills gap emulates the income gap, where those with a higher income are generally better skilled in the use of ICT because of easier access. The researchers found that in these two communities in the Eastern Cape the digital divide is deepening.

Theme 2: Accessibility of ICT

Accessibility of ICT is a challenge to some women in rural areas and this study sought to ascertain the degree of ICT access in Emalahleni and Intsika-Yethu. As mentioned earlier, the Telecommunications Policy was adopted in 1996 to pursue values that “promote equal access to telecommunication services or universal access to these services, whether one resides in an urban or rural area” (Lesame *et al.* 2011: 206). The responses obtained from the research participants do not reflect the goal of the Telecommunications Policy. According to Respondent 4,

“Emalahleni is a deep rural area, so computers, laptops and mobile phones are easily available at government offices, therefore women who are not working in any government setup are only limited to the cell phone. Some do not even have the cell phone; remember one has to buy the cell phone.”

In Intsika-Yethu, women face similar challenges. Respondent 1 commented that,

“Usage of ICT is quite a big challenge because the Municipality is rural, very few women have access to ICT [and also] only women working in government institutions are privileged to have access to ICT.”

Both these responses point to the fact that an ICT physical access gap exists in Emalahleni and Intsika-Yethu. Some women rely solely on government social grants and a few are employed at government institutions. Those who work at government institutions can more readily access ICT compared to other women in the community; hence, the physical access gap in this society. These findings support the digital divide theory, as argued by Fuchs and Horak (2008), who state that the income gap also creates a social divide, that is, the working class who can afford computer and Internet access, and those who cannot.

Physical access to ICT infrastructure in both Emalahleni and Intsika-Yethu is limited. Respondent 1 mentioned that there is only one Thusong Service Centre (TSC) in the municipality, situated in Cofimvaba town. It has ten computers for use by the residents of about 200 villages. Although there is an ICT centre in Tsomo town, Respondent 2, a women support group leader, confirmed that this is not a multi-purpose community centre. During the time that the interviews were conducted, three ICT containers

were delivered, one in Indwe, one in Lady Frere, and the other in Dordrecht. These small towns form the Emalahleni Municipality. Previously, there were no ICT centres in Emalahleni Municipality, making it difficult for residents to access ICT services, often forcing them to travel to Queenstown, the biggest town in the Chris Hani District Municipality. According to Respondent 4, the Emalahleni Municipality comprises 17 wards, which include more than 200 villages, excluding farms. The available TSCs thus cannot cater to the ICT needs of the entire municipality.

In 2007, world leaders made a commitment at the WSIS to “turn the digital divide into a digital opportunity for all”. However, inadequate physical access in Emalahleni and Intsika-Yethu socially excludes residents from the information society. Most people in these municipalities rely on government social grants; therefore, they cannot afford computers or Internet access at home.

Accessibility to ICT is also a major concern at the high schools where the study was conducted. Literacy is changing with the changing world of technology; it has expanded to “include literacy in information and communication technologies” (Harste 1994). Therefore, e-literacy is not only the ability to read, write and count; it also entails computer skills. While access and availability remain issues, inroads have been made to expose rural learners to ICT, for example at the KwaDukuza Resource Centre in the KwaZulu-Natal province. However, this is not the case for most learners in Intsika-Yethu and Emalahleni.

From the focus group interviews conducted at Cofimvaba Senior Secondary School and Gcinubuzwe Senior Secondary School, it was clear that both schools are producing learners who lack computer skills. Learners at both schools mentioned that there are computer laboratories at their schools. However, not all the learners may access these computers. At Cofimvaba Secondary School, not all learners are taught Computer Application Technology (CAT); only three classes out of 21 are CAT learners (these 21 learners represent 14.3% of the total number of learners at the school). Learners are not allowed to use mobile phones on school premises and the cyber laboratory is only meant for CAT learners.

At Gcinubuzwe, computers are available but, according to focus group members, none of the learners use them and they are not used during the teaching-learning process. In addition, the computers are not connected to the Internet. A learner stated the following:

“I was at a school where I was learning computers, but now I am here, I am no longer doing them.”

Learners at Gcinubuzwe are highly disadvantaged and this contributes to the widening of the digital divide. From the focus groups, it became clear that these learners are aware that there are schools where learners use ICT and a number of the participants indicated that their lack of access to ICT might disadvantage them at tertiary institution level. If the principles of the International Telecommunication Union (ITU) ICT Development Index's (IDI) sub-indices of access, affordability and availability are applied, South Africa is not an information society, as some learners do not have

access to ICT in the classroom. The scenario at both schools where the research was conducted contradicts the government's e-education policy. The policy states that "every South African manager, teacher and learner in the general and further education and training bands will be ICT capable (that is, use ICT confidently and creatively to help develop the skills and knowledge they need as lifelong learners to achieve personal goals and to be full participants in the global community)".

The challenges that learners at both these schools face could be a result of inadequate learning resources that incorporate ICT usage and limited technology infrastructure that hinders the effective introduction of technology into schools (Hennessy *et al.* 2010). Research participants from Gcinubuzwe stated that there are no computer laboratories in the surrounding communities. These learners are thus not able to tap into the mainstream of information and knowledge where they can "learn and play, expand their imagination and creativity, and collaborate with their peers across the African continent and the world" (The World Bank Group 2007). In addition to the lack of ICT access, the school does not have a library (nor does the surrounding community, for that matter). In this regard, the Department of Education has failed as it is mandated to provide libraries to schools. Failure to provide ICT services to all citizens, as stated in legislation, is thus excluding these learners and the residents in these communities from the information society.

At Gcinubuzwe, a research participant stated that they travel to Lady Frere to access and use ICT services, but sometimes they are forced to travel to Queenstown (which costs R60) if there is no network access available in Lady Frere. According to Webster's (1995) spatial definition, ICT compresses space and time; however, in these areas, residents are forced to travel in order to connect to others via ICT.

Compounding the situation sketched above, a number of villages that form part of the Intsika-Yethu Municipality do not have electricity. The residents of these villages, which include Gqogqorha, Ntsume and Tsakane, are unable to charge their mobile phones or devices, or watch television. According to a policy brief by advocacy group Solidarity for African Women's Rights (2010: 9), "irregular or non-existent power supplies act as significant barriers to access and use of ICTs, particularly in rural areas". This indicates failure by the government to provide universal service and access to ICT infrastructure and facilities.

Theme 3: ICT literacy level amongst rural women

One of the secondary objectives of the study was to evaluate the level of ICT literacy amongst rural women. It emerged from the study that the majority of women in both Intsika-Yethu and Emalahleni have low levels of ICT literacy. Respondent 1, a government leader, commented that:

"The municipality is very rural and there is a challenge of literacy in the area, so it hinders the curiosity of people, they do not want to be associated with ICT."

This was echoed by Respondent 3, a women support group leader, who mentioned that most women in Emalahleni have lower levels of education; some never went to school and therefore find it difficult to use technology.

The comments above serve as evidence for a lack of motivation to use ICT as a result of a low level of education. Van Dijk (2008) calls this tendency lack of motivational access. ICT literacy, combined with motivational access, is key for successful ICT usage. The low level of education and the lack of motivation to access and use ICT amongst some women in Intsika-Yethu and Emalahleni create a barrier to the uptake and use of ICT. According to Respondent 4, a government leader:

“With the ICT, the main language, that is, English, on the computer is not our language; remember our home language is Xhosa and a few Afrikaans and English, and so it does affect them.”

The rural women in these areas are fluent in their mother tongue (IsiXhosa). English, required for computer usage and especially Internet access, is foreign to most of them, which makes it even more difficult for the ICT illiterate women to embrace technology. This language barrier adds to the widening of the digital divide in society. Low literacy levels in a community might mean low chances of being employed, as well as low entrepreneurship skills; this perpetuates poverty in that society.

Theme 4: Affordability of ICT to rural women

Low income coupled with low levels of education and lack of personal motivation to access and use ICT services are barriers to ICT usage. There are costs related to accessing and using ICT. It was thus important to establish the affordability of these services for rural women as a stable income is also a requirement of ICT access and use.

Most women in Intsika-Yethu and Emalahleni find it difficult to use ICT because of the inherent costs. Respondent 3, a women support group leader, stated that:

“Most women are so poor; they do not have their own Internet.”

All the research participants in the study indicated that most people in both municipalities are poor and rely on government social grants as their source of income. The majority of the women do not work and the social grants are inadequate to buy food and clothes. They are, therefore, unable to access and pay for ICT equipment and services.

Some female learners at Gcinubuzwe School mentioned that they work in town during the school holidays so that they can purchase mobile phones. Respondent 4, a government leader, shared the same view that not all women have a mobile phone, “remember one has to buy the cell phone”. The female learners at Gcinubuzwe said that most of the parents purchase inexpensive mobile phones, and as a result, “we cannot access all the information”. The limited abilities of these mobile phones made it difficult for learners to conduct research for their schoolwork and socialise on social networks; hence, they are disconnected from the global culture. Moreover, the price for fixed broadband is high in developing countries, further limiting access to the information society (International Telecommunication Union 2009). Most people are limited to voice and text messaging due to expensive mobile telephony.

Theme 5: Possible approaches to overcome ICT challenges in rural areas

The theme on possible approaches was developed in an attempt to unearth solutions to the challenges in the uptake and usage of ICT, which face some rural women and learners. The possible solutions were sought from the research participants.

Respondent 1, a government leader, and Respondent 2, a women support group leader, both from Intsika-Yethu, agreed that the community should be trained in basic ICT skills at Thusong Service Centres by the municipality, so that they are able to assist themselves and their families. The respondents said that while some parents have smart phones, they are still unable to assist their children with homework.

Advocacy by schools, the municipalities and the government is another possible solution that was suggested by Respondent 4, a government leader from Emalahleni. Respondent 4 commented that some women have smart phones but are unaware of the programmes on their phones, so advocacy is a necessity. Information on health issues, weather forecasts, and the ability to send and receive emails is available on these phones.

Respondent 3, a women support group leader from Emalahleni, said that women who lack ICT skills should seek assistance from those who have the knowledge. Respondent 3 acknowledged that women's forum groups should create awareness through the Special Programmes Manager of the Municipality.

Secondary school learners at both Gcinubuzwe and Cofimvaba suggested that the Department of Education should ensure that all learners are taught CAT. At Gcinubuzwe, the research participants were of the view that an Internet connection would be of great help to the school and make their studies easier, while at the same time preparing them for the world of work.

At Cofimvaba, the learners who participated in the study articulated that libraries should be made available by the government in the villages because learners who attend school there do not have access to libraries. The participants stated that these libraries should be equipped with ICT. Another challenge is the lack of electricity in some villages in Intsika-Yethu. This state of affairs indicates that the government has failed to provide services in the Municipality.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made. They are made with the view to enhance digital inclusion and digital literacy approaches to overcome the challenges faced by rural women relating to their ICT use.

Designing intervention programmes for learners

The Eastern Cape provincial government should design an ICT strategy for the province, which is to be implemented by local municipalities. The National Department of Basic Education should include ICT skills in the curriculum for both primary and high school learners. It should also be investigated whether subjects such as Computer

Application Technology and Information Technology should not be made compulsory in school. Access to basic ICT equipment, including computers and Internet access, should be ensured at schools. This could be coupled with a computer literacy programme for educators, together with the provision of the software required in teaching and learning. In addition, measures to protect ICT infrastructure should be implemented. Provincial education departments should also investigate the possibility of conducting ICT literacy programmes for teachers at schools.

Designing intervention programmes for rural women

As mentioned above, the first step would be for the Eastern Cape provincial government to develop an ICT strategy to be implemented at municipal level. Thusong Service Centres should be easily accessible in rural areas and should be installed in wards by USAASA and other stakeholders, such as non-profit organisations that fund ICT projects. ICT skills should be taught to all disadvantaged people who seek such skills from the MPCCs and TSCs. Local municipalities could work with science and technology institutions, such as the Meraka Institute, which provides training, technical implementation and monitoring of projects (Eliasz & Von Staden 2008). The government could subsidise ICT services and equipment so that poor members of society are able to use ICT services in the language of their choice. E-government services, in particular, should be available in the local language.

The Thusong centres should be made relevant to the community; that is, electronic networks should meet the needs of the communities, including, for example, information on agriculture, markets and health. The local community should take part in the design, implementation and management of the Thusong Centres, as this would enable them to influence decisions that affect them. Community participation also builds a sense of ownership.

Monitoring and evaluation of ICT programmes in rural areas

It is crucial for the government to evaluate the effectiveness of those ICT policies that already are in place. Measures should be implemented to monitor and support ICT projects in rural areas. Provincial governments could also involve academic institutions in the monitoring and evaluation of ICT projects. Local tertiary institutions could make a valuable contribution by conducting research that provides insight into the effectiveness of ICT programmes in communities (Eliasz & Von Staden 2008).

CONCLUSION

From the data analysis above, it is clear that some rural women and high school learners in the Emalahleni and Intsika-Yethu Local Municipalities in South Africa's Eastern Cape province face a number of challenges in ICT uptake and use. Issues of affordability, accessibility, availability and low ICT literacy levels are negatively affecting ICT uptake and use. The challenges contribute to the widening of the digital divide in South Africa. Although ICT policies exist, implementation appears to be lacking. This concurs with Singh's (2010) findings that in the area of ICT, the South African government appears to be following an agenda that conflicts with the hopes and rights of the majority of

South Africans. Technology is a catalyst for the social and economic development of rural areas. Therefore, ICT should be used to improve the lives of women and young people by providing market information for their agricultural produce, weather reports, mobile banking and access to information that promotes teaching and learning.

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