

Digital divide or digital exclusion? the role of libraries in bridging the digital divide

by

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1. Introduction

In this digital information age people who don't have access to the internet and World Wide Web through the application of information and communication technologies (ICTs) are increasingly disadvantaged in their access to information (Cullen, 2003: 247). Number of factors has contributed to the digital divide such as poor education. Developing countries in Africa are the mostly affected by this digital divide. In developed countries government policies are being established to ensure that all people have access to ICTs and are able to use it. Technology is developing rapidly as a result leaving many people behind. This is a situation in Africa whereby many people are still lacking telecommunications infrastructure.

This paper examines the role of libraries in bridging the digital divide. The paper starts by defining the concept "digital divide" then describe factors that contribute to the digital divide. It also discusses the digital divide in South Africa and the initiatives in bridging this divide in South Africa. It then identifies some of the initiatives by the government in bridging the digital divide in South Africa. It concludes by providing the possible solutions in bridging the digital divide.

2. Definitions of digital divide

There are several definitions of the term digital divide as provided in the literature. For the purpose of this paper the following definitions will be used:

According to Salinas (2003: 131) digital divide refers to that disparity between individuals and/or communities who can use electronic information and communication tools, such as the internet, to better the quality of their lives and those who cannot. The term digital divide has also been applied to the gap that exists in most countries between those with ready access to the tools of information and communication technologies, and the knowledge that they provide access to and those without such access or skills (Cullen, 2001: 311)

Deschamps (2001:1) defines digital divide as the growing gap between those parts of the world which have easy access to knowledge, information, ideas and works of information through technology and those who do not.

Based on the above definitions digital divide can be defined as the gap that exist between those who have access to digital technologies, information and communication tools and those who do not.

3. Factors that contribute to the digital divide

There are several factors that contribute to the digital divide. The following are some of the factors which contribute to this divide:

- ❑ **Gender:** It is stated that in some countries and organizations, females have less access to the internet than males. It was found that fewer males (38%) had limited access to the internet than females (41%). This disparity is partly attributed to perception that IT is a technical subject for men, with many females consequently shying away from it (Mutula, 2002: 122; Singh, 2004: 4)
- ❑ **Physical disability:** Visually impaired and blind people are fully able to use a computer due to advances in technology such as Jaws, which is one of many screen readers. Screen readers are voice synthesizers that can read the text on a screen. However the internet is inaccessible to the blind and visually impaired user because the screen reader is unable to read the graphically based web page (Singh, 2004: 5; Cullen, 2001: 314)
- ❑ **Physical access:** The main barriers under this point are lack of telecommunications infrastructure with sufficient reliable bandwidth for internet connections and cost, the ability to purchase, rent without financial hardship and the necessary equipment. This results in lack of access to technology (Hardware and software) (Cullen, 2001:313; Kenny, 2004:5; Salinas, 2003: 132)
- ❑ **Lack of ICT skills and support:** People in many disadvantaged groups are often precluded from making use of ICTs because of low levels of computing and technology skills and also very importantly literacy skills. This is a significant factor in preventing certain people from using the internet technologies (Cullen, 2001: 314; Salinas, 2003: 132)
- ❑ **Attitudinal factors:** This is derived from cultural and behavioural attitudes towards technology e.g. that computers are for “brainy” people, for males, for young, are difficult to use or belong to a middle-class “white” culture. Attitudinal factors can also be culturally based. In many cultures which place high value on oral culture, personal communication and strong family and kinship networks, therefore the use of computers for communication purposes will not be of high priority (Cullen, 2001: 314)
- ❑ **Relevant content:** One of the reasons why some people do not use internet technologies is because the content is not relevant and interesting to them. This may apply to specific groups such as elderly or women but more significantly to cultural or ethnic groups (Cullen, 2001: 314-315; Salinas, 2003: 132)
- ❑ **Age:** According to a study done by Singh (2001) as cited in Singh (2004:5) persons aged 15 to 24 (45%) used the internet daily. Older respondents, especially in the 45 to 54 year old category (27%), used the internet once a month. It is clear that a digital divide exists between age groups because the youth are more exposed to technology and are willing to use it, whereas older people are resistant to change and avoid the use of technology (Singh, 2004: 5)
- ❑ **Racial segregation:** The legacy of some countries' policy such as apartheid as the case in South Africa has contributed a lot to the digital divide. Whereby white people have more access to technologies than

blacks. It is also the case in the United State of America whereby white people have more access to technologies than African American.

4. Digital divide in South Africa

4.1. Factors of the digital divide

The main reason for the digital divide in South Africa is the apartheid legacy that promoted separate development, which provided inferior education and poor or no access to learning opportunities for non-whites (Singh, 2004: 5). Martindale (2002:1) also argues that socio-economic circumstances, imbalanced education policies under the apartheid regime, as well as language barriers are some of the recognised factors for the digital divide. Education is also hard to access in isolated rural areas towards the centre of the country.

The existence of digital divide is also attributed to high levels of poverty. There are still many people who are living at the squatter camps with no telecommunication infrastructure and electricity. The cost of connections is also high. With the population of 42.7 million, there are 5 million fixed lines in South Africa and 7.06 million mobile lines. The dug in telephone lines and ground lines are hard to build which means that cell phones are predominant.

In South Africa there are 11 official languages. It is also has one of the greatest divides between rich and poor in the world and this divide is more evident in the technological area (Martindale, 2002: 1). The rapidly changing world of IT has raced on leaving many South African behind. Internet use is becoming growing more popular. There are 3.07 million internet users in South Africa.

4.2. Initiatives in bridging the digital divide in South Africa

Although the digital divide exists, steps are taken in order to bridge this divide. For an example steps are taken at a macro level to develop technology centres or digital villages in townships and rural villages. (Singh, 2004:5). As mention earlier that in South Africa there are 11 official languages, most of the technology and software programs are in English, which exclude some people from using them. In order to address this the country's ICT board has provided software and various websites that can translate web pages into any of the official languages.

Translate.org.za (www.translate.org.za) has been set up to translate computer software into various languages of South Africa. This is the first project of The Zuza Software Foundation, a nonprofit organisation aiming to promote development and open-source software in Africa. It is also responsible for another project, Linuxlab (www.linuxlab.org.za), which provides disadvantage schools with refurbished computers and free support (Martindale, 2002:1-2)

Bridges.org (www.bridges.org.za) is another initiatives in fighting SA's digital divide. It is an international non-profit organisation dedicated to bridging the digital divide in developing nations. It has expanded its mission in South Africa by opening an office in Cape Town. It works with local groups to ensure that new technology is used by the people it is supposed to help, especially in areas of

education, efficient and open government, and local economic development. Its mission is to: tackle the obstacles to information and communications technology (ICT) use at the grassroots level by helping people understand the technology and its utility and also to work at the policy level to promote laws and policies that fosters technology use.

Another initiatives are by a group of young people who have decided to try to do something about digital divide in South Africa. They regard themselves as Y Day. It is an independent community organisation that aims to help the digital divide by creating an environment where people can be computer literate and learn about the benefits of technology. This group has registered as non-profit organisation (Scott, 2004:1). Their strategy is to first create a web site so as to provide people of SA with relevant news and information; create internet centres with computer literacy training facilities and lastly to distribute newsletters to different areas especially areas where they can't reach. Their aim is to have 0.6 million people trained over 10 years.

When COEGA project was established some people thought that it might close the digital divide. However this notion is yet to be proved. It has been established in the Eastern Cape at Port Elizabeth. The project was expected to create jobs in an area plagued by unemployment (Green & Theobald, 2002:23). The African Academy of Computer Assisted Training, an organisation set up and funded by engineering business to train disadvantaged students in computer-base engineering and mining-related programs has established a facility in nearby Port Elizabeth. The academy was funded by the Japanese government for the amount US\$25 000. The academy was able to purchase new state-of-art computers for its campus in Boksburg. That frees computers for use in Port Elizabeth (Green & Theobald, 2002: 23).

The Amalgamated Banks of South Africa (ABSA) made available free internet access to the public early in 2001. However after one year the service was discontinued because of difficulties in sustaining it. This free service contributed to opening up the internet to thousands of ordinary citizens of South Africa who could not afford the internet service provider rates. Another important development is the plan by Eskom, the South African's national electricity company, to lay fibre optic cables to distribute power supply in the Southern African region. UNINET in South Africa provides internet backbone supporting 500 000 students and staff at 21 universities and 15 technikons, as well as universities in Lesotho, Swaziland and Tanzania It also provides links to 400 schools, which now have connectivity to the internet. Vodacom has also established over more than 1800 phone shops, made up of metal shipping containers with usually 5-10 phone lines that are used for telephone, fax and even internet services. Telkom has roll out an undersea fibre optic cable that run from South Africa to Malaysia. The Malaysia link cable will cover 15 000 km southern-west African submarine cable 13 800 km South Africa far east-Malaysia, through Reunion and Mauritius including India. The cable can accommodate 4.8 million telephone communications and 8000 digital television transmissions (Mutula, 2002: 124-5)

It must be heard in mind that irrespective of the above initiatives, to bridge the digital divide may take decades

5. Role of libraries in bridging the digital divide

Libraries, especially public libraries can play a vital role in bridging the digital divide by providing access to computer and the internet to those who do not have such facilities. The perception that libraries are for the elite in universities should be eradicated. Libraries are for everyone, educated and uneducated, rich and poor. They are equalizers and democratic force in access to computers, the internet, information, learning and training (The Sophist, 2004:10)

Adeogun (2003:14) argues that the emerging role of the librarian as an information professional in the new knowledge dispensation is enhanced by the two main challenges. Firstly, the value of information lies in the ability to access and adapt it to suit new applications and improve the efficiency of existing systems. Libraries are challenged to provide access to relevant information by applying ICTs to facilitate quick, efficient access, integrate and repackage information for end-user that will capacitate higher educational institutions to conduct research.

Secondly, he argues that the new knowledge economy emphasises that knowledge from wherever it is produced can be transferred to where its needed. Librarians should be able to retrieve knowledge from wherever it has been stored to where on the continent can be affectively applied. Libraries must be able to disseminate the end product of research activities wherever it is needed for application. However such task would requires libraries to have sufficient infrastructure.

Librarians need to train their patrons in modern information retrieval strategies, particularly in the use of the Internet, World Wide Web, electronic databases and many more (Adeogun: 2003:15). Libraries need to equip themselves with good online information databases and other electronic resources. This will provide patron with more access to information, communication and technologies in order to bridge this digital divide. They must also have reliable and fast internet connectivity, local and wide area networking.

Adeogun (2003:14) suggest that libraries need to establish effective resource sharing schemes. As a result of present proliferation of information, high costs of information resources, and dwindling library budget, it is difficult for any library to provide all the information needs of its clients. Sharing this available resource will assist in meeting user information needs hence reducing the digital divide. The availability of full internet access and facsimile machine in each library will facilitate online access to the world of information and also the sharing of information resources.

According to Lor (2003:68) the role of national library in bridging the digital divide will depend on factors such as their primary orientation (heritage, infrastructure or comprehensive national service), their resources and their

position and influence in the national system of library and information service. He went further by identifying the following possible roles of national library in relation to the nine dimensions of the digital divide:

- ❑ **Connectivity:** national library tasked with providing a comprehensive national service would need to provide at least technical support (assistance with systems implementation and a help desk) for its public library branches.
- ❑ **Capacity:** national library that are able to access resources such as grant may make useful contribution to research and development (e.g in respect of electronic legal deposit and preservation of born-digital documents)
- ❑ **Content:** national library should make its online public access (OPAC) available on the web, thereby giving bibliographic access to its collection and also to the national bibliography, periodical index and other databases.
- ❑ **Community:** content in digitised form should be in all the country's languages and should be relevant to minorities and disadvantaged groups, including the illiterate and newly literate.
- ❑ **Finance:** national library should play an advocacy role, helping to persuade government to make more funds available to the countries libraries and information services.
- ❑ **Business environment:** national library need to be attuned to the business environment of their countries, be able to provide appropriate services to the private sector.
- ❑ **Legal/regulatory environment:** national library may play advocacy role, coordinating inputs from the country's other libraries and putting forward well motivated proposals for appropriate adjustment to laws and regulations.
- ❑ **Policy framework:** national library may play advocacy role in establishing information policy.
- ❑ **Moral/ethical framework:** it can also play an advocacy role to promote moral or ethical principles.

As mentioned earlier in this paper that libraries, especially public libraries are one of the available access points to the World Wide Web for those who cannot afford online computer access at home. In other countries libraries have an ethical obligation to provide internet access to its patrons, as larger amounts of government and private information are made available online. Libraries need to ensure their policies of information transfer help to continue to provide this to its users.

Libraries are best place to provide public internet access, because they are trusted community institution. They can also offer after school training programs for school aged children to help students without computers at home to build skills learned in school. It is important to teach children how to properly use the internet, so that they are able to think for themselves, can perform online search and also determine what content is suitable for use out there in the vast information superhighway. Not only children, but also it is essential to teach adults how to properly use e-mail and surf the internet using web browsers.

It must be borne in mind that main users of library internet sources are those without home access, with lower income, sometimes educations and employment. They are the ones mostly affected by the digital divide.

6. Government initiatives in bridging the digital divide in South Africa

In 2002, President Thabo Mbeki observed that a critical and pervasive element in economic development in the current age is the optimum utilization of information and communication technology. A few days later, the Premier of Gauteng Mbhazima Shilowa, committed his provincial government to information and communication technologies (ICTs) in the pursuit of economic development. He pointed out that building a smart economy and bridging the digital divide is among the government core priorities (Petje at al, 2002: 317). Moreover the government has formed a Digital Divide Task Force to assist in bridging the digital divide. Mark Shuttleworth and internet figure Esther Dyson are on President Mbeki's International ICT Task Force, a group formed to contribute common sense, perspective and a broad knowledge of technology and its role in the world to the presidents' deliberations. The government has also put in place an advisory body, the International Advisory Council, to eradicate the digital divide between the rich and poor. In October 2001, President Thabo Mbeki convened a consultative meeting of leading international IT companies (IMB, CISCO, Hewlett Packard, Alcatel, etc) and the private sector at Lake Pleasant to deliberate on possible ways of reducing the digital divide (Meyer, 2001 as cited in Mutula, 2002: 128)

Shilowa allocated R500 million from the provincial budget over a three-year period for the Gauteng Online Programme which began in the 2001-02 financial year (Petje et al, 2002:317).

Gauteng Online

It is funded through the premier's office and hosted in the Department of Education through which its points of presence became each of the publicity funded schools in the province, the programme's focus is primarily on education and training of youth. Its objectives are as identifies by Petje et al (2002:317) are as follows:

- ❑ The roll-out of ICT laboratories to approximately 2500 schools;
- ❑ The installation of an average of 25 networked computers per school;
- ❑ Internet connectivity with e-mail and website capabilities to some 1.5 million school-goers and 63 000 teachers and administrators;
- ❑ Integrated portal networks to foster inter-operability;
- ❑ Integration of the existing GDE systems and processes;
- ❑ Mass computer literacy training to 63 000 teachers and administrators and 1.5 million school-goers;
- ❑ Online-based curriculum development and computer studies

Gauteng Online is intended as collaboration between government and industry to achieve the following goals:

- ❑ Minimum industry standards for networks, hardware and software, for the purpose of the roll out;
- ❑ Standard-setting by the industry;
- ❑ Convergence of ICT and education by following the world's best practice.

The government of South Africa also announced their full backing to the national roll out of the digital partnership South Africa as a strategy to deliver affordable access to technology, training and the internet for learning, enterprise and development. It is believed that there will be a new partnership model for NEPAD and other countries faced with the digital divide.

The South African government, in partnership with the postal services, has initiated the installation of computers in post offices across the country to help the poor and the illiterate to access government services. This initiative was launched in 1998 and has multimedia capability, allowing communities to access the internet, e-mail services and government information through desktop kiosks. The computers which are installed at the kiosks have an easy-to-use touch screen interface, speakers, microphones and webcam. (Ngobeni, 2001 as cited in Mutula, 2002:124).

Government services has moved closer to South African in remote or disadvantaged communities with the introduction of multipurpose community centres, one stop shops which offer a range of government products and services under one roof, and simply the processing of applications for passports, identity documents, pensions and other social grants. Multi-purpose community centres have mushroomed in every province. By the end of 2003 there were 54 mpcc centres including seven satellite sites established. The government aims to establish 60 centres across the country, with at least one per district/metropolitan municipality by 2005. In this centres, communities also receive training skills, such as how to use information and communication technologies like the internet. Some of mpccs offer banking services.

7. Possible solutions to bridging the digital divide

Cullen (2003; 252) argues that there are no quick or easy solutions to the problem of the digital divide, either within nations. However if we are to bridge this digital divide something has to be done. The following are some of the possible solutions:

- ❑ The government should create legislation to provide funds to subsidize computer purchases and internet access for necessary households and at the same time private companies should also provide more services to areas currently lacking access to provide it to all individuals.
- ❑ There should be more government public internet kiosks available in public places, where the general public can use these terminals on a fee-per-use basis
- ❑ People should be trained on how to properly use these communication and information technologies tool. There must also be training of the trainers (Those who are doing training e.g librarians, teachers) so they can teach others

about these new technologies. Training should not only be done at formal places but can also be done at mall, shopping centres etc.

- ❑ Encourage the use of computers at school level. In order to make the younger generation equipped with necessary internet tools, computer and information technology. Training must also be incorporated into the school curriculum, so the learners can be made comfortable with new technology.
- ❑ Develop a culture of e-research and learning so as to encourage people to use ICTs for research purposes.
- ❑ Develop more software that can translate the content of information into language preferred by the user.
- ❑ Cell phone providers should manufacture more wireless phone (commonly known as cell phones) which have facilities for accessing the internet. They should also provide internet services on a cheaper rate
- ❑ Government should increase the number of multipurpose community centre that bring digital opportunity to rural communities where there is normally lack of such resources

8. Conclusion

South Africa like other countries is affected by the digital divide. This is due to factors as discussed in this paper. However number of initiatives to bridge this divide is underway. It is imperative to bear in mind that this effort of bridging the digital divide might take decade. Because South Africa is alive with possibilities, this divide will someday be bridged. The government need to triple its effort in providing support and resources in order to bridge the digital divide. Libraries can make a huge impact on bridging the digital divide because they are institution of knowledge. They must provide access to information and communication technologies (ICTs). By providing this services they will be opening the door to global knowledge hence bridging the digital divide.

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