

# DIFFUSION AND ADOPTION OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN SOUTH AFRICAN TELECENTRES: SELECTED TELECENTRES IN KWAZULU-NATAL

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## ABSTRACT

This study investigated the usage and types of information and communications technologies (ICTs) accessible to community members in four selected Thusong Service Centres (TSCs or telecentres) in KwaZulu-Natal (KZN). The telecentres that participated in the study were: Nhlazuka, Mbazwane, Dududu and Malangeni. The study was informed by Rogers' (1995) Diffusion of Innovations (DoI) theory. Through a survey, four TSCs were purposively selected. A questionnaire was used to collect data from community members in the four telecentres involved. The data collected was tabulated under the various headings and presented using tables, frequencies, percentiles and generalisations with the help of the Statistical Package for the Social Sciences (SPSS). The results indicated that a variety of ICT tools have been adopted in the TSCs to provide the local community with the much-needed access to

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information and improved communication. The government should ensure that adequate varieties and levels of ICT competence are offered to all the citizens. In conclusion, there is a need for sufficient and coherent government policies regulating the training of the local community to use these ICTs effectively.

**Keywords:** civil society, telecentres, information and communication technology, information society, e-inclusion, social informatics

## 1. INTRODUCTION AND BACKGROUND

It is important to note that two significant changes have taken place in Africa in an effort to address the plight of the rural poor, namely: businesses have started to recognise the potential and the meaningful contribution that rural markets make in the economy of the continent; and as a result, the governments has also started to use telecentres in order to provide services to rural citizens (Naik, Joshi and Basavaraj 2012, 82). Telecentres are regarded as a solution to developmental problems around the globe because of their ability to provide remote, rural and disadvantaged communities with much-needed access to information and communications technologies (ICTs), which in turn narrows the 'digital divide' (Colle and Roman 2001; Neville 2012, 321; Odat 2012). Policymakers and analysts cite the availability of free Internet access at community centres as a viable way to close the so-called knowledge gap and the digital divide among minority and poor communities (Medina et al. 2006, 213). There is a strong positive relationship between telecentres, information flow, meeting information needs and socioeconomic development (Medina et al. 2006).

Researchers have emphasised the role played by telecentres in improving information flow and accessibility; satisfying information needs; promoting ICT services; and bringing about socioeconomic development in most marginalised communities (Colle and Roman 2001; Neville 2012, 321; Zolfani, Sedaghat and Zavadska 2012). The problem that was investigated in this study stems from the fact no studies have hitherto been conducted in South Africa to establish how telecentres are used by local communities. There are also limited studies aimed at finding out the challenges facing the telecentres and how the operators of the telecentres try to overcome said challenges. Also another important point worth noting is the growing concern that poor people, especially those in remote rural areas, have benefited very little from rapid economic growth. While the migration of the rural poor to urban areas has helped cater to urban requirements, it has accentuated urban poverty and migration-related social problems.

It is worth mentioning that most African countries have poor ICT infrastructure and abject poverty in some countries is due to a number of reasons including poor information facilities and access (Ojo 2005; Tobin, Porumbescu and Lee 2013). The introduction of telecentres in these countries in the 1990s was solely aimed

at improving information accessibility. Despite South Africa being a leader in the ICT infrastructure in the whole of Africa, it is a sad reality, however, that some communities in South Africa still have a poor ICT infrastructure which, in essence, is prohibiting local communities access to information (Mbatha, Ocholla and Le Roux 2011). It was based on this background, that the current cross-sectional study was commissioned with the intention of establishing the use of telecentres and the types of ICTs available in the four selected Thusong Service Centres (TSCs or telecentres) in KwaZulu-Natal (KZN). It is of utmost importance to have fully functional telecentres, equipped with relevant ICTs. Telecentres, as Ojo (2005) correctly observes, promote the use of ICTs for community development; they provide information services to communities; they provide communication services to communities and as well as training in the use of computers; teach many varying methods of carrying out different activities by way of demonstrations; and so on.

## 2. AIM OF THE STUDY AND RESEARCH QUESTIONS

The study was designed to examine the use and types of ICTs accessible to community members in the four selected telecentres in KZN in order to suggest possible recommendations that can be implemented by government to improve the use of ICTs in telecentres. To achieve the aforementioned aim, the following research questions were posed:

- What types of ICTs are available in TSCs?
- What is the purpose of using ICTs in telecentres?
- What are the ICT training needs of community members?
- What are the community members' recommendations for improving ICT usage in their communities?

## 3. LITERATURE REVIEW

It is true that there is poor information accessibility among developing nations, a phenomenon creating the so-called information gap. Hence, various alternatives have been suggested as solutions to minimise the information gap. Print media, electronic media as well as telephone all aim at enhancing information availability. Modern ICTs were also discovered as effective tools to facilitate information sharing. Sirimane (1996, 6) is of the opinion that ICTs are capable of narrowing the information and communication gap between rural communities and urban centres by giving rural people access to valuable information; and by transmitting indigenous information and locally-produced knowledge. The bringing of ICT benefits to the underserved developing world has been greatly furthered by the past decade's veritable explosion

of communication technology deployments. Shared-access models – information kiosks, telecentres, and Internet cafes – shift the burdens and the costs associated with new technologies from the individual to businesses, communities, or the government (Salvador, Sherry and Urrutia 2005).

The World Summit on Information Society held in 2003 recognised that telecentres are a cost-effective way of bringing the information revolution to developing countries, and are thus endowed with the potential to empower the rural poor. There are instances of e-government projects of this nature in some countries that have yielded significant positive gains for the poor (Bhatnagar 2009). ICTs have great potential to contribute to community development, especially for local communities, the underserved and marginalised populations (Unwin 2009). Nonetheless, inequalities in access to ICTs, also collectively called the ‘digital divide’, are a reflection of existing social, political and economic divides in society. Access to ICTs alone does not change the relationships of inequality in society.

Various researchers, such as Migiro and Kwake (2007), Trimi and Sheng (2008), and Mbatha (2009, 2012), have investigated the role played by ICTs in both organisational and societal contexts. The authors concur that ICTs are key tools in transforming the way development is promoted and information is shared around the world. Migiro and Kwake (2007, 109), supported by Mbatha and Ocholla (2011), note that as a power source for facilitating and sharing of information, ICTs are capable of decoupling or separating information from its physical repository and have also proved to be excellent channels of communication from one person to another. It is generally acknowledged that the information and knowledge age is here, and has in fact, been with humankind since the last decades of the second millennium (Comninos et al. 2010, 2; Mbatha 2011; Thioune 2003, 6).

The notion that ICTs are pre-eminent for faster development especially in the underdeveloped countries is pervasive and momentum is gathering on a global scale to support the development, diffusion, use and appropriation of ICTs in knowledge-poor countries and regions in Africa and Asia in particular (Comninos et al. 2010, 2; Thioune 2003, 6). ICTs are credited with their transformative capacity in national economies, organisations and the global economy (Sayed and Westrup 2003; Singh and Raja 2010, 3). For nations, ICTs are assumed to offer significant potential benefits for socioeconomic development and thus represent a promising way to lead developing nations to a path of more rapid development (UNDP 2001). According to Montealegre (1999, 199), ICTs have been portrayed ‘as a kind of panacea for a multitude of the world’s problems’ and as ‘an important catalyst that will strengthen developing countries’ position in the information society’.

Multipurpose community telecentres provide the public with access to a variety of communication and information services. Many governments around the world and organisations alike encourage the effective use of these centres. Telecentres provide affordable ITC access, training for disadvantaged individuals, and access

to resources and information for social development. Despite their advantages, the South African government has often experienced significant obstacles in the establishment and maintenance of these centres, mainly because of the high cost of connectivity, low digital literacy in some communities, and high maintenance costs (Mtega and Malekani 2009; Zolfani, Sedaghat and Zavadska 2012). Public ICT access centres are diverse, often varying in the clientele they serve and the services they provide. Some for-profit, private-sector cyber cafés cater for those who are able to pay for online time, and these provide more advanced facilities that target the youth, such as gaming and various social networking services (Nasi, Frosini and Cristofoli 2011; Neville 2012; Rose 1999).

### 3.1. Theoretical framework

Rogers' (1995) Diffusion of Innovations (DoI) theory was found to be useful, as the study sought to examine the diffusion and use of modern ICTs by community members. Clarke (1999) notes that Rogers' theory has been used as the theoretical basis for a number of information systems projects. The DoI theory has also been widely applied to investigate the diffusion of organisational and societal innovations. Thus, the theory's application to information technology and organisational and societal relations provides the most appropriate framework for the current article. The DoI is one of the theories that explain the acceptance of technology. In his comprehensive work, Rogers (1995, 5) defines diffusion as 'the process by which an innovation is communicated through certain channels over time among the members of a social system'. Rogers' definition contains four elements that are present in the diffusion of innovation process, namely: innovation, communication channels, time, and the social system.

In order to understand the definition of the DoI, it is first necessary to understand some key terms. The diffusion of an innovation concerns 'the process by which an innovation is communicated through certain channels over time among the members of a social system' (Rogers 1995, 6). The DoI is essentially a social process in which subjectively perceived information about a new idea is communicated and rests on the premise that a new idea, practice or object has perceivable channels, time and mode of being adopted by individuals or organisations (Rogers 1983). Clarke (1999, 1) notes that the theory purports to describe the patterns of adoption, explain the mechanisms, and assist in predicting whether and how a new innovation will be successful. Clarke sums it up by pointing out that the DoI theory is concerned with the manner in which a new technological idea, artefact or technique, or a new use of an old one, migrates from creation to use. Rogers (1995) argues that those innovations which are perceived by individuals as having greater relative advantage, compatibility, trial-ability and observability will be adopted more rapidly than those which are perceived as more complex. He proposes a model of the innovation-

decision adoption process that emphasises the role of individual behaviour in the technology adoption process. It is worth mentioning that the model relates to actions and choices during which an individual evaluates a new innovation and decides whether or not to incorporate it into an on-going practice.

### 3.2. Relevance of the DoI theory to the study

The DoI theory is relevant to the current study because it (the theory) talks about adoption of innovations and also the study investigated the diffusion and adoption of innovations (ICTs) in telecentres. This section examines the various elements of the DoI theory in the context of the study. Below, the four main elements of the theory are discussed, namely: innovations, communication channels, time and the social system.

#### 3.2.1. Innovations

The government previously used conventional communication channels to disseminate information to the citizens. Although these channels have been used widely, they have been monologues and have not allowed much interaction. New ways of communicating are presently being adopted using ICTs, such as the Internet, email and mobile phones (Mbatha and Ocholla 2011). ICTs are therefore 'new' innovations that have been made available in telecentres for community members to make use of. The rate of adoption of an innovation is influenced more by an individual's perception of the newness of an innovation than by the actual time it has been around. Newness can also mean new knowledge of the innovation or a new decision to adopt it. For example, quite a number of ICTs, such as computers, copy machines and the Internet, to name but a few, have been available to community members for many years; however, they may not be fully used. These ICTs may be considered to be innovations even though they have been available to community members for many years whenever community members make a new decision to use them.

#### 3.2.2. Communication channels

Information regarding new innovations has to be disseminated so as to introduce the innovation; formulate or change attitudes; influence decisions with respect to the innovation; and support the evaluation of the innovation. This means that if the government wants to introduce an ICT tool or service via telecentres, it has to inform community members about that ICT tool or service. This would prevent a situation whereby new ICTs are introduced, only to find that they are not adopted because community members are unaware of them. Therefore, communication and awareness are fundamental.

### 3.2.3. Time

There are many factors that contribute to a person's decision either to adopt or not adopt an innovation. Evidently, in order for community members to adopt ICTs, they have to be aware of the ICTs and their benefits.

### 3.2.4. Social system

A social system may consist of individuals, households, informal groups or social organisations (Rogers 1995). Some social systems/individuals do not use technology because of their norms and beliefs. The government should be aware of such unfavourable perceptions in order to be able to overcome them.

## 4. METHODOLOGY

A quantitative approach was adopted to conduct the study and the data was collected using a self-administered questionnaire. The four telecentres, namely Nhlazuka, Mbazwane, Dududu and Malangeni, were selected using purposive sampling after the researchers had established that not all TSCs were fully operational. So, the selected telecentres were said to be service intensive. Also a convenience sampling was applied to select the participants. The researchers requested community members who visited the centres during the research day to participate in the study. The researchers also asked centre managers to organise the research participants, and 207 questionnaires were completed and returned. The centre managers also participated in the study, however, the article only reports on the views of the users (community members) of these centres. The data collected was tabulated under the various themes and subheadings and presented using tables, frequencies, percentiles and generalisations with the help of the Statistical Package for the Social Sciences (SPSS).

Subsequent relationships between variables were compared and interpretations made. It was decided to use questionnaires for the study because the nature and scope of the study pointed to this technique. A questionnaire was viewed as a logical technique to study a population that is dispersed across the whole province. A questionnaire was also found to be cheaper and more cost effective. Moreover, a questionnaire permitted respondents to provide well thought-out responses and where necessary, to verify information that would be analysed to reveal the actual diffusion and adoption of ICTs in TSCs. The self-administered questionnaire was administered to 207 citizens who use the centres and were allowed to answer the questions without any pressure. Anonymity allowed the respondents to provide answers freely without feeling intimidated and prevented any influence on the answers or bias on the part of the researchers. It also allowed the researchers to cover a wider area of study and also proved to be cost effective in terms of money and travelling.

The general disadvantages of self-administered questionnaires are that there is the possibility of a low response rate and questions might be left unanswered. In this case, contact persons (centre managers) were used in each telecentre to assist with feedback, and the questionnaire was designed to ensure that the questions were clear, straightforward and to the point. The self-administered questionnaires consisted of both structured and non-structured questions. The validity of the data collection instruments used in the study was enhanced by the fact that questions were derived from the objectives of the study. Each question was checked to determine whether it contributes to the research objectives. The questionnaire was pre-tested for clarity, completeness, relevance and shortcomings in a pilot study and this was done between September and October 2013. The aim of the pilot study was to establish the questionnaire's effectiveness, reliability and validity before the actual study. Most importantly, the pilot survey aimed at testing the subject matter of the current research, the population it was to cover, its spatial variability, and the possible reactions to questions by the respondents. The reliability of the research instrument was enhanced by having both close-ended and open-ended questions. The researchers ensured that they used simple, direct and unbiased wording. Results from the pilot study revealed that the initial questionnaire was too long, as respondents had to spend almost an hour trying to fill it in. Consequently, the 'no response' alternative was highly recurrent throughout the results. It was necessary to redesign the questionnaire in order to make it less cumbersome for both the respondents and the researchers. Necessary steps were followed in order to obtain permission prior to the pilot and main studies.

In terms of ethical considerations, informed consent was obtained from each participant in the study in order to ensure that each participant understood what they were doing and to verify their willingness to participate. The respondents were informed of their rights, including the right of informed consent, protection from disclosure of information, and respect for their privacy. All the research participants participated in the study voluntarily. With regard to protection from harm, the researchers ensured that the participants were not at any risk by answering the questionnaire and would not be exposed to embarrassment, unusual stress, or any demeaning treatment. Anonymity and confidentiality were promised and maintained. The information they provided was not made available to anyone else who was not directly involved in the study and cannot be traced back to the participants. In terms of professional standards, the researchers ensured that the results were gathered in a professional manner without misrepresenting anyone and/or intentionally misleading the respondents about the nature of the study. The researchers ensured that all the results were presented honestly without fabricating any data to support any particular finding.



## 5. RESULTS

The results are reported under the following headings: demographic profile of the respondents; types of ICTs available in TSCs; purpose of using ICTs in telecentres; ICT training needs of community members; and recommendations for improving ICT usage in telecentres.

### 5.1. Demographic profile of respondents

Background information sought from the respondents included age, gender and highest educational attainment. The aim was to determine the relationships between the respondents' demographic characteristics and their use of ICTs. The structured questions were asked to determine the relationships between the respondents' demographic characteristics and the adoption and use of ICTs by the community members in the sampled TSCs. It was also vital to assess gender proportionality in the study, as it is a widely held view that males dominate the use of and access to ICTs. The study was dominated by females who numbered 147 (71%). This did not at all come as a surprise given the fact that with regard to gender in South Africa, there are more females than males.

The aim of this question was to establish whether there was gender equity in the use of ICTs among community members. Many studies have identified women and girls as disadvantaged in their uptake of ICTs (Cullen 2001; Hafkin and Odame 2002; Mbatha, Ocholla and Le Roux 2011; Ngenge 2003; Nielson 2001). Also, 121 (58%) out of 207 respondents were below the age of 20. The respondents between the ages of 20–29 made up a total of 54 (26%); while 32 (15%) of the respondents were aged between 30–39 years. Of interest is that none of the respondents indicated their age as 40 years or more. The aim of this question was two-fold: firstly, it was to understand the distribution of respondents by age; and, secondly, it was to establish whether there was any correlation between the respondents' ages and their use of ICTs.

These results conclusively confirmed that technology is mostly used by the relatively youthful community. Ayoo (2001) supported by Mbatha, Ocholla and Le Roux (2011), found that most people above the age of 40 years in developing countries are often conservative and slow in keeping up with ICT advancements. What is also important in the study is that all the respondents were indigenous black Africans and this could be attributed to the fact that all the telecentres that were targeted in the study were based in remote rural areas which are mainly populated by indigenous black Africans.

With regard to educational background, 105 (51%) had matric or Grade 12; 41 (20%) had a bachelor's degree; and 33 (16%) of the respondents were still in secondary school between Grade 8 and 11. As the study was conducted in four TSCs in KZN, the results showed that the majority of respondents, about 62 (30%) were

from the Nhlazuka TSC; followed by 51 (25%) who were from the Mbazwane TSC; the Dududu TSC had 49 (24%) respondents; and the other 45 (21%) respondents were from the Malangeni TSC. The results further suggested that 167 (81%) were unemployed; while 28 (14%) mentioned that they were employed on a part-time basis. There were only 12 respondents (6%) who mentioned that they were gainfully employed.

## 5.2. Types of ICTS available in telecentres

It is important for citizens to have access to relevant technology that can assist them to improve their lives. Also of note is that telecentres are established to ensure that they provide citizens with access to ICTs. It was against this background that the respondents were required to indicate the types of ICTs that were available and those that were not available in their telecentres. The main aim of this item was to establish the extent to which the available ICTs were accessible to the community members in their respective centres. As indicated above, four purposively selected TSCs in KZN participated in the study. One of the objectives of the study was to identify e-skills that were offered at the TSCs under investigation. The study established that all four targeted telecentres were offering the same e-skills, such as basic computer skills, the use of Internet and the retrieval of information from the Internet. Also, the study wanted to establish the types of ICT tools and services that were available in all four TSCs. The results showed that all four telecentres had the same ICTs, such as fax machines, desktop computers, Internet access, copy machines, printers, e-mails, scanners, telephones and lamination services. Notably, only the Dududu TSC had more ICTs, such as a DStv decoder, a television set and a DVD player.

## 5.3. Usage of ICTS in telecentres

Here, the respondents were required to give their personal views to a close-ended question regarding their use of ICTs in their respective telecentres. The aim of this question was to capture the respondents' varying opinions and attitudes related to ICT usage in their respective telecentres. The respondents were provided with possible options to choose from and asked to rate each one on a scale of 1 to 4 (1 = strongly agree and 4 = strongly disagree). Using a close-ended questionnaire, appropriate multiple answers were selected. Table 1 shows the number of responses for each rating and the corresponding percentages.

**Table 1:** ICT usage in telecentres (N = 207)

Reason for ICT usage	SA		A		D		SD		Mean score
	F	%	F	%	F	%	F	%	
To communicate with friends	207	100	–	–	–	–	–	–	1
To disseminate information	144	70	48	23	15	7	–	–	1.3768
To conduct research	89	43	51	15	31	14	36	17	2.0676
To retrieve information	121	58	23	11	21	10	42	20	1.9227
To type CVs	114	55	43	21	50	24	–	–	1.6908
To surf the Internet	207	100	–	–	–	–	–	–	1
To work on a spreadsheet	34	16	74	36	57	32	42	20	2.5169
To do printing	198	96	–	–	9	4	–	–	1.0869
To develop digital literacy	195	94	12	6	–	–	–	–	1.0579
To access particular information	178	86	29	14	–	–	–	–	1.1400
To seek jobs online	155	76	40	19	12	6	–	–	1.3091
To type assignments	121	58	22	11	–	–	–	–	0.7971
To access educational material	165	98	21	10	21	10	–	–	1.3043
To simply access social networks	199	96	8	4	–	–	–	–	1.0386
To play online games	43	21	51	25	76	37	37	18	2.5169
To play computer games	41	20	54	26	70	34	42	20	2.5458
To read online newspapers	112	54	43	21	25	12	27	13	1.8405
To access government websites	66	32	23	11	77	37	41	20	2.4492
To do lamination	108	52	53	26	12	6	34	16	1.8647

In all cases, levels 1 and 2, and 3 and 4 on the Likert scale were combined to calculate all the responses in the affirmative. It can be seen from Table 1 that all the respondents, in other words, 207 (100%) of them visited the telecentres to use ICTs in order to communicate socially with their friends, and access the Internet. Also the results depicted that a total rating of 100 per cent when levels 1 and 2

on the Likert scale were combined, thus respondents used ICTs to develop digital literacy, simply access information, type assignments, access educational material, and access popular social networks.

#### 5.4. ICT training needs of the community members

As indicated in Table 2, the respondents were required to answer a question based on the type of training that they would require in order to help them use ICTs more optimally and effectively. In this question, a scale of 1 denoted a favourable response, which meant that the training need was very essential (VE); a 2 meant that the training need was essential (E); a 3 meant that the training need was of medium priority (MP); a 4 meant that the training need was of low priority (LP); whereas a 5 meant that the particular training was not a priority at all (NAP). The respondents were therefore provided with a list of possible training needs and were asked to rate each one of them on the Likert scale. The respondents were at liberty to provide any other training needs that were not listed on the questionnaire. Thus, some training needs scored a few ratings, as Table 2 illustrates.

**Table 2:** Training needs of the community members (N = 207)

Training need	VE		E		MP		LP		NAP		Mean
	F	%	F	%	F	%	F	%	F	%	
Office suite	102	49	31	14	32	15	23	11	19	9	2.1594
Internet usage	111	54	44	21	29	14	23	11	–	–	1.8260
Computer skills	119	57	43	21	33	16	12	6	–	–	1.7004
File management	186	90	21	10	–	–	–	–	–	–	1.1014
Database searching	198	96	9	4	–	–	–	–	–	–	1.0434
Information retrieval	113	55	45	22	49	23	–	–	–	–	1.6908
E-mails	121	58	32	15	54	26	–	–	–	–	1.6763
E-government	133	64	22	11	52	25	–	–	–	–	1.6086
E-commerce	152	73	13	6	42	20	–	–	–	–	1.4685
E-banking	153	74	21	10	33	16	–	–	–	–	1.4202
Cell phone banking	140	68	21	10	33	16	13	6	–	–	1.6086
E-learning	112	41	29	14	21	10	24	12	21	10	1.7681

Like in all the tables above, levels 1 and 2, and 4 and 5 on the Likert scale were combined to calculate all the responses in the affirmative. For example, 1 (very essential) and 2 (essential) were combined to calculate the respondents' training needs. Therefore, it can be noted from Table 2 that 133 (64%) of the respondents required training on computer applications such as Microsoft programmes. Also, a significant number of respondents (155; 75%) when levels 1 and 2 were combined, revealed that they need training on how to use the Internet. Also of note is that 162 (78%) of the respondents required training on general computer skills. When it comes to file management training and database searching, all the respondents (207; 100%) when levels 1 and 2 were combined, indicated that it was very essential. Training on information retrieval was also strongly required by the majority of respondents (158; 76%). As depicted Table 2, training on e-mails, e-government, e-commerce, e-banking, e-learning and cellphone banking was very essential among the respondents (when levels 1 and 2 on the Likert scale were combined).

## 5.5. Recommendations for improving the use of ICTs

The respondents were required to discuss and indicate contextual conditions that need to be adapted in order to enhance the positive consequences of ICTs in the communities to which they belong. The respondents generally felt that:

- Resources should be provided to ensure that all equipment, functions properly and optimally and that administrative functions are performed effectively.
- All ICT tools and services should be available and in working order at all times.
- The government and donors should increase bandwidth and provide a speedy, reliable and consistent Internet connection.
- Faster modems should be made available in order to enhance Internet usage among community members.
- Network facilities and computers need to be upgraded.
- The government and donors should design and implement ICT policies regulating the training of staff with respect to the use of ICTs in the telecentres.
- There must be a clear focus and objectives regarding the use of ICTs in communities.
- There is a need for more ICT awareness in the communities.

The most cited recommendation was the need for ICT policies regulating the training of staff with respect to the use of ICTs in the telecentres. Another was the need for resources to be provided to ensure that all ICT tools and services including the Internet function properly and that administrative functions are performed effectively.

## 6. DISCUSSION

It was vital for the study to establish the types of ICTs available in the telecentres under investigation. It is worth mentioning that for citizens to participate in the information society, they must have access to relevant technology, and ICTs are a vital part of such vehicle. In a telecentre, people would expect to see ICTs, such as desktop computers connected to the Internet, fax machines, copy machines, and so forth. Generally, these ICT tools are regarded as common and relevant tools in contributing to the agenda of information society. Notably, the study has established that all the above-mentioned ICT tools and services were available at the targeted TSCs. As it is widely known that telecentres are mandated by governments to educate citizens and offer ICT skills to them in the easiest and most practical way, it was against this background that all four targeted telecentres were offering similar services to the rural communities of the afore-mentioned places. Community members were expected to learn skills such as basic computer literacy, Internet surfing, e-mail, and so on. These skills can be considered as fundamental for all the community members including the youth who need them in this day and age where technology is a buzzword. If community members and the youth alike are armed with these, they can also participate meaningfully in the economic development of the country.

The literature reveals that many researchers tend to agree that the diffusion of Internet use over the last decade has been heavily influenced by one major force, namely, personal computer use. Internet use is a good indicator of the information revolution (Mbatha, Ocholla and Le Roux 2011; Xu, Yen and Chon 2000). Internet technologies have been adopted by most organisations for business process re-engineering (Xu, Yen and Chon 2000). This concurs with the DoI theory, which suggests that those innovations that are perceived to have relative advantage will be adopted faster. The *Data Protection Staff Handbook* (2003, 1) supported by Mbatha and Ocholla (2011) states that the Internet can deliver important business opportunities and advantages when utilised properly and responsibly. For example, government can improve the way it services the public by using e-mails to communicate with those who can access them and with computer literate citizens who cannot go physically to their nearest offices because of their age, for example. Such services provide citizens with the opportunity to download useful government information directly from the Internet without even visiting a government office.

After the respondents had identified the ICT tools to which they had access in the studied telecentres, it was necessary for the study to establish the purpose for which the respondents used those ICTs. As expected, the answer was that the ICTs were mostly used for communication purposes, information access and educational activities such as typing of assignments and curriculum vitae. Since the majority of respondents (121; 58%) were below the age of 20, it was not surprising to establish that they mostly used ICTs to facilitate communication and information access. Nowadays social networks have proved to be catalysts when it comes

to communication. So the youth have embraced this new and innovative way of speeding up communication and this is what the information society is all about.

It is pointless to provide people with technology if they cannot utilise that particular technology due to the lack of skills. Hence, it is important for community members to have the relevant skills in order to be able to use ICTs. The literature suggests that many innovations in society have failed and instead have become white elephants because the people who were meant to use them could not do so because they lacked the necessary skills. In many instances, it has been shown that training is key in any development or system that is meant to improve people's lives. Most respondents who were interviewed indicated that they required training on computer programs such as office suites. These are fundamental computer applications because they include a number of useful and different applications that anyone who wishes to participate in the information society should be able to use. Notwithstanding the fact that South Africa is not yet an information society, the government is trying by all means possible to make sure that all its citizens have better access to ICTs.

## 7. CONCLUSIONS AND RECOMMENDATIONS

The aim of the study was to establish the use and types of ICTs available in the TSCs in certain parts of KZN. The study has demonstrated the importance of ICTs in the society and also the various interventions that are necessary to effectively propel citizens into the emerging information society. For this to be realised, a number of measures are needed, including, among others, the enactment of an enabling policy and legislative framework to cater for skills development, and the improvement of infrastructure such as telecommunications networks. Despite the constraints and challenges in the application and use of ICTs in TSCs, a wide range of ICTs have been adopted to help citizens improve their lives in one way or another. Interpreted in light of the DoI theory, the findings suggest that ICTs that were perceived to have relative advantage and that were more compatible with people's existing values, past experiences and needs, were adopted faster. For example, the Internet, desktop computers and copy machines had a faster rate of diffusion among the respondents. The government of South Africa should be committed to promoting the development and use of ICTs in the direction of realising the socioeconomic objectives of the country. Further, the government should ensure that adequate varieties and levels of ICT competence are offered to the citizens. Also of note is that the government needs to find ways to gradually include ICT training in curricula at all levels, including at primary school level. In the early stages of education, the focus could be on sensitising students in order to show them the possibilities of ICTs and stimulate their interest in them. They will, after all, be the beneficiaries and architects of the future. A national coordinating structure would contribute towards designing the curricula of ICT content.

## 8. RECOMMENDATIONS FOR FURTHER RESEARCH

The study examined the use and availability of ICTs in selected telecentres in KZN. However, such an inventory did not reveal the entire extent to which ICTs have diffused into telecentres in South Africa as a whole. Three areas that are recommended for further research are discussed below.

### 8.1. Standards

No clear standards or guidelines are provided as to what sort of ICT training is provided and should be provided to community members in order for them to use ICTs confidently. Research in this area would be useful.

### 8.2. Satisfaction levels of ordinary staff

The study targeted only the users of telecentres, therefore, it would be interesting and useful to establish the views of managers of these telecentres. This could reveal much more about the ICT situation in telecentres.

### 8.3. Area of study

Because of the diversity of telecentres and communities in South Africa, the study narrowed its scope to selected telecentres in KZN. Financial and time limitations also made it impossible to include all the telecentres in South Africa. Further research should either focus on these logistically excluded areas or ensure that they are included in any major future studies.

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