Telecentres and sustainable community development in South Africa

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Abstract

Information and communication technology (ICT) in South African telecentres is used by communities for social and economic development. Community informatics (CI) is a technology discipline which links economic and social development efforts at the community level with emerging opportunities in such areas as community and civic networks, telecasters, and virtual health communities (Gurnstein 2000:1). Against this background, this paper is based on a thesis research about the role of telecentres in the education of users in South Africa. The research was conducted for the present writer's doctoral study. The objective of the research was to contribute to a framework for the assessment of ICT-for-Development projects from a critical, social viewpoint. The study consisted of a theoretical discussion on the role of ICT in development, and an examination of how ICTs improve formal and non-formal education of the groups sampled using a survey questionnaire and personal interviews. The study provides insight into the uses of ICTs for sustainable development according to geographical location.

1 INTRODUCTION

South Africa's Minister of Communications, Dr Ivy Matsepe-Casaburri (2001a: 2), stated that her government has recognised that the ICT sector is at the epicentre of the growth and development of the country, and that this goal will be achieved by lowering input costs, enhancing efficiency and developing skills. Against this

background, and also because of other similar sentiments that have been publicly expressed by government department representatives, to the effect that ICTs should be used to develop people in this country and improve lives, the present writer saw a need to assess *how* ICTs - in telecentres – contribute to this development of skills and reduce illiteracy.

Once it is known – through studies such as this one - how ICTs contribute to ICT skills development, researchers, academics and ICT policy makers should be better informed about the role of ICTs in local community development. Furthermore, ICT policy makers can use this information or knowledge to provide better ICT services aimed at enhancing telecentre users' education even further. The research on which this paper is based thus sought to constitute a small but important contribution to this field.

2 THE SOUTH AFRICAN TELECOMMUNICATIONS SECTOR

According to the ITU (2004) the total number of telephone subscribers (fixed and mobile in Africa) rose from 530 million in 1990 to 2,257 million in 2002, a growth of 326 per cent. Botswana, Namibia and South Africa constitute some of the Southern African Development Community (SADC) countries that enjoy better coverage than other African countries as a result of the introduction of competition in their mobile telephony sub-sectors. South Africa's fixed-line telephony has not grown much because of lack of competition in this sector, although a Second National Operator (SNO), Neotel, started operated at the end of August 2006 and is expected to spread telecom services. Table 1 provides some background information on main telephone lines in selected African countries, including South Africa.

Table 1: Africa: Main telephone lines 1998-2003 (selected countries)

Main telephone lines (k)		Main telephone lines per 100 inhabitants (per cent)	
1998	2003	1998	2003
Algeria	1, 477.0	2,199.6	5.01	6.93
Botswana	102	142.4	6.51	8.28
Egypt	3, 971.5	8, 735.7	6.47	12.73
	245.4	348.2	21.16	28.52
	1, 93.4	1, 219.2	5.03	4.05
South Africa	5, 075.4	4, 44.0	12.05	10.66
Africa (51 countries)	**16, 442.3**	**24, 711.9**	**2.26**	**3.01**

Source: ITU (2004).

In terms of other regions the African teledensity level of 2003 is very low (3.01) compared to the Americas' (34.12), Asia's (13.64) and Europe's (41.00) (ITU 2004). Telecentres assist in raising this low level. Mobile phones have slightly improved African access to telephony. According to Mureithi (2003:11), the last 10 years has seen a dramatic growth of cellular service in Africa. Today and increasingly in the future, cellular telephony is going to be the predominant mode of access to the information society for African citizens (ibid.). By the end of January 2005, Africa had 82 million GSM customers (Vodaworld Magazine 2005:28). While this figure may be astounding to some, it represents a mere 9.25 per cent market penetration into the African population

In most African countries, including South Africa and Ghana (Bertolini 2002; Song 2003), in spite of universal access criteria laid down by regulatory authorities and governments, and dramatic expansion of telecommunication networks (fixed and mobile) in the past decade, the improvement in connectivity has not yet trickled-down to rural areas. The demand for telecentres is aimed at bridging this urban-rural

digital divide. Mobile phones have also bridged the rural-urban digital and information. South Africa has 27 million mobile phone subscribers in 2006, which is 57% of the population (Knott-Craig 2006:6).

Taking stock of the last six years (1999-2004), one observes significant but not impressive changes in the African telecommunications landscape. These changes were brought about by a degree of deregulation and liberalisation of the sector in most African countries, including South Africa. Telkom is South Africa's incumbent fixed-line telecommunications service provider. Its monopoly status and high telephone tariffs have contributed to the stagnant growth in numbers of fixed-line telephones while introduction of competition in mobile telephony has promoted the rapid growth in mobile phone usage. Telkom listed at the Johannesburg Stock Exchange (JSE) and New York Stock Exchange (NYSE) in 2003.

Competition to Telkom, Neotel or the Second National Operator (SNO) is 30 per cent owned by Transtel and Eskom; 19 per cent owned the black economic empowerment (BEE) group Nexus Connexion; 51 per cent stake is owned by Sepco, which comprises the Tata Group of India, CommuniTel and Two Consortium (*SNO: A brief history* 2006:1). South Africa's mobile phone companies comprise Vodacom and Mobile Telephone Networks (MTN), which started operating in 1993, and newcomers Cell C, was licensed to operate from 2001 while Richard Branson's Virgin Mobile entered the South African market in 2006. Vodacom is 50% owned by Telkom and 50% by Vodaphone of the United Kingdom (UK). MTN is owned by Newshelf 664, (14.8 per cent); the PIC, with a 12.55 stake; Old Mutual, owning 8.7 per cent and the Transnet Pension Fund with a stake of 6.64 per cent (Crotty 2005:1). The remaining MTN shares are held by local and international institutional and retail shareholders (Bidoli 2004:1).

South Africa adopted a telecommunications policy of universal service and universal access in 1996, by means of the Telecommunications Act No 103 of 1996. This Act

brought into being the USA that is empowered to establish telecentres according to this Act (ibid.). The first objective of this Act was to promote the universal access and affordable provision of telecommunication services, with the third objective (out of 17) being to make progress towards the universal provision of telecommunication services (Republic of South Africa Telecommunications Act No 103 1996:10). The USA was set up by Chapter VII of the Act (ibid.:49).

A Universal Service Fund (USF) was established along with the USA. The USF was financed by a levy on operators' turnover and subsidises the extension of networks and telecentre establishment in areas designated as "under-serviced" and occupied by "needy people" (Gillwald 2003a: 14). The USF is administered by the USA.

Consequently, South Africa is heavily promoting telecentres (Latchem & Walker 2001:206). There were 63 Universal Service Agency (USA) telecentres in South Africa by early 2001 (Makhaya & Roberts 2003:14). After 1994, South Africa experienced rapid growth in her telecommunications sector. Telecentres developed in South Africa as a direct result of globalisation: after 1995, the then Deputy President (now South African President), Thabo Mbeki attended the (then) Group of 7 (now G8) developed nations conference on the Information Society (IS) and challenged the rich countries to visit South Africa in order to consider how ICTs could benefit people in LDCs. This challenge led to South Africa hosting the international Information Society and Development (ISAD) Conference in May 1996, which linked the economically powerful G7 countries with 30 developing countries. In preparation for the conference, South Africa had prepared a position paper stressing the importance of IS issues for all developing countries.

Since then, South African has established ICT centre around the country including:

a) telecentres, established by the USA and other statutory bodies such as the Government Communication and Information Services (GCIS). The USA has declared that they have established "133 telecentres, 235 cyberlabs, between

10 and 25 MPCCs and 21 community digital hubs" (Universal Service Agency 2005:1). According to Finlay (2005:17,19), there are 65 MPCCs that were operational through the pilot rollout phase of 1999 to 2004, and 94 telecentres were established by 2005.

b) digital villages, established by public-private-partnerships (PPPs) in townships (semi-urban areas formerly "designated" for black people, located a few kilometers from city centres). MACIS is such a Cisco Networking Academy (Motshweni 2002). Another successful digital village is in Emdeni, South Western Townships/Soweto (Soweto Digital Village 1997 – in South Africa's biggest township just outside Johannesburg).

The objectives of digital villages include making technology accessible to previously disadvantaged communities, building a future resource pool of technologically trained learners for future recruitment, providing personal computer skills, enabling those people trained at the digital villages to market their IT skills through the digital village and the companies funding the village, supporting local businesses as telecommunications service providers and connecting local communities to the global communication network (Lesame 2003a:11-12). In 1997, the Chairman of Microsoft, Bill Gates, visited and officially opened the Emdeni digital village together with President Mandela (Modise 2001; Wessie 2001).

c) electronic learning (e-learning) centres established by the private sector, foreign donors and government departments. The purpose of e-learning centres, among others, is to impart ICT skills and provide mathematics and science education to school learners (Lesame 2003a:1). Most of these centres are established in schools.

The above discussion shed some light on telecentre development in South Africa and the role of the USA in this regard. The 1996 ISAD conference championed the idea of setting up multipurpose community centres (MPCCs) which resonated

closely with the initiative of the ITU to establish telecentres in African countries. Against the background of the preceding introduction, the aim of the study is formulated.

3 THEORETICAL BACKGROUND

Harris (1999:74), a proponent of informatics, writes that telecentre studies will be dominant in the community informatics (CI) field, because, as community resources, telecentres offer opportunities for that development that is predicated on improved access to information for whole communities. Where successfully and properly implemented, telecentres assist communities to achieve many social development objectives. Acacia research on telecentres in Africa has shown that telecentres have developed many people in Mozambique, Senegal, South Africa and Uganda[1]. Acacia's telecentre video, Disseminating the Fruits[2], also provides insight into how South African women use ICTs in business, and how ICTs are empowering schools, communities and facilitating rural development. In Asia (Harris 2001) and Latin America and the Caribbean (Hunt 2001), many successful telecentre stories have been documented and are available on the Internet[3]. Other examples of successful telecentres are those connected to the Western Australia Telecentre Network[4]. Gurnstein (2000a) shows how ICTs can help communities achieve their socio-economic goals. In the case of a community telecentre, it functions as an organisational innovation or information centre (IC), which provides ICT users with IT skills and technological know-how (known as end-user computing/EUC), to

[1] More Acacia information can be located at the IDRC website at: http://www.idrc.ca/research/xacacia_e.html

[2] This video is available from IDRC at Halfway House in South Africa. Also available via this website: http://www.acacia2.org.za

[3] At website http://www.chasquinet.org/telecentros/recursos/cr_hisn.php3

[4] At website http://www.telecentres.wa.gov.au/support.htm

promote community development. It is expected that as more telecentre studies are carried out, more information will come to light about the role of the IC or telecentre in EUC and community development.

Gurnstein (2000a:2) states that CI begins with ICT, as providing resources and tools that communities and their members can use for local economic, cultural and civic development, and community health and environmental initiatives among others. CI also includes the technology ICT and the "user" (and the "uses") and is as concerned with community processes, users access, and technology usability as it is with systems analysis and hardware and software design. This study's questionnaire addressed and questioned telecentre users about their uses of computer hardware and software and other media at the telecentres, and about how they access the technology in the centres, as well as telecentre ICT usability – what they use the ICT for, how, which service providers provide the services to them, what cost to the consumer and how the ICTs influence their education and social and economic development. These questions, therefore, locate this study within the CI field.

Fundamental to this achievement of personal goals, e.g. the advancement of a person's education and social and economic development through the use of ICTs, is access to the ICTs, which consequently allows one access to information provided by the ICTs. Gurnstein (2000b:3), identifies an ICT "Access Rainbow" with seven discrete levels, which creates the required environment in which access to ICTs can be provided or even achieved. These levels are the following:

(a) Governance and policy;
(b) Literacy and social facilitation;
(c) Service providers ;
(d) Content and services
(e) Software tools

Devices and carriage facilities include "technical" e.g. telephone connections and computers, "economic" (the cost of using and maintaining these systems), "social"

(cultural, educational/literacy, and social barriers limiting the use of the systems). In this study, analysis of the uses of the ICTs on users and the influence of the ICTs on the users' education will be conducted on some of these levels (as a result f the focus of the study and the research aims, cf. Chapter 1 of this thesis),. CI aspects analysed in this study were literacy, service providers, content and services, software tools, devices and carriage facilities ("technical" aspects such as telephones and computers, "economic" aspects such as cost of using and maintaining the ICTs at the telecentres, and "social" aspects such as the influence of the ICTs on the users' literacy and/or education, both formal and informal. Gurnstein's "Access Rainbow" was also applied in the study to assist in the coding and analysis of the answers derived from the qualitative interview open questions.

Technology possesses the capacity to improve lives if the people concerned know how best to use that technology for their development. According to Juma, Fang, Honca, Huete-Perez, Konde, and Lee (2001:637), the conventional view of technology and development is that the former is a product of the latter. In fact, technological capacity is an essential component of development. Nandi (2002:1) suggests that innovation in communications technology in the West during the past two decades accelerated economic growth by generating new ideas and diffusing existing ones. Recently, many LDCs have realised the necessity of ICTs in achieving higher growth and economic development. Proper adoption and use of ICTs is important and remains a challenge for LDCs.

For Mansell and Wehn (1998:82) telecommunication technologies display the potential to support sustainable development and make a positive contribution to urban and rural development; transport interconnections efficiency and monitoring; health care improvement; enhancement of learning and capacity building and increasing opportunity for independent living; greater autonomy and improved social integration for disabled people. ICTs can be used as instruments for enhancing disabled persons' independence by giving them access to communication, education

curricula and informal learning, opening up opportunities that would otherwise be inaccessible. SchoolNet's ThinkQuest Africa Partnership is an example of such an educational ICT project.

There are other schools of thought explain the relationship between ICTs and development. Technophilics believe that telecommunications exert a positive influence on development, while technophobics regard telecommunications as having a negative effect on development and as contributing to the expansion of the information gap between the rich and the poor, the literate and illiterate. The technophilic view of the role of ICTs in society is utopian, while the technophobic view is dystopian.

The utopian perspective on ICTs supports the deployment of ICTs in communities and perceives positive developments as arising from this deployment. It is further argued that in the economy, ICTs enhance productivity, improve employment opportunities, and upgrade the quality of work in many occupations. Moreover, ICTs offer an opportunity for small-scale, independent and decentralised forms of production. Regarding LDCs, technophiles envision that technology will aid them to `leapfrog' stages of development (Castells 1998; Mansell & Wehn 1998; Naidoo 1998; Nulens & van Audenhove 1999; Matsepe-Casaburri 2002).

Modern information and telecommunications technology can improve living standards in remote and rural areas by offering important commercial, social and educational benefits (Jussawalla & Lamberton 1982; Share 1997; Madden, Savage & Simpson 1997). Mansell (1999:35) adds that in some parts of the world, information and communication technology and services (ICTs) are contributing to revolutionary changes in business and everyday life. In other parts of the world, the lives of people have hardly been touched by these innovations. If people in developing countries are unable to acquire the capabilities for using the new ICT applications, they will be increasingly disadvantaged or excluded from participating in the global information

society. The social and economic potential of these new technologies for development is enormous, but so too are the risks of exclusion.

This statement supports the view that ICTs, if accessible to people in LDCs, convey more knowledge and information for development purposes to the inhabitants of these countries. For Deane and Opoku-Mensah (1997:5), telecommunications in the modern global economy offer a new dawn of economic opportunity for developing countries. One concurs with Deane and Opoku-Mensah (1997:5) in this regard because in the case of telecentres, a new dawn of economic activity has been brought about to telecentre managers who own and operate these telecentres because establishment of the telecentres brought them jobs and income (albeit small) flows into the telecentres from computer training and other ICT services offered by the telecentre managers to other members of the communities. In addition, computer training offered by the telecentres, and received by community members allows these community members to gain jobs in cities, and this has happened in Orange Farm where some individuals who received six months' computer training at the Siyabonga telecentre (surveyed in this research), gained work after completing the courses (Msimango 2005, cf. Chapters 6 and 7).

One getting a new job will have an improved quality of life and telecentres offer local people this opportunity by providing the local good computer courses at low cost, compared to, e.g., the high cost of computer courses at educational institutions of higher learning or universities. Individuals who have received computer training from telecentres, therefore, obtain work and become productive in various job situations and turn the knowledge gained from the telecentres in productive work where they are employed, thus contributing to the country's economic upliftment in a small way. This is what Bozeman and Rogers (2002:770), term "qualitative change results", which means that knowledge gained through the use of ICT provides new uses of that knowledge. Other telecentre trainees continue to teach other people

about how to use computers productively to produce small community newsletters and these computer trainees received their own ICT knowledge from the telecentres.

In addition, Gillwald (2001:18) observes that there is sufficient evidence to support the belief that together with other social and economic projects (e.g. access to micro-capital, training projects, etc.), telecommunication access can facilitate localized economic growth. It could allow people to gain information on market prices, order goods and services, etc. (ibid.). If this potential for increased economic opportunity can be harnessed in targeted small and micro-enterprise initiatives, the lives of women could be positively effected (ibid.). There are a number of successful initiatives in Africa run by nongovernmental organizations (NGOs) fro women to exploit the potential of Internet for information and mobilization (ibid.). Flourishing small, micro and medium-sized enterprises (SMMEs) run by women exploiting e-commerce applications in Malawi and Cameroon are testimony to its potential (ibid.). Successful African telecentres such as those sampled in this study are just some of the examples which have offered small jobs for some few local people who have never gained any other sort of income before working at the telecentres.

A report by the United States of America International Development (USAID 2005:32), on 13 community learning and information centres (CLICs) in underserved Malian communities, concluded that these CLICs were earning income and therefore contributing to the economic development of the communities, and that the percentage of revenues coming from computer training also varies with the structure of revenues from different services across the CLICs. "Gao and Ségou, both reaching 24 per cent of their revenues from training have no photocopies and therefore rely more extensively on other services for their revenues, whereas the other leaders, in particular Kadiolo and Kangaba, rely extensively on photocopies for their revenues" (ibid.). "The value of a telecentre was summarized by a woman who wrote in the log book: information is the key to all doors" (Hudson 2005:7). Beyond anecdotes, telecentres are a source of information for local people and information is power.

Byron and Gagliardi's (1998:2) view is that many are optimistic about the profound changes that have been brought about by the information society and the impact of ICTs on economic and socio-cultural development during the latter half of the 20th century. They add that these changes have contributed to the emergence of a global society, in which the traditional barriers to communication (i.e. time and space), have been surmounted through the creation of simulated virtual worlds. Furthermore, Nulens and van Audenhove (1999:28) argue that the benefits of ICTs are not confined to the West alone, and that several observers believe the widespread use of ICTs in developing countries will improve the economic and social situation of Third World populations as well.

Byron and Gagliardi (1998:2) view the influence of ICTs on development as exhibiting both positive and negative consequences. They state that the new technologies are seen as having the potentialvastly to improve working conditions and the overall quality of life for humankind, making possibly a more leisure-oriented society. On the other hand, others view the implications of ICT for the future of human society with considerable scepticism or pessimism. While they greatly facilitate access to information, they also have the capacity to create an increasingly isolated, artificial existence for individuals becoming ever more dependent on technology rather than direct human contact for the means of communication.

On the other hand, technophobics like Sussman (1999:12) believe that ICT applications and their transformative nature have been greatly exaggerated, and argue that ICTs have many negative effects on society. South African literature suggests that there are more positive benefits derived by South Africans from ICTs than negative. South African universities such as Western Cape, KwaZulu-Natal, Limpopo, North West and the University of South Africa (Unisa), provide education to their learners via ICTs. Tlabela's research (2001) at the Human Sciences Research

Council (HSRC) has proven that ICTs have advanced the education of learners in HBUs (historically black universities), which use wireless internet laboratories (WILs) established by the Department of Communications (DoC). These labs are generally called DoC WILs. Roodt and Conradie (2001) argue that educational satellite television broadcasts have improved learning and created a learning culture at South African schools.

4. THE RESEARCH METHODOLOGY

Triangulation is used to conduct and assess this study, combining a survey questionnaire and personal interviews. Mouton and Marais (1988:91) define triangulation as the "use of multiple methods of data collection" in order to increase the reliability of the observations. The main reason for applying triangulation in this study was to obtain more answers from the respondents in the attempt to answer the research question(s) in a satisfactory manner, and also to increase the reliability of the research results. A descriptive survey was undertaken because it is one of the best methods to measure impact and to picture or document current conditions at the telecentres sampled. Wimmer and Dominick (1997:137) consider that surveys are the perfect instrument to measure impact and/or describe current situations.

Personal interviews were conducted because they allow more deep and sensitive penetration into the subtle world of social and personal meaning. In this study, such interviews were employed to ask the telecentre managers and other users about the developmental history of the telecentres and the role of these centres in the community. The personal interviews were only used to ask certain respondents (people who were using the telecentres during on-site visits to the telecentres) questions in order to clarify any unclear answers of theirs in the questionnaire.

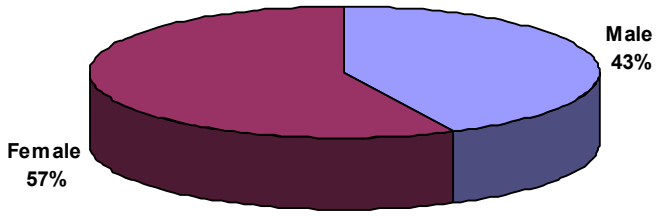
Telecentre managers and ICT trainers were interviewed in their capacity as developers and operators of these centres – they are familiar with how the

telecentres came to be established and the educational courses taught. They are also telecentre users because they use the ICTs there on a daily basis. As noted earlier, the pilot study was conducted at Tembisa telecentre MPCC, located in the telecentre municipal library. Tembisa is situated in the province of Gauteng, about 20 kilometres from Pretoria. Field research was then conducted in four rural and semi-urban or semi-rural areas in three provinces; Hoxani telecentre in rural Limpopo Province, Tombo telecentre in rural Tombo village in the Eastern Cape Province, Siyabonga telecentre in the informal settlement of Orange Farm and Mamelodi Communication and Information Services (MACIS), which was already stated in this chapter as located in the telecentre of Mamelodi just outside Pretoria.

5 THE RESEARCH FINDINGS

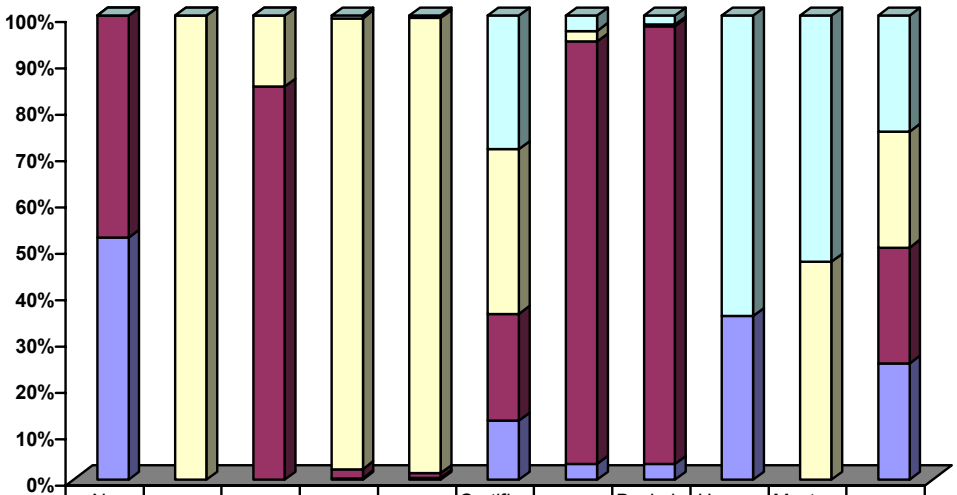
Because there were many of this study's findings, not all but some are summarized in this paper.

Figure 1: The respondents' gender



As can be seen in Figure 1 above, 57 per cent of the respondents were females while 43 per cent were males. The ages of the respondents ranged from 16 to 54. The younger ones were students and the older were high school teachers and other employed people such as security guards, nurses, a secretary, etc.

Figure 2: Cross tabulation of the telecentre users' highest educational qualifications per telecentre



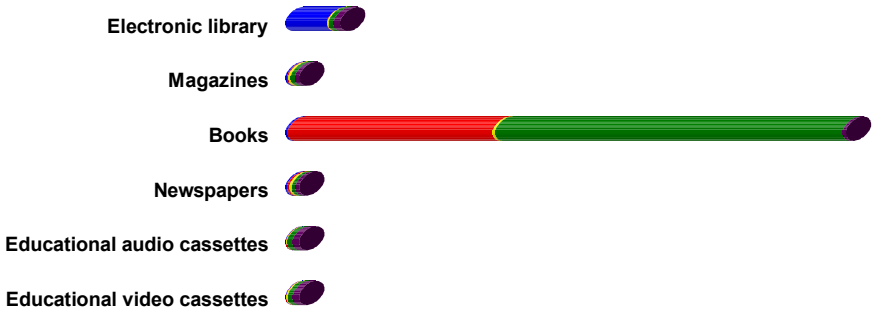
	No education	Grade 8 to 9	Grade10	Grade 11	Grade 12	Certificate course	Diploma course	Bachelor's degree	Honours/Postgrad	Masters/Doctoral	Total
Tombo MPCC	0%	0%	0%	4.40%	17.80%	11.10%	40.00%	17.80%	4.40%	4.40%	100%
MACIS	0%	2.00%	2.00%	7.8	39.2	13.70%	27.50%	3.90%	0%	3.90%	100%
Siyabonga MPCC	2.20%	0%	11.10%	15.60%	42.20%	8.90%	11.1	8.9	0%	0%	100%
Hoxani MPCC	2.40%	0.00%	0.00%	2.40%	14.60%	4.90%	41.50%	31.70%	2.40%	0%	100%

Figure 2 illustrates that at Hoxani MPCC 41. 5 per cent of the respondents had a diploma course and 31.7 per cent had a bachelor's degree. At Siyabonga telecentre most respondents were less educated – with 42.2 per cent of them having just Grade 12. What is apparent in Figure 10 is that the most educated respondents are from the rural telecentres because even at Tombo MPCC most respondents (40 per cent) have diplomas, which is better education than just Grade 12. The education of rural residents could be an indication of their desire to improve their destitute rural life with more education with the intention, perhaps, of migrating to cities in search of better jobs and better living standards. Using the Chi Square test (0, 415), no significant relationship was established between the respondents' educational qualifications and their use of the educational facilities at the telecentres.

5.1 Use of educational facilities by the users and other influence of the telecentres on users' education

Figure 3 illustrates that the users do not have much access to facilities that promote education, except for a few users at Tombo MPCC who made use of a public information terminal (PIT), occasionally, for Internet access, and teachers at Hoxani MPCC who made use of the overhead projector, a video recorder and player, and a television set. Books, newspapers and magazines were also not available at the telecentres (except for a few books and magazines at MACIS and some newspapers at Siyabonga – which – it seems apparent to the writer that these were not supplied on a regular basis). These facilities should be made available at the centres by the managers (and the writer did express this opinion to some of the managers while at the telecentres) to promote a culture of reading at the centres in as much as a computing culture is being promoted.

Figure 3: Telecentre users' access to educational facilities

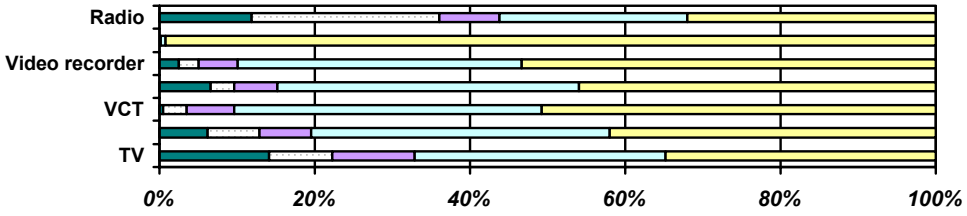


	Educational video cassettes	Educational audio cassettes	Newspapers	Books	Magazines	Electronic library
Not available	47.40%	47.50%	26.40%	22.20%	28.60%	50.00%
Never	35.20%	38.90%	27.40%	25.85	32.70%	34.20%
Seldom	8.20%	5.60%	13.70%	18.20%	17.30%	8.20%
Often	4.10%	4.00%	17.80%	15.25	10.70%	4.60%
Very often	5.10%	4.00%	15%	18.70%	10.70%	3.1

It is apparent in Figure 3 above that the educational technology and/or facilities

identified in the figure are not widely available at the telecentres. The author recommended to the telecentre managers and the Universal Service Agency (USA), that the telecentres should make these facilities available in the telecentres to promote education of the telecentres users. This point was emphasised. Education is the cornerstone of development and ICT should be assist in illiteracy reduction.

Figure 4: The telecentre users' access to television, radio and related equipment



	TV	VCR	VCT	Tape recorder and player	Video recorder	Digital camera	Radio
Not available	34.80%	42.10%	50.80%	46.00%	53.30%	55.4	39.40%
Never	32.30%	38.50%	39.60%	38.90%	36.50%	35.90%	29.80%
Seldom	11%	6.70%	6.10%	5.60%	5.10%	2.60%	9.60%
Often	8.10%	7%	3.00%	3.00%	2.50%	3.10%	29.80%
Very often	14.10%	6.20%	0.50%	6.60%	2.50%	3.10%	14.60%

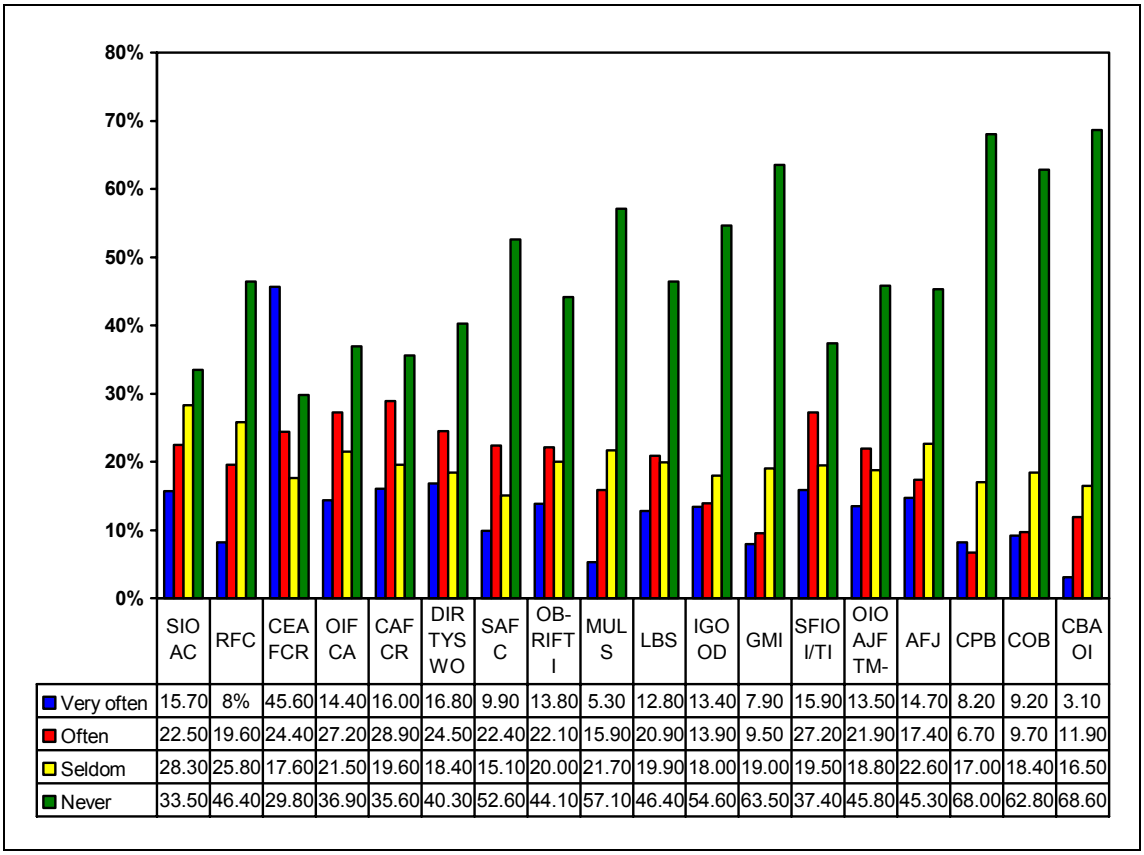
In Figure 4 above VCR means video recorder and VCT means videoconference technology. Most of the telecentres had no television sets. The only telecentre with a television set that was often used was the Hoxani MPCC where the teachers often watched OBE videos and related subjects in another room adjacent to the computer laboratory. MACIS also had a television set which was located in another office that was occupied by the secretary. This television set was not used by the computer trainees who made use of the computer laboratory but was used by the telecentre secretary who types official documents and works at this office with two telecentre volunteers who kept themselves busy at the telecentre learning some computer and office management skills – the two volunteers also informed the present writer that they are learning computer skills which would assist them to gain experience that

most jobs required which was difficult to obtain if one had never held an official position in a place of official employment before.

Although equipment such as television and radio are crucial for imparting education to viewers and listeners of such media, media such as video and television should be made available to telecentres at later stages of development because these media are crucial in basic education projects but can be added as part of the telecentre's educational resources on request. Radio should also be provided in all telecentres because it is a very important educational tool and can be afforded by the rural poor as well as township folk. Most of the telecentres users stated that they owned radio and television at home so they did not need these facilities at the telecentres but wanted computer access and usage.

As far as this question of equipment use was concerned, N = 152, the standard deviation was 21. 78 per cent and the mean was 30.54 per cent. There were 200 respondents in total from four telecentres, two urban and two rural. A pilot study was conducted in one urban telecentres with 20 respondents. The survey was conducted between 2004 and 2005.

Figure 5: Frequency of use of other educational services by the telecentre users



	SIOAC	RFC	CEAFCR	OIFCA	CAFCR	DIRTYSWO	SAFC	OB-RIFTI	MULS	LBS	IGOOD	GMI	SFIOI/TI	OIOAJFTM-	AFJ	CPB	COB	CBAOI
Very often	15.70	8%	45.60	14.40	16.00	16.80	9.90	13.80	5.30	12.80	13.40	7.90	15.90	13.50	14.70	8.20	9.20	3.10
Often	22.50	19.60	24.40	27.20	28.90	24.50	22.40	22.10	15.90	20.90	13.90	9.50	27.20	21.90	17.40	6.70	9.70	11.90
Seldom	28.30	25.80	17.60	21.50	19.60	18.40	15.10	20.00	21.70	19.90	18.00	19.00	19.50	18.80	22.60	17.00	18.40	16.50
Never	33.50	46.40	29.80	36.90	35.60	40.30	52.60	44.10	57.10	46.40	54.60	63.50	37.40	45.80	45.30	68.00	62.80	68.60

[The phrases in Figure 5 were abbreviated because the words could not fit in the blocks of the figure and the abbreviations used mean the following phrases:

SIOAC – Seeking information on available courses; RFC – Registering for courses

CEAFCR – Contacting educators for courses registered for; OIFCA – Obtaining information for doing or completing assignments; CAFCR – Completing assignments for courses registered for; DIRTYSWOS – Discussing issues related to your studies with fellow students; SAFC – Submitting assignments for courses registered for; OB-RIFTI – Obtaining business-related information from the telecentre and/or Internet; MULS – Making use of library services

LBS – Learning business skills; IGOOD – Interacting with government officials and/or departments; GMI – Getting medical information

SFIO/TI – Searching for information on issues or topics interested in

OIOAJFTM-S – Obtaining information on available jobs from the telecentre manager or staff; AFJ – Applying for jobs; CPB – Conducting personal businesses
COB – Contacting other businesses; CBAOI – Contacting banks and other institutions].

Figure 5 demonstrates that the respondents in these four telecentres never use most of the ICT applications mentioned in the figure – perhaps because they have no skills to undertake these computer functions but the researcher cannot be sure of the reasons for this lack of usage of the resources. For example, 63,7 per cent of the respondents stated that they "never" use the ICT at the telecentres to obtain medical information, 7,9 per cent stated that they used the ICT "very often" to obtain medical information while only 9,5 per cent stated that they "often" used the ICT at the centres to obtain medical information.

Similarly, 46, 4 per cent of the respondents stated that they "never" used the telecentre ICT to register for courses while only eight (8) per cent stated that they "very often" used the telecentre ICT to register for courses and only 9, 6 per cent stated that they "often" used the telecentres to register for courses.

Table 1: Other purposes the users use the telecentres for

Uses of the telecentres	***Per cent of users***
Looking for a job	6.2%
Entertainment	2.3%
Internet & faxing and Photocopying	24.0%
Computer training	24.8%
Enhancing knowledge regarding IT	6.2%

E-mailing	4.7%
Finding out more about the telecentre	
Tuck shop	0.8%
Typing of documents	0.8%
Information seeking	11.6%
Selling products to ladies visiting the telecentre	9.3%
Studying art and craft	1.6%
Using the post office	0.8%
Using the telecentre as a venue for local meetings and other gatherings such as workshops	0.8%
Using the telecentre as a venue for OBE training classes and workshops/in-service training	0.8%
Using the telecentre for studying purposes	4.7%
Total	0.8%
	100.0%

Table 1 summarises some gains derived by the telecentre users from the telecentre ICTs, with relevant percentages of the users.

Table 2: Technology (and services) the users would like to have in their respective telecentres

Technology (or service/s)	**Percentages of telecentre users who want this technology or service/s**
Laminator	7.4%

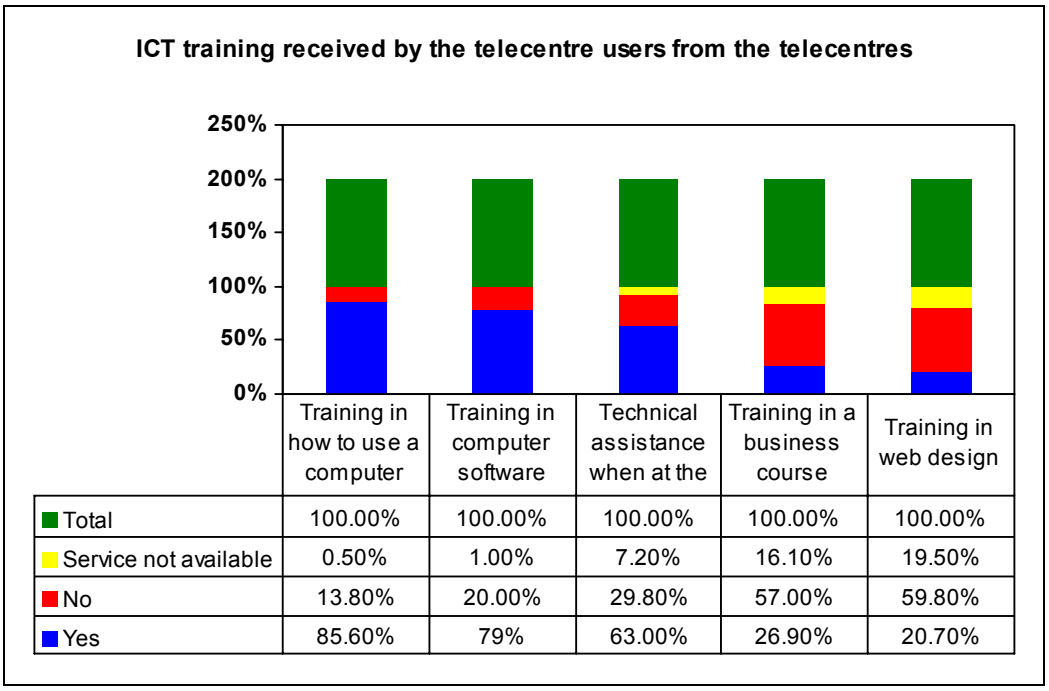
International Computer Driving License and Pastel Accounting courses	9.5%
Voice over the Internet	3.2%
Overhead projector/s	12.6%
Internet café	10.5%
Tuck shop	1.1%
Enough printers and photocopiers	10.6%
Scanner	6.3%
Educational videos	4.2%
Catering services	1.1%
Video games	4.2%
Recharge vouchers for mobile phones	3.2%
Electronic library	3.2%
Web design course	3.2%
Digital camera	3.2%
DVD writer	1.1%
Additional services to the centre to make it multipurpose	1.1%
Automatic teller machine (ATM)	1.1%
Sports facilities	1.1%
Internet	8.4%
E-mail	2.1%
Facsimile	5.3%
Library	4.2%

Total	100.0%

Table 2 illustrates some services – IT and others not necessarily in the IT sector – which were regarded as important by the telecentre users to have in their lives and those that would make their lives better in one way or another.

4.2 Data obtained about the respondents' ICT skills training and on the impact of the telecentres on the users' education

Figure 6: ICT training received by the telecentre users at the telecentres



	Training in how to use a computer	Training in computer software	Technical assistance when at the	Training in a business course	Training in web design
Total	100.00%	100.00%	100.00%	100.00%	100.00%
Service not available	0.50%	1.00%	7.20%	16.10%	19.50%
No	13.80%	20.00%	29.80%	57.00%	59.80%
Yes	85.60%	79%	63.00%	26.90%	20.70%

As illustrated by Figure 6 above, telecentre users rated the telecentres highly in terms of the assistance the telecentres provided to their users, including training received in computer skills and technical assistance offered by the telecentre computer trainers to the computer trainees.

Table 3: Other training different users in all four telecentres would like to receive at the respective telecentres

Training sought by telecentre users	Percentage of users seeking the training
ICDL training and Pastel Accounting	15.3%
Computer technician course or A+ (course for fixing technical computer problems)	7.7%
Computer programming course	10.5%
E-mailing	3.8%
Business skills training	26.7%
Adobe acrobat	1.0%
Bookkeeping skills	1.9%
Call centre skills	1.0%
Internet usage skills	21.0%
Secretarial course	1.9%
Journalism course	1.0%
Human Resources course	1.0%
Website design course	3.8%
Health education and HIV/AIDS course	3.8%
Total	**100%**

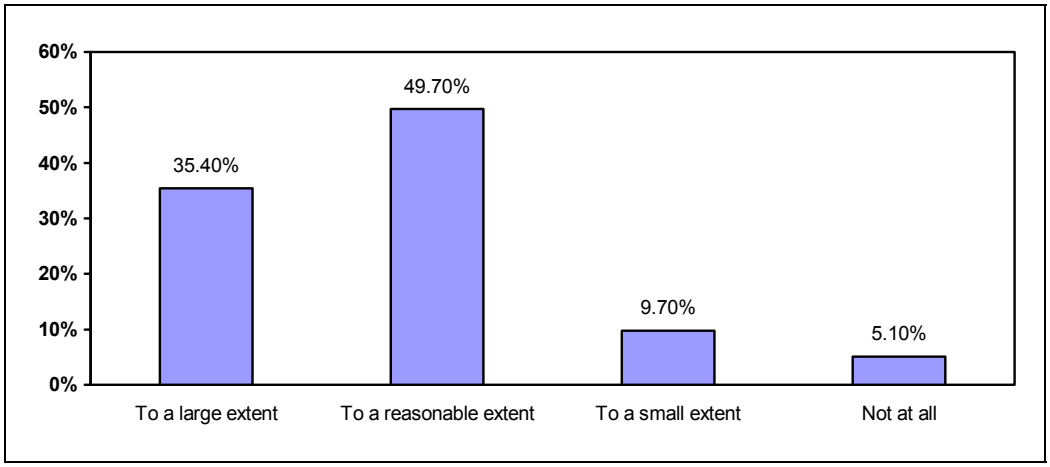
It is apparent in Table 4 that the skills mostly needed by the telecentre users are those stated above.

Table 5: The extent to which the telecentres have improved the users' education (in the four telecentres)

Non-formal education advanced	*Per cent*
Learned a lot about how to use computers	65.9
Learned about e-mailing	2.3
Learned typing skills	14.8
Learned how to do research	1.1
Learned business skills	4.5
Able to write and speak English better	2.3
Learned how to use the Internet	9.1
Total	100.0

Information in Table 5 above provides the various aspects indicating how the users' non-formal education was improved, according to the users. Table 5 illustrates that 65.9 per cent of the respondents gained computer literacy skills, while only five (4.5) per cent received business skills. Three per cent of the respondents learned about "how to send e-mail" and also "how to write and speak English better".

Figure 7: The extent to which the telecentre users' formal education was improved by using the telecentre



From Figure 7, it can be concluded, therefore, that the telecentre users' formal education has been advanced as a result of using the telecentres as stated. Respondents benefited quite considerably from the telecentres as far as finding information (43, 7 stated that they found information they required "to a large extent" and 36.8 per cent of the respondents had their information needs met by the telecentres "to a reasonable extent".

Figure 8: Improved users' formal education

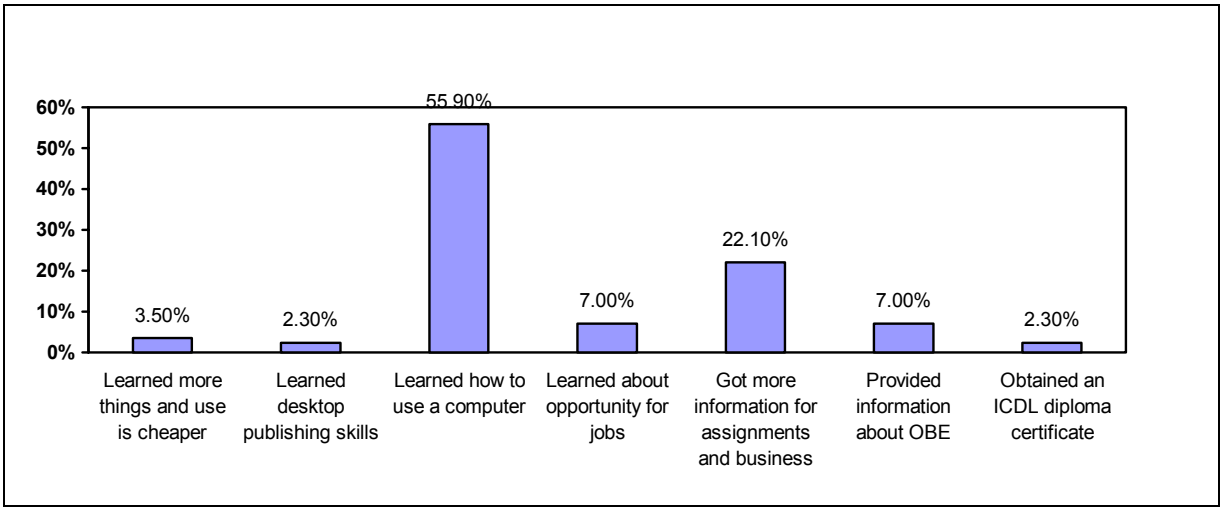
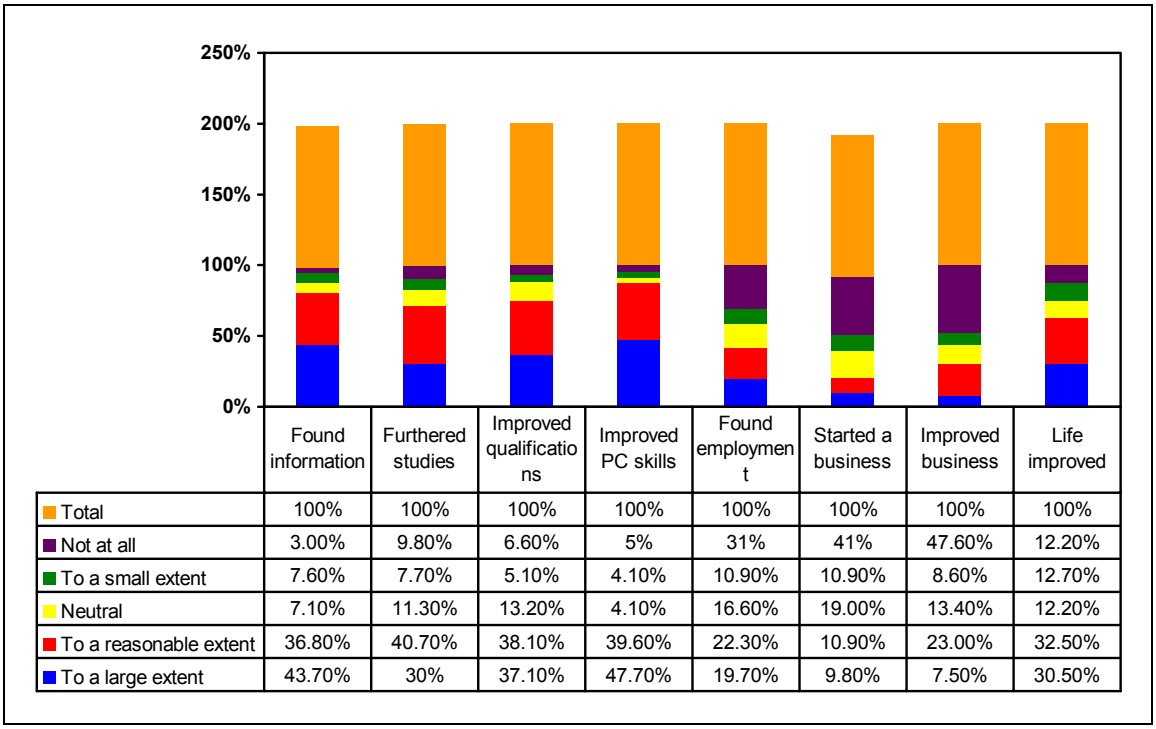


Figure 9: How the telecentres assisted the telecentre users to obtain the information that they needed



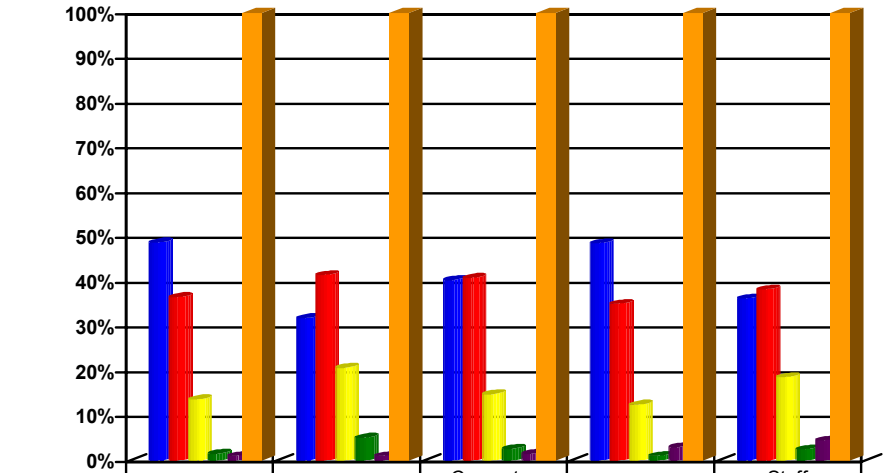
	Found information	Furthered studies	Improved qualifications	Improved PC skills	Found employment	Started a business	Improved business	Life improved
Total	100%	100%	100%	100%	100%	100%	100%	100%
Not at all	3.00%	9.80%	6.60%	5%	31%	41%	47.60%	12.20%
To a small extent	7.60%	7.70%	5.10%	4.10%	10.90%	10.90%	8.60%	12.70%
Neutral	7.10%	11.30%	13.20%	4.10%	16.60%	19.00%	13.40%	12.20%
To a reasonable extent	36.80%	40.70%	38.10%	39.60%	22.30%	10.90%	23.00%	32.50%
To a large extent	43.70%	30%	37.10%	47.70%	19.70%	9.80%	7.50%	30.50%

Table 6: Other ways in which telecentre users were assisted by the telecentres

Benefit to telecentre user	Valid per cent
Learned about things not done at school	0.9%
Learned about how to use a computer	49.5%
Communicate with colleagues and friends through e-mail	11.0%
Learned of opportunities for jobs	8.3%
Learned about saving information	2.8%
Learned about business activities	4.6%
Gained access to computers	4.6%
Learned how to type documents and CV on computer	6.4%
Learned about to use the Internet to find information	0.9%
Improved knowledge during course of studies	2.8%
Learned about how to fax documents	3.7%
Learned how to scan pictures	1.8%
Total	**100%**

Table 6 above reiterates some of the gains for the telecentre users as far as they were concerned.

Figure 10: Rating of aspects of the telecentre services by the telecentre users

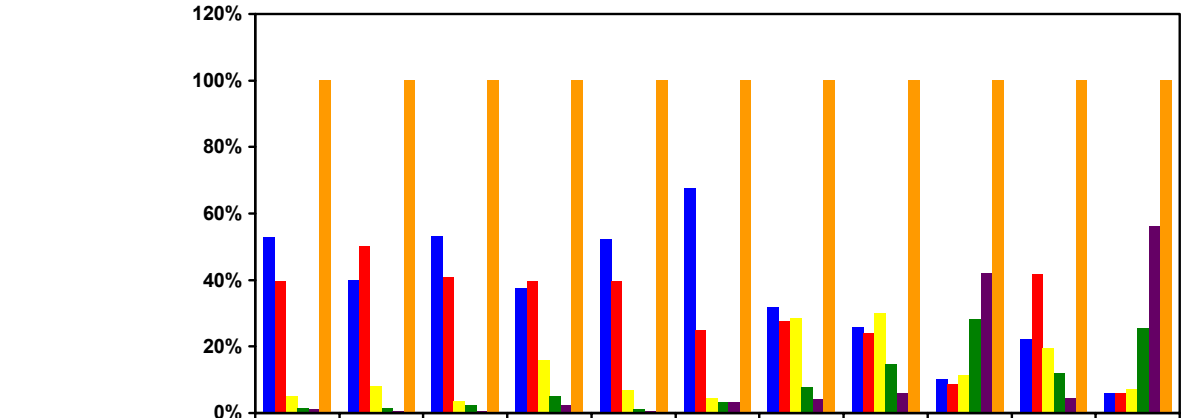


	Services offered	Technical help	Computer training	Staff attitude	Staff competence
Very good	48.70%	32%	40.30%	48.50%	36.20%
Good	36.50%	41.40%	40.80%	35.00%	38.20%
Average	13.70%	20.70%	14.80%	12.50%	18.60%
Poor	1.50%	5.10%	2.60%	1.00%	2.50%
Very poor	1.00%	1.00%	1.50%	3.00%	4.50%
Total	100%	100%	100%	100%	100%

Figure 10 summarises some opinions of the telecentres concerning the services offered by the centre. More than 60 per cent to 80 per cent of the respondents viewed the telecentres positively as far as these variables are concerned. As far this question was concerned the mean was 79. 84 per cent, the standard deviation 27.56 per cent and the population was 170 (N=170).

According to the CI literature, the aspects identified in Figure 8 are crucial determinants of the good or bad service provided by the telecentre as an information centre (IC). For these telecentres, these factors have proven that the telecentre users have scored the telecentres quite highly and positively as meeting their ICT and/or communication needs.

Figure 11: Measurement of telecentre users' views on how the telecentres develop communities



	Offered good service	Enhanced educatio	Promoted PC literacy	Linked community with	Asset to community	We'll miss centre if	Linked community with	Brought wealth to commun	Things changed for	Brought economic	Centre has negative
Strongly agree	52.80%	40%	53.10%	37.40%	52.10%	67.50%	31.80%	25.70%	10.20%	22.20%	5.70%
Agree	39.60%	50.00%	40.70%	39.50%	39.60%	24.70%	27.60%	24.10%	8.60%	41.80%	5.70%
Neither agree or disagree	5.10%	8.20%	3.60%	15.90%	6.80%	4.60%	28.60%	29.80%	11.30%	19.60%	7.30%
Disagree	1.50%	1.50%	2.10%	5.10%	1.00%	3.10%	7.80%	14.70%	28.00%	11.90%	25.40%
Strongly disagree	1.00%	0.50%	0.50%	2%	1%	3%	4.20%	5.80%	41.90%	4.60%	56.00%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

In general, most of the respondents strongly agreed that the telecentres brought positive changes to their communities and improved or developed their communities (e.g., by teaching locals computers skills and improving the teachers' skills in Outcomes-Based Education [OBE] skills training, planning and implementation, etc.).

5 CONCLUSIONS

Telecentres are development projects staffed by at least one to five people, usually referred to as telecentre managers, who are dedicated to the success of the centre. The manager/s should be skilled in matters such as computer literacy, data retrieval, business management and community development. In the Development Support Communication (DSC) literature, such a person is termed a DSC professional

performing a facilitating communicator role; the presence of such a facilitator is vital for development programmes (Agunga 1997; Conradie 1998). In South Africa, these facilitators are generally telecentre managers who are trained by the Universal Service Agency (USA in South Africa) in technical and management skills.

In this study, 53 per cent of the respondents stated that the telecentres offered "good service to the community"; 68 per cent agreed with statement that they "will miss the telecentre if no longer here". Other agreements and disagreements with the statements can be seen in Figure 45. Thirty per cent (29, 8) of the respondents neither agreed nor disagreed with the comment made in the questionnaire that the telecentres had "brought wealth to the community". Thus it can be concluded that although individual educational benefits have been identified. The computer courses taught at MACIS and Siyabonga telecentres are certified by the University of Witwatersrand in Johannesburg. Tombo telecentre is assisted by the University of Fort Hare and the International Computer Driving License Foundation (ICDL-F). Hoxani telecentre is assisted by the provincial Department of Education and a private entertainment company Multichoice.

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